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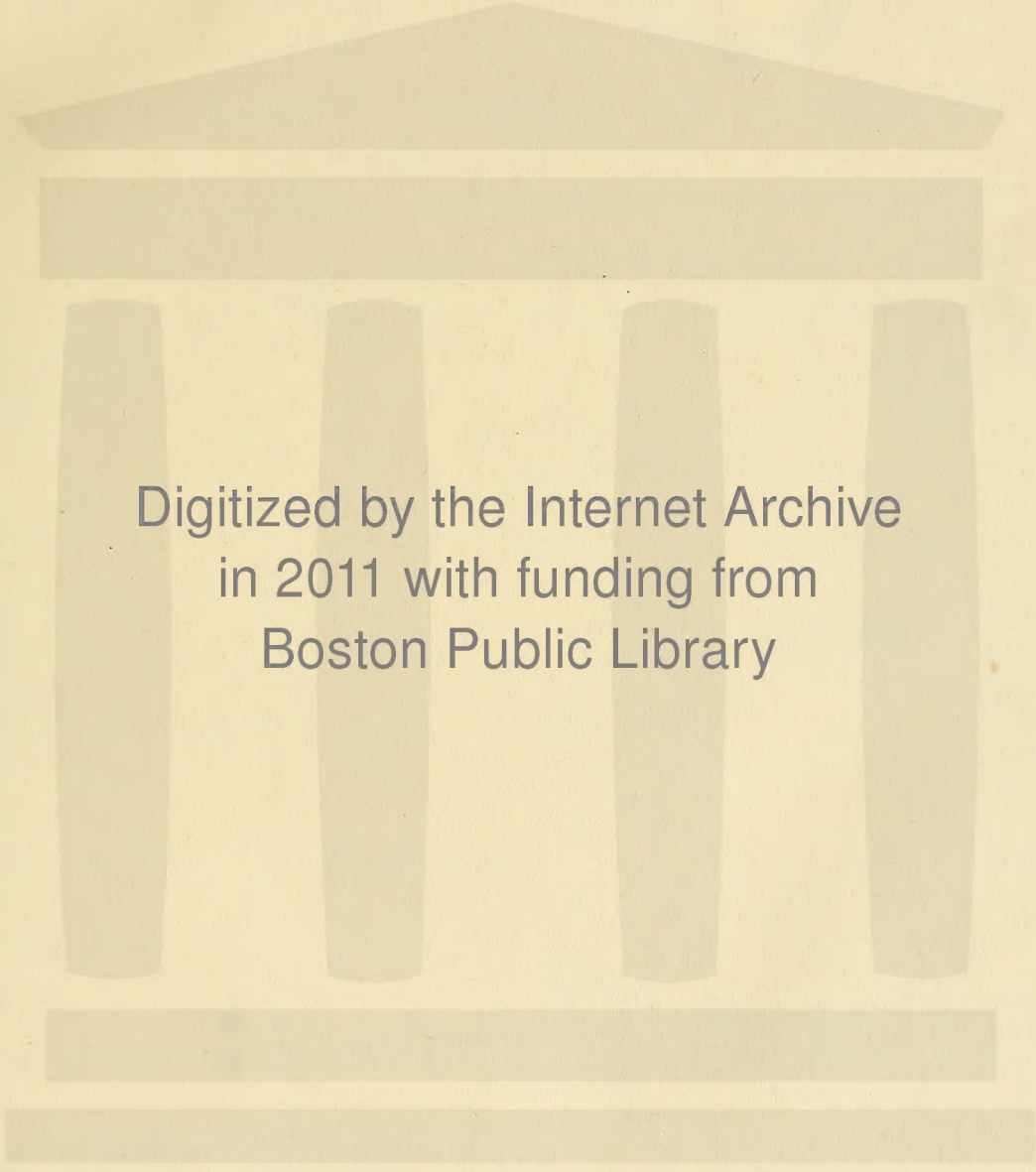
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SEASONABLE ARTICLES.

1D

THE MOTOR CYCLE

Largest Circulation — *Founded 1903.*

MOTOR BICYCLES – SIDECARS – CYCLE CARS

No. 581. Vol. II. Thursday, December 25th, 1913. Price 1d.

Published Weekly.

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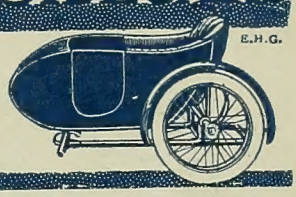

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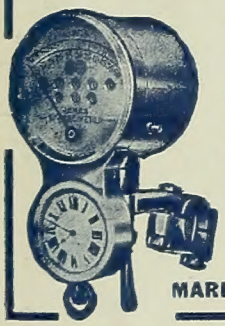

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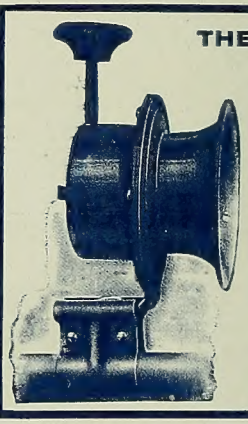

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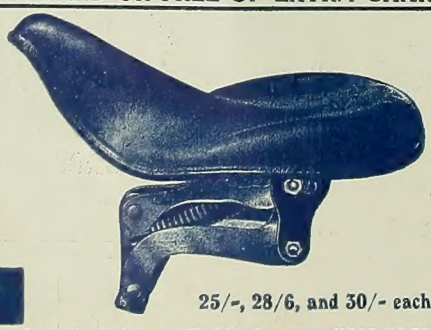

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4012-363
July-Dec 1913

JULY 3RD, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

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FIVE HUNDRED AND THIRTY-SIXTH CONSECUTIVE ISSUE.

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Innovations of the Six Days' Trial.

ELSEWHERE in this issue we reproduce a summary of the Auto Cycle Union Six Days' Trial regulations. This year it will be noticed that the trial will be in the nature of a prolonged test, and not a series of daily trials. This is quite an innovation, and we think quite a desirable one, which has been brought about by reducing the amount of time spent on the machines to a minimum. Now the idea of this is not to prove how little attention the modern motor cycle requires, but to encourage development, to render motor cycles mudproof and weatherproof, to improve the lubrication and, incidentally, to ensure that the lubricant given is retained for a reasonable period, and to encourage manufacturers to design machines which can stand long distances under arduous conditions without an excessive amount of tinkering, but most emphatically not to lead the general public to believe that their machines will run day after day without being properly looked after. Every intelligent user of a machine must know that, like all other machinery, a motor cycle needs care, but what the A.C.U. desires to do is to reduce that amount of care required to the lowest point. Other innovations embodied are—(1) a flexibility test, (2) a speed test, and (3) that during the trial notice will be taken of the appearance of the machine and rider. Now in the case of No. 1, as we pointed out in a recent leaderette, the flexibility of engines is a point which has been so far somewhat neglected by manufacturers. Here is a chance for the makers of automatic carburetters to demonstrate that these accessories may give sufficient flexibility to satisfy the judges, enough power to enable the machines to surmount the test hills, and a reasonable degree of economy. (2.) The speed tests, which, it is assumed, will be held at the conclusion of the trial, will show how the machines have stood up during their four days' hard work. Excessive speeds have not been demanded, but it will rightly be expected that reasonable speeds will be attained. (3.) This is a most important item, and manufacturers of clean engines may depend on their riders having a chance of keeping themselves in a similarly spotless condition. Not the least interesting feature of the trial will be its international aspect, as this year's competition is the one chosen by the newly-formed Fédération Internationale des Clubs Motocyclistes to revive international competitions between the various motor cycle bodies which form the Federation. It is earnestly hoped that the countries represented in the Federation will send their teams. Canada and America are anxious to compete, and it remains for France, Belgium, Holland, Germany, Italy, Austria, Denmark, and other nations on whose roads motor cycling is possible, to send their representatives.

New Features of the Trial.

AS regards the rules, we note with pleasure that spare wheels may be carried, and that riders must not include in their personal apparel any article of clothing or adornment which might be considered a self or trade advertisement, which will exclude those grotesque headgears which have rendered certain competitors ridiculous and brought discredit on the A.C.U. on previous occasions. Another new feature, and also an excellent one, is that spares must be declared and packed in separate toolbags which will be sealed, and that "legitimate" spares, such as tyres, repair outfits, belts, fasteners, chain link parts and plugs, do not come under this category. It will be noted that gear ratios must be declared on the entry forms. The schedule time will be calculated at 20 m.p.h., but extra time will be allowed when the exigencies of the road demand it. Motor bicycles will be allowed eight minutes' grace late or early, and passenger machines ten minutes at any point on the route, while to enforce the set limit being adhered to, the undesirable but unavoidable secret check will be instituted. Other innovations to which we may call attention are to the effect that on certain days the route is to be covered "non-stop"; that those who have withdrawn may not drive over the route with or near any competitor, and a violation of this regulation renders the offender liable to suspension or the competitor he accompanies liable to disqualification. As regards the classes, an innovation is that for monocars designed to carry one person, while it will be noticed that the system of marking according to classes is excellent, and that the single-seated vehicles referred to above are expected to earn the same percentage of marks to gain a gold medal as motor cycles in Division 1. The trial will not be a long one but different from those of previous years—it will consist of five hard days, and the sixth devoted to a thorough and careful examination of the machines. It may be recollected that last year we suggested a speed test in connection with these trials on the sixth day, and recommended Brooklands, as it would prove so convenient for the examiners.

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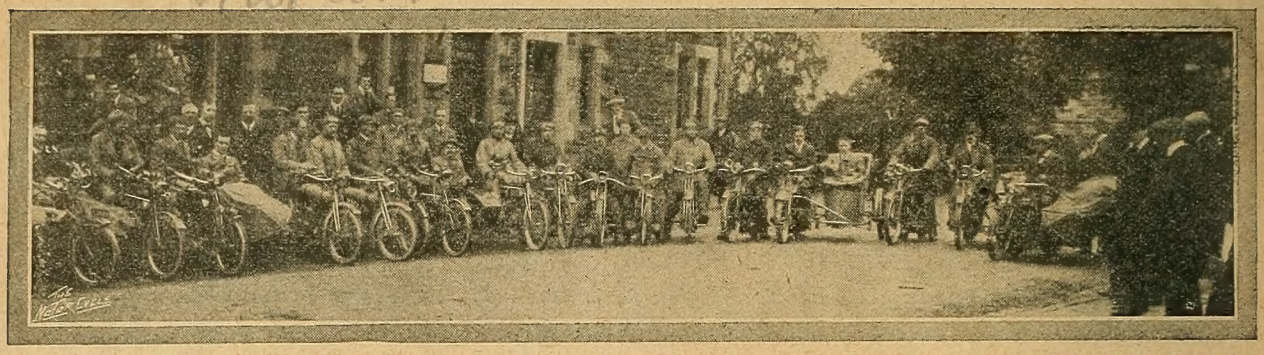


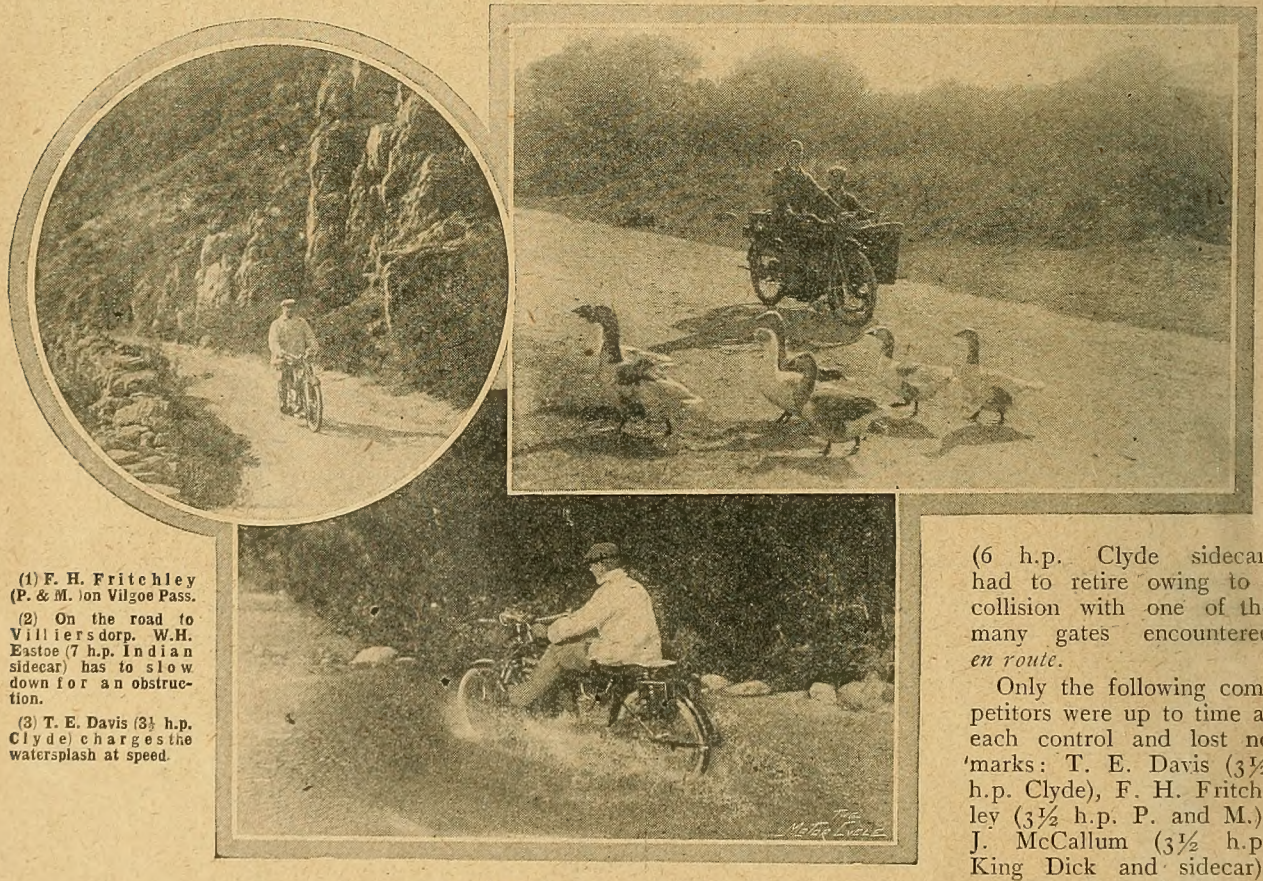
Group of motor cyclists at Callander after their arrival for the Scottish inter club meeting which was marred by bad weather.

A Two Day Reliability Trial at the Cape.

A OUT and home trial of 150 miles, with an overnight stay at Villiersdorp—a typical country village in the Western Province—took place at the end of May. T. E. Davis (3½ h.p. Clyde), after passing Belville, collided with a trap, and found himself pinned underneath his machine; W. Trefz, on a similar machine, who was close behind him, also fell. They were, however, able to continue their journey. F. H. Fritchley (3½ h.p. P. and M.) made a particularly good ascent of Sir Lowry Pass, as did J. McCallum (3½ h.p. King Dick sidecar) and W. H. Eastoe (7 h.p. Indian sidecar).

The River Zonder End—four miles from Villiersdorp—had to be forded, and, as the water was high, J. Kirkup (3½ h.p. B.S.A. and sidecar) had his magneto fouled midstream. Mrs. Kirkup, who occupied the sidecar, in despair climbed on her seat and shouted for help! But as no help came along the rider had to take off his boots, roll up his trousers, and work his way across. Kirkup lost fifty minutes before reaching Sir Lowry Pass, while W. J. Thompson (6 h.p. Clyde sidecar) had to retire owing to a collision with one of the many gates encountered *en route*.

Only the following competitors were up to time at each control and lost no marks: T. E. Davis (3½ h.p. Clyde), F. H. Fritchley (3½ h.p. P. and M.), J. McCallum (3½ h.p. King Dick and sidecar), and W. Trefz (3½ h.p. Clyde).



(1) F. H. Fritchley (P. & M.) on Vilgoe Pass.

(2) On the road to Villiersdorp. W.H. Eastoe (7 h.p. Indian sidecar) has to slow down for an obstruction.

(3) T. E. Davis (3½ h.p. Clyde) charges the watersplash at speed.

TWO-DAY RELIABILITY TRIAL AT THE CAPE.

OCCASIONAL COMMENTS

BY "IXION"

My Quest for a Waterproof Glove.

I can now add the names of two more waterproof gloves to that of the stiff, heavy, Asbestol hide, which stood by itself in my first note on the subject. One of these has a waterproof back, and is made by John Glover Nicol, Ltd., Worcester. This glove has a soft leather front and a backing composed of a stiff waterproof hide. It serves its purpose well, and its only weakness is that the two grades of skin do not combine specially well together, the heavier grade showing a tendency to part from the lighter grade at the seams in very prolonged wear; of course, the front of the palm and fingers are liable to get wet during repairs by the roadside in the rain.

The other glove is covered on the back with a waterproof fur, known in the trade as "hair-seal," and is costly—21s. per pair—but it is probably the nearest approach to a really comfortable rainproof glove on the market.

Tyre Holes under Patches.

I was talking last week to one of those economical stalwarts who retain the same machine for several years, and run their tyres to destruction. He astonished me considerably by finding fault with the super-excellent patches and solutions which have come into vogue of recent years, and enable a motor cyclist to effect repairs by the roadside which are almost as satisfactory as vulcanisation; in fact, he implored me to warn men who, like himself, keep a machine for several years, from using these first-class tyre repair kits.

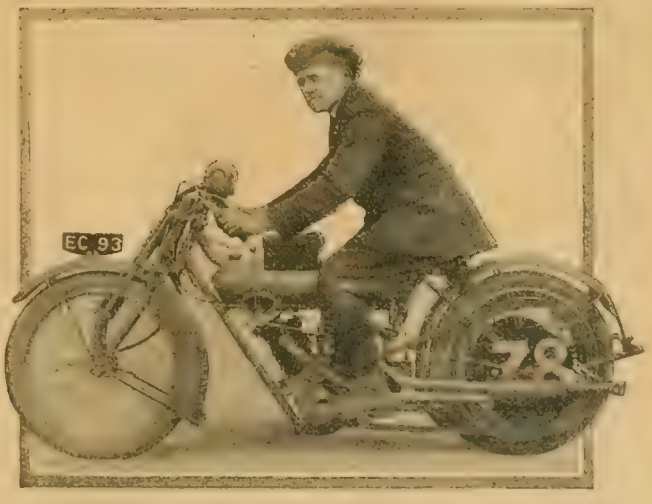
His experience is that the original puncture splits and stretches and extends under the tightly fixed patch until it reaches the edge of the patch, when a fresh egress of air takes place. The original patch is so closely incorporated with the tube that its removal is next to impossible, and it is very difficult to affix one patch on the top of another so as to obtain an air-tight joint.

I ventilate this surprising criticism without prejudice. I do not keep my machines long enough to possess the exact kind of experience requisite for a sound opinion, and my work precludes my using tyres I cannot trust. I can go with him in voicing the extreme difficulty of removing a modern patch. Lifting an edge with petrol, and gradually pulling off the patch by squirting petrol into a gap opened between it and the tube, usually results in a ripped tube—so much is certain. But I do not see why the original hole should split and stretch under the patch, if the patch is properly applied. I can understand its doing so if only the outer portions of the patch are united with the tube, but I have often made such repairs, and later on cut the tube clean through the patch to discover that tube and patch were practically coagulated into one solid mass of rubber.

I am strongly inclined to suggest that my friend does not affix his patches over their whole area, but perhaps a few readers who habitually run tubes to destruction will send their experiences to the Editor?

American v. English Machines.

One of our readers endorses my comment on the dominant position of British machines, but counters with a request for a frank admission that British machines are hopelessly out of date in point of specification. He is evidently an enthusiast for the red Indian, for he demands to know why none of the leading British machines possess 28in. × 3in. tyres, mechanical oiling, rear sprung frames, etc., etc. The answer is quite simple. The Hendee Co. produce a very expensive machine, and hold strong and peculiar views on the question of the ideal specification. The average British maker produces a cheaper machine and holds quite different views on the subject of an ideal specification. Popular as the Indian is, it makes no pretence to oust our leading machines from their present and increasing popularity, which shows that many British users are content with hand oiling, 2¼in. tyres, and rigid rear frames. There is plenty of room for all the existing types. My regular readers are aware that I completely agree with the Hendee Co. in believing that every first-class machine should be rear sprung and mechanically lubricated, but I personally do not consider large tyres an advance; I would rather have a strong 2¼in. tyre than a 3in. any day. In fact, I should imagine that the 3in. tyres of the Indian must be ascribed rather to the extreme badness of the American roads, for which the machine was primarily designed, than to any genuine advantage on such roads as ours.



R. Bowniss on one of the new T.T. model semi-dropped-frame Matchless machines which allow an extremely low saddle position. The new control lever for the Armstrong three-speed gear is plainly shown.

Occasional Comments.

Noisy Exhausts and their Cause.

I confess to being rather thick-headed. A series of long trials has brought me a dawning comprehension of the real reason why some motor cycles are so noisy. The bark of a semi-silenced exhaust is necessary to drown a smother of minor mechanical noises arising from faults in design. These noises would be intolerable to the rider if they were allowed to be separately audible. I made my tardy discovery by fitting a first-class silencer to one of the worst offenders. I converted its exhaust into comparative silence, and found there was no perceptible back pressure; but, *per contra*, my offended ears were saluted by a perpetual mutter of minor clackings from the timing gear and valve rockers, and a kind of hoarse grinding from the change-speed gear box. The clear bark of the exhaust was infinitely preferable to the other noises, and I think I shall remove the efficient silencer, unless I can trace the real cause of the valve and gear noises and eliminate them first.

Belt Drive for Speedometers.

Some weeks ago I commented on the new American model of the Stewart speedometer, which has a belt drive from the front hub to a small pulley mounted on a special bracket bolted or brazed to the front fork, and a similar belt from the counter-shaft to the speedometer itself.

The belts are made of coiled steel piano wire, and they run on steel and fibre pulleys. It is claimed that the abolition of gearing reduces noise, that the friction of a flexible shaft running within a sheathing is abolished, and that the drive automatically adjusts itself to every vibration and road inequality. A test would be necessary to convince me that the change is an improvement, but I admit that the existing speedometer transmissions entail more friction, sustain more wear, and create more noise; yet I should think that the encased shaft drive is the more accurate.

The Trumpet Valve.

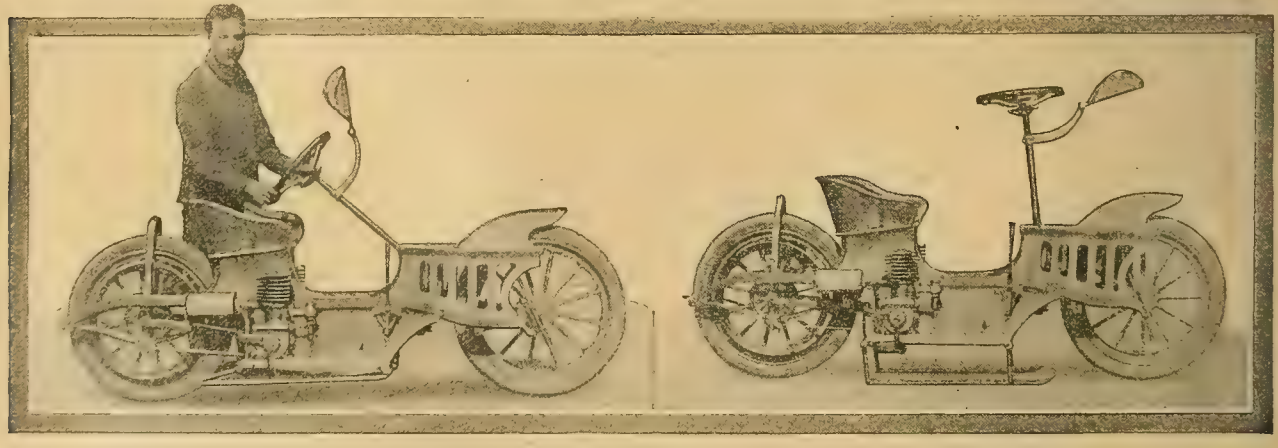
I must leave "L.M.M.J." to reprint any portions of his letter referring to the size and material of his "trumpet" design for an overhead valve, for his letters have long since gone into the w.p.b. I hope I have not misrepresented him, but am unable to judge unless he produces his copy of the letter in question. On the main question as to the merits of the design we must evidently agree to differ, and it is a point in my favour that the firms who experimented with a less extreme form of the principle appear to have abandoned it. It would be interesting to hear what firms, if any, are persisting with it? "L.M.M.J." and Mr. Walford, who approves the valve, are both engineers of high standing, and a mere layman naturally feels some diffidence in contesting a point with them; but my dislike of the valve would be converted into deep interest if the head were not open. Manufacturing difficulties would obviously have to be reckoned with, especially in view of its small size as applied to motor cycle engines; but, omitting for the moment manufacturing considerations, a valve of this type possesses all the possibilities of "L.M.M.J.'s" original design, and is strong just where the original valve is weak. However, if the design has been found wanting in a modified form, there is little use in protracting a discussion about it.

A CAR CYCLE.

A SOMEWHAT unusual type of two-wheeler combining a number of ingenious devices is that built by a resident of Los Angeles and illustrated on this page.

The machine has a steel frame, sprung fore and aft. Wheel steering is employed, to the pillar of which is fitted a detachable wind screen. A clever device for balancing the vehicle when not in use is fixed underneath the footboards. This consists of two skids, one on either side, which, as soon as the driver takes his seat and starts off, are gradually raised by pressure on the steering wheel.

The motive power is by two 4 h.p. two-stroke single-cylinder engines (bore and stroke 3in. × 3in.), from which the power is transmitted to the rear wheel through a multiple disc clutch and two-speed gear. We understand that another seat or luggage carrier may be fitted over the rear wheel if desired.



A NOVEL AMERICAN MOTOR CYCLE—ALMOST A CAR ON TWO WHEELS.

THE A.C.U. Six Days' Trials.

AUGUST 18th to 23rd.

SUMMARY OF PRELIMINARY REGULATIONS.

Main Innovations: Flexibility and Speed Tests.

A Five Days' Prolonged Trial of 700 Miles. "Non-stop" Days. Spare Parts to be Sealed.

THE basic idea underlying the conditions of this trial is that it shall be a prolonged test and a demonstration of reliability and efficiency, and not, as has been the case annually since 1903, a series of daily tests. That is to say, if it were not impossible on account of the physical limitations of the drivers and the fact that the trial could not be run altogether in daylight, the proposal would be to cover the whole distance of the trial without any voluntary stops.

General Conditions.

The trial proper will occupy five days, the sixth day being devoted to a technical examination of the competing machines. Certain of the five days will be "non-stop." That is to say, stops will not be permitted except at the official controls. On these days a short period of time will be allowed in the morning during which competitors may lubricate or adjust their machines, but on other days no such time will be allowed, and if in certain cases such preparation is unavoidable the time so occupied will count against the competitor. Any spare parts considered necessary must be carried throughout the trial, and arrangements will be made whereby, if use is made of such parts, the fact will be recorded and will count against the competitor.

Flexibility and speed tests will be held during the course of the trial.

Component parts will not be specially tested this year as was the case last year with tyres and belts, but careful examination will be made at the end of the trial of the competing machines, and notice will be taken during the trial of the appearance both of machine and rider.

Lady competitors will be barred. Manufacturers will be limited to three entries each.

The District.

The country selected for these trials is comprised within a radius of 100 miles of Carlisle, and embraces what is undoubtedly the most beautiful and the most hilly district to be found in England. In selecting the routes care will be taken to provide as varied conditions as possible, but hill-roads having an abnormal surface, or where the road is not of reasonable width or is dangerous, will not be included. The routes will start from and return to Carlisle each day, but the daily mileage will be somewhat less than in previous years, and the total mileage will probably not exceed 700 miles. On one afternoon the competing machines will be required to cover a certain distance on a private road, at speeds in excess of 20 miles per hour, different speeds being set for each class of machine. The actual routes will be published during the first week in August.

International Touring Trial.

The Fédération Internationale des Clubs Motocyclists, having decided to promote annually a competition amongst the various countries composing the Federation, have chosen this trial as the first of the series.

The members of the teams entered for the International Trial will be subject to all the regulations that govern individual competitors. The number of teams that may be entered by each country is limited to one, and such team shall consist of three competitors, each of whom must be a subject of the country represented. Each team shall comprise one passenger machine (either a motor bicycle not exceeding 1,000 c.c., with sidecar, or a three-wheeled cycle car not exceeding 1,000 c.c., or a four-wheeled cycle car not exceeding 1,100 c.c.); and either two 500 c.c. motor cycles, or one 500 c.c. motor cycle and one 350 c.c. motor cycle.

The entrants of the winning team in the International Touring Trial will be entitled to hold for one year, under terms of an agreement, the International Trophy presented by the Cycle and Motor Cycle Manufacturers and Traders Union, Ltd. This trophy consists of a handsome silver cup, value 200 guineas.

Entries.

Entries will be received by the Union at 89, Pall Mall, London, S.W., up to mid-day Wednesday, August 6th.

SCHEDULE OF ENTRY FEES.

Entries from manufacturers and riders in their employ	£6 6s. each entry
Entries from agents and riders in their employ	£4 4s. each entry
Other entrants	£3 3s. each entry
For a nomination of a team in the International Touring Trial, open only to the representative clubs of countries in the F.I.C.M.	£5

DECLARATION TO BE SIGNED BY ALL ENTRANTS AT THE £3 3s. SCALE.

"I hereby declare that I am not now, and shall not be at the date of the proposed trial, either (*a*) a manufacturer of, agent for, or dealer in motor cycles, (*b*) in the employ or pay of any such person or company as described in (*a*) and defined in preliminary regulation No. 3."

Classification and Equipment.

A motor bicycle is defined as a vehicle comprising a frame, two wheels, and suitable engine. Motor vehicles with more than two wheels and weighing without body work less than 300 kg. (660 lbs.), or in the case of those vehicles the body of which is not separable from the chassis, less than 350 kg. (771 lbs.) complete, are included within the term motor cycle.

All motor cycles taking part in these trials must conform to, and will be classified under, the following divisions and classes:

DIVISION 1.—Motor bicycles.

Class.	Cylinder capacity not exceeding	Minimum weight without oil or fuel.	Minimum diameter of tyre (cover and inner tube separate and detachable).	Nearest English equivalent.
A	250 c.c.	40 kg. (88 lbs.)	45 mm. (1¾in.)	
B	350 ,,	50 ,, (110 lbs.)	50 ,, (2in.)	
C	500 ,,	60 ,, (132 lbs.)	55 ,, (2¼in.)	
D	750 ,,	70 ,, (154 lbs.)	60 ,, (2⅜in.)	
E	1,000 ,,	80 ,, (176 lbs.)	65 ,, (2 9/16in.)	

DIVISION 2.—Motor cycles with three wheels (motor bicycles and sidecars and three-wheeled cycle cars).

F	350 c.c.	80 kg. (176 lbs.)	50 mm. (2in.)	
G	500 ,,	100 ,, (220 lbs.)	55 ,, (2¼in.)	
H	750 ,,	110 ,, (242 lbs.)	60 ,, (2⅜in.)	
I	1,000 ,,	120 ,, (264 lbs.)	65 ,, (2 9/16in.)	

Nearest English equivalent.

All vehicles in Division 2 must be fitted with a clutch.

DIVISION 3.—Motor cycles with four wheels (four-wheeled cycle cars).

J	750 c.c.	150 kg. (330 lbs.)	50 mm. (2in.)
K	1,100 ,,	175 ,, (385 lbs.)	60 ,, (2⅜in.)

SPECIAL CLASS.—Single-seated motor cycles with three or four wheels.

1. 1,000 c.c. Three-wheel single-seated cycle cars.
2. 1,100 c.c. Four-wheel single-seated cycle cars.

All vehicles in Division 3 must be fitted with a variable speed gear.

The A.C.U. Six Days' Trial.—

All vehicles in the Special Class must be fitted with a variable speed gear.

All vehicles in Divisions 2 and 3 must be built to carry two passengers, and both seats must be occupied throughout the trial. The minimum weight of each driver or passenger in these vehicles is fixed at 60 kg. (132 lbs.). This weight may, if necessary, be made up with ballast.

All vehicles must be equipped as follows: Two independent brakes, a set of tools and receptacle therefor, mudguards projecting at least 10 mm. ($\frac{7}{16}$in.) on each side of the tyres and covering at least 120 degrees of the circumference of the wheels, one or more petrol tanks with a minimum capacity of 5 litres (8.8 pts.) one or more oil tanks with a minimum capacity of 1 litre (1.76 pts.) and a complete set of lamps.

In addition to the above, motor bicycles must be fitted with a stand and luggage carrier, the latter having an available surface of at least 600 square centimetres (93 sq. in.).

Spare parts must be packed in a separate receptacle, and the contents thereof declared in writing on forms that will be supplied for the purpose. These receptacles will be sealed.

All competing machines will be weighed, and the frames, engines, and gear boxes will be sealed

The diameter of the driving wheels and the gear ratios of every motor cycle shall be stated on the entry form, and will be published. Should the ratios be indefinite, as in the case of motor cycles fitted with adjustable pulleys, the highest and lowest ratios obtainable shall be stated.

Number plates, facing forward and vertical, must be fixed to the front of the machine, on a special bracket to be provided by the entrant to enable the number plate to be set in such a position as to be clear of all front obstructions. The plates, which will measure 7½in. × 6in. deep, will also be supplied to each competitor, and competitors will be held responsible for the numbers being properly fixed at all times. Motor bicycles or cycles entered for the International Touring Trial must be equipped as follows:

(a) Front number plate (in accordance with the above).

(b) Coloured disc displaying the colours allotted to the respective competitors (in accordance with the rules of the F.I.C.M.).

Organisation and Control.

In the flexibility and speed tests the maximum number of marks will be one hundred.

On those days on which the route is to be covered "non-stop," stops will be permissible in certain sections and controls only. A stop at any other point on these days will involve a loss of four marks.

A maximum of ten marks may be lost on account of the defective condition of any competing machine as may be decided by the Judges during the final examination

The order of starting on the first day shall be decided by ballot, and on subsequent days the order shall be varied so that the average position of each competitor at the start of each day's run shall be so far as possibly the same.

No cleaning, repairing, or adjustment may be effected in controls. Replenishments of petrol, oil and water may be made only at the official starting depot or during the luncheon interval.

Motor cycles must be driven under their own power only throughout the trial. All pedalling or running alongside is prohibited, as is kicking on the ground for the purpose of propulsion. Passengers must remain seated in a normal manner throughout the trial.

Awards.

A certificate will be awarded to the entrant and a gold medal to the driver of all those motor cycles which gain a total number of marks as follows:

Division 1.—Ninety per cent. of the total marks and over.

Division 2.—Eighty-five per cent. ditto.

Division 3.—Eighty per cent. ditto.

Special Class.—Ninety per cent. ditto.

A certificate will be awarded to the entrant and a silver medal to the drivers of all those motor cycles which gain a total number of marks as follows:

Division 1.—Seventy-five per cent. and not more than eighty-nine per cent. of total marks.

Division 2.—Seventy per cent. and not more than eighty-nine per cent. ditto.

Division 3.—Sixty-five per cent. and not more than seventy-nine per cent. ditto.

Special Class.—Seventy-five per cent. and not more than eighty-nine per cent. ditto.

A bronze medal will be awarded to each driver who does not obtain any other award but who completes the trial each day within one and a half hours of the schedule time with his machine in good condition, and who has otherwise fulfilled all the conditions of the trial.

THE THIRD INTERNATIONAL ROAD CONGRESS.

The Third International Road Congress opened in London last week. The A.C.U. representatives are Mr. A. Sharp, A.M.I.M.E., and Mr. F. Straight.

The following resolutions proposed by Prof. Adshead, of Liverpool University, are of interest to motor cyclists:

New main roads should pass outside rather than through towns.

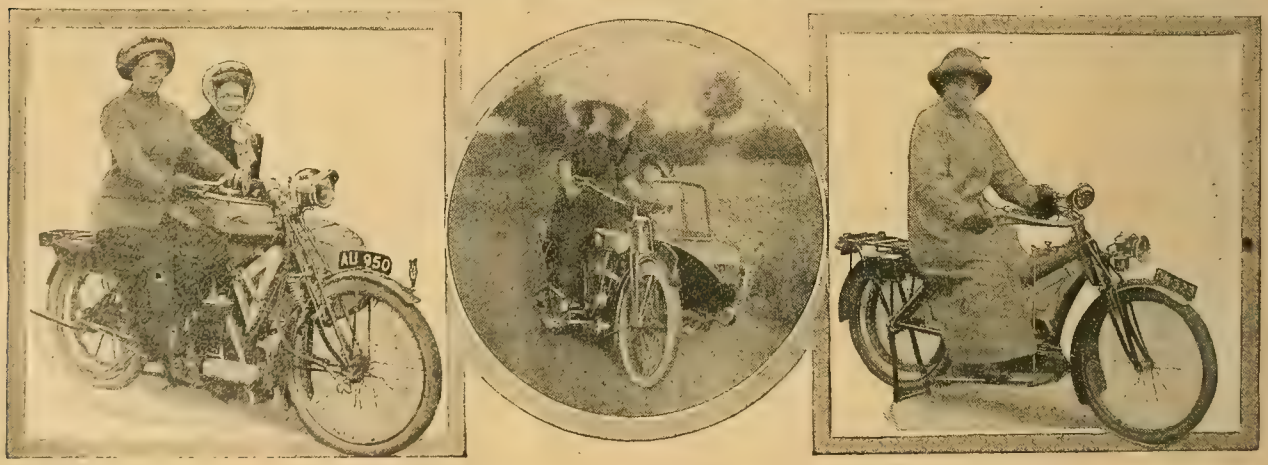
Gradients should be limited to 1 in 20.

An unobstructed view of 100 yards should be provided in the case of curves.

Main traffic roads to be so designed that fast and slow traffic can proceed without intermixing.

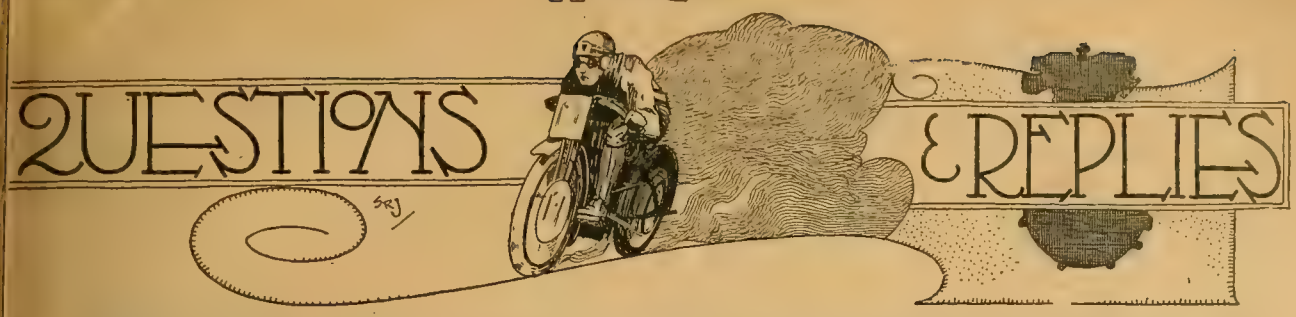
Some initiative should rest with a central State authority which could supervise local authorities.

Mr. John Brodie, chief engineer of Liverpool, suggested that where houses were not built the roads should be of not less than 120ft. in width.



MORE LADIES WHO MOTOR CYCLE.

(1) Mrs. Wilson and her 3½ h.p. Brough sidecar. The passenger is Mrs. W. E. Brough of Nottingham. (2) Miss Kornig of Johannesburg and her 750 c.c. Rudge sidecar which she handles with ease. (3) Miss Ella Wright (Douglas), a cross-country rider in all weathers between Ingham, near Bury St. Edmunds, and Appleton, a distance of fourteen miles.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Running on Paraffin.

When running a modern motor cycle on paraffin, is it necessary to lower the compression?—W.J.W.

It is not necessary to lower the compression, but it is necessary to use a device which will enable the engine to be started on petrol. After the engine is warm, it can be run with paraffin.

Birmingham to Kilmarnock.

I should be glad if you could advise me regarding the best route to take from Birmingham to Kilmarnock (N.B.) Our mounts are free engine Triumphs.—Two Sparks.

The route would be as follows: Birmingham, Sutton Coldfield, Lichfield, Rugeley, Weston, Stone, Pipe Gate, Nantwich, Tarporley, Warrington, then by the road signposted by the R.A.C. *via* Rainhill, Prescot, Rainford, Ormskirk, Rufford, to Preston, Kendal, Penrith, Carlisle; then go through Dumfries, Thornhill, Sanquhar, Cumnock, to Kilmarnock.

Valve Setting.

I shall be greatly obliged by your answers to the following questions: (1.) What setting of the valves gives the highest speed? (2.) What is a fast timing for the magneto? (3.) If a lighter piston is fitted temporarily, is it necessary to drill the flywheels to preserve the balance of the engine? My machine is a Triumph.—B.H.H.

(1.) There is no hard and fast rule for valve setting; practically every maker's setting is different. With your particular engine, the inlet should be set to open when the piston is about $\frac{3}{16}$in. down on the suction stroke. The exhaust should be set to commence to open from three-fifths to $\frac{7}{8}$ths from the end of the firing stroke, and should be dead on its seat at the completion of the exhaust stroke. (2.) We do not think you will improve on the following setting for the magneto. With contact maker fully retarded and piston on dead centre of firing and compression stroke, the contact points should be just about to separate. (3.) To obtain the very best results if a lighter piston be fitted, some slight alteration would be necessary in the balancing of the flywheels to preserve the balance of the engine. If you only want to make an experiment, it would not be advisable to interfere with the flywheels, but to try the lighter piston alone.

Calculating Gear Ratios.

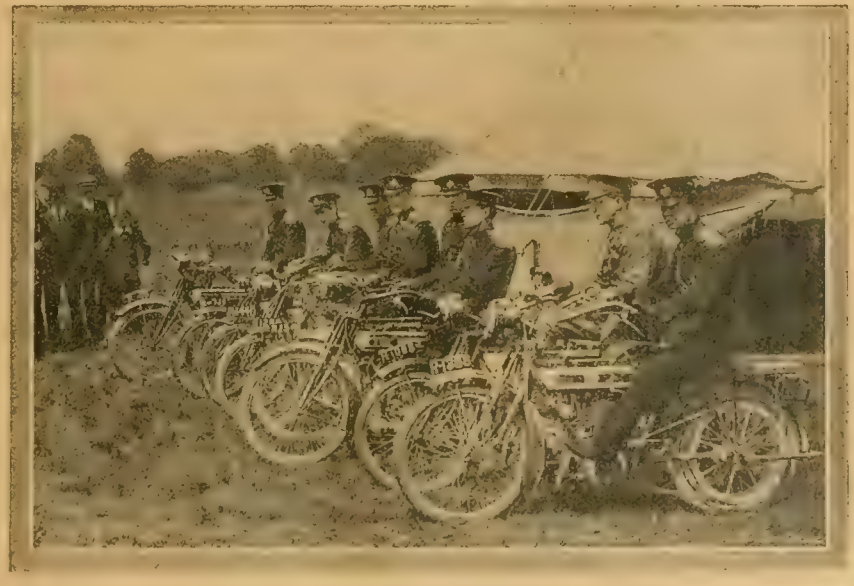
Would you kindly answer the following questions: (1.) Do you recommend fitting a steel piston to an old $2\frac{3}{4}$ h.p. engine; is it likely to give any trouble in any way? (2.) Is there any advantage in fitting an oil well for the piston to dip in every time it descends in the cylinder? (3.) I propose fitting a chain drive to my machine. How can I calculate the gear ratio, so as to order the different sprockets with the right number of teeth to get a certain gear? The drive is from the engine-shaft to the clutch, then from the counter-shaft sprocket to the rear wheel. (4.) I have been advised to have the engine bushed with Stone's bearings, the same as used on railway locomotives. Is this the best phosphor bronze obtainable; do you recommend it?—A.B.

(1.) Provided the work is properly done and the steel piston made by a reliable firm, it will not give any trouble, and may increase the speed of the engine owing to its lighter weight. (2.) The oil well is certainly an advantage, and should not be cut away if already fitted to the engine. (3.) The following rule will give you the gear ratio. Multiply the number of teeth on the driven sprockets; also multiply the number of teeth on the driving sprockets, and divide the smaller figure into the larger, which will give you the ratio. For instance, with 8 teeth on the engine sprocket and 8 on the counter-shaft = 64; 16 on counter-shaft and 16 on rear hub = 256. Gear ratio, 4 to 1. (4.) We have no practical experience of the bearing metal mentioned in your letter, but phosphor bronze suitable for bushing bearings of motor cycle engines can be obtained from various firms.

Portsmouth to Harrogate.

Will you kindly tell me the best route from Portsmouth to Harrogate (without touching London)? As I wish to take two days, which is the best place to stop the night?—G.L.C.

Your best route would be as follows: Portsmouth, by ferry to Gosport, Fareham, then through Winchester, Newbury, East Ilsley, Oxford, Brackley, Towcester, Northampton, Kettering, Stamford, Grantham, Newark, Tuxford, Retford, Doncaster, Ferrybridge, Aberford, Wetherby, Spofforth, Harrogate. You might stop the night at Towcester.



A group of members of the motor cycle section of the Derbyshire Imperial Yeomanry, in camp at Hardwicke, Derbyshire.

Cubic Capacity Formula.

Would you kindly let me know how to calculate the cubic capacity of an engine?—W.C.H.

The formula for cubic capacity is $D^2 \times S \times .7854$. The dimensions must be in centimetres, not millimetres. You can obtain from *The Motor Cycle* a table giving the cubical capacity of engines up to 90 × 100 mm., price 3d.

A Noisy Engine.

I have an 8 h.p. two-speed sidecar. My trouble is this: The engine pulls well, but makes a terrific noise even when pedalled to start. I have taken it down and find that the connecting rods have been running against the flywheels, and that the gudgeon pin bushes have a lot of side play, and the valve rockers have been touching one another and the inside of timing case. Also, the rockers have some ridges worn on the working faces. The main bushes and timing bushes are all right, except that there is some side play in main shaft. I can move the shaft and flywheels, etc., about $\frac{3}{32}$in. from side to side, and this clatters when running down hill with throttle closed. Should I washer it up? Also, inside the cylinders, at bottom of stroke, there is a slight ridge formed. Would this account for the noise; and shall I scrape this? Compression is good. Also, there is a slight ridge at the top of the stroke; does this matter, as I do not think it bad enough for new pistons to be fitted, since engine pulls well? I have sent flywheels, rods, and pistons to be rebushed; although gudgeon bushes were not bad, there was a lot of rocking play in big end bush. The front cylinder is inclined to overheat, so I am cutting away the front baffle plates from the crank case, so that more oil can work into the cylinder. I use Price's Motorine, with a Best and Lloyd lubricator sight feed. I can hardly describe the noise. It is generally noisy and almost so loud as to enable me to dispense with a horn. Altogether it seems to have a shaky, loose noise, as if every part was loose; but the bushes are all right in timing case, and the cam gears do not mesh too tightly.—R.E.B.

Certainly it matters if the connecting rods are rubbing up against the flywheels, and you should take the machine to the makers and have it put right without delay. Side play in the gudgeon pins does not matter at all. It does not seem right, however, that the valve rockers should touch one another and the sides of the crank case, or that there should be any ridges worn on them. Side play does not matter at all; it is vertical play that you have to look for. If the ridges at top and bottom of the cylinders are bad, the cylinders should be ground out and new pistons fitted. These ridges frequently cause engine knocks which are not easily accounted for. It would have been better if you had sent the whole engine back to the makers, as they would then have seen that it was assembled correctly. You are certainly wise to cut away the front baffle plates a little from the crank case so as to let more oil work into the cylinder.

Petrol Level at the Jet.

Would you kindly advise me as to the correct level of petrol in the Amac carburetter (five-hole sprayer pattern)? My machine, a 6 h.p. twin-cylinder, would check every few yards when running at slow speed. After trying everything else, I looked at the level of the petrol in the jet, and found it overflowed freely, as set by the makers. I lowered the float as far as it can safely go, but without stopping the overflow, and find there is loss of power. The books all say that the petrol should not overflow at the jet. Does this make of carburetter require a special setting?—A.A.G.

In the Amac carburetter, it is correct for the petrol to overflow the main jet, but not the five spraying holes. The Amac Co. supplies a special test jet with every carburetter for testing the level. Probably the cause of the checking to which you refer is an air leak in the induction pipe, or perhaps you are giving too much air at slow speed.

Horse-power and Hill-climbing.

There is a question I should like to ask you with regard to the power of motor cycles. Take a hill, say, one mile in length, with a total rise of 100 feet. Now take a lightweight motor cycle, 2½ h.p., weighing, say, 150 lbs., and its rider at, say, 150 lbs., making a total of 300 lbs. Now take this cycle and its rider up this hill at 30 m.p.h. and see what horse-power is required to do the job. $\frac{300 \times 100}{33{,}000 \times 2} = .454$ h.p., say, ½ h.p. Allow, say, another 100% for wind resistance, transmission losses, etc., which brings the total h.p. required up to 1 h.p. What becomes of the other 1½ h.p.? Have I missed an important factor in my calculations?—G.E.

The hill in your example is a very slight one, being only about 1 in 53. Your figures are quite correct as far as hill-climbing is concerned. If you refer to our issue for March 27th, you will find the air resistance given for 30 m.p.h. at 13½ lbs.; this consumes another 1.08 h.p. Road resistance at 60 lbs. per ton (which it would be on a good dry road) accounts for another .64 h.p., giving 2.17 h.p. in all. So the engine should be working well within itself, and unless running at its critical speed should be capable of some further acceleration.

Speed Limit for Military Motor Cyclists.

I am a military motor cyclist, and was on duty recently when I was accosted by a constable, who said that I was exceeding the limit. I pointed out to him that there was no limit when in uniform, but he denied it. He then said that he could have me up for driving to the danger of the public. I again pointed out that I was on duty, and passed on. Now, I shall be very much obliged if you can give me the definite ruling on this point, as of course I do not want any unpleasant circumstances to arise when on duty.—H.V.T.

There is just a possibility that when your case comes up before the magistrate, he will let you off on the plea of extenuating circumstances, especially if your commanding officer had ordered you to travel as quickly as possible between one town and another. The mere fact that you were in uniform does not absolve you from keeping within the speed limit.

EXPERIENCES WANTED.

"H.R.S." (Stroud).—Lincoln-Elk two-speed; efficiency and reliability with and without sidecar.

"W.L." (Edinburgh).—Bowden two-speed gear fitted to 4 h.p. single-cylinder machine for sidecar and solo work; wear of mechanism, etc.

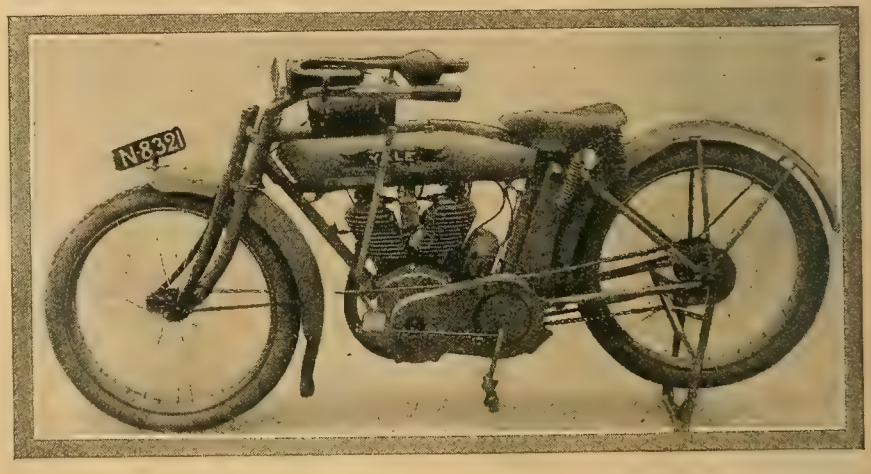
"E.R.P." (Manchester). — Mabon variable gear and free engine; ease of manipulation, reliability, and wear.

"Puzzled" (Forest Hill).—A.J.S. 6 h.p. and sidecar, also 5-6 h.p. F.N. and sidecar; reliability, hill-climbing, and consumption.

"W.S.W." (Enfield).—2¾ h.p. 1911 Forward; hill-climbing, steadiness on grease, traffic riding, and reliability.

"H.S." (Kidderminster).—A.B.C. twin engine; reliability, hill-climbing, and speed.

"H.P.M." (Ballymena). — Shippey's decarboniser for air-cooled engines.



The 8 h.p. twin-cylinder Yale—an American mount owned by W. E. Ayres of Manchester. We are told by the owner that the machine is most comfortable, especially at high speeds. Senspray carburetter, chain drive, and 28in. × 3in. tyres are fittings worthy of notice.

Slowing Down the Senior Tourist Trophy.

By B. H. DAVIES.

THERE is a considerable divergency of opinion as to whether steps should be taken to reduce the speeds in the 1914 Senior T.T. The idea was mooted before the competitors and officials left the Isle of Man after this year's race, and it has since received considerable attention in the sporting papers. There is a vague but widespread impression that the race is becoming too dangerous, and that restrictions are desirable in the interests of safety.

Proposed Restrictions.

The various suggestions made include the following:

1. The elimination of the less skilful riders by making the race an "invitation" event. (This would have little effect on the actual race, but would reduce the number of casualties during the preliminary practising.)

2. The reduction of the present cylinder capacity limit of 500 c.c. to some smaller figure. (This would certainly be a blunder, as the 500 c.c. engine is the most popular type at present, and it should be the function of the premier speed competition to develop the dominant types of engine.)

3. The insistence upon all competitors covering a certified number of laps in the preliminary practice, the number of laps to depend upon their past experience. (This would probably have a very limited effect upon the safety of the actual race. I have seldom heard of one rider steering to the danger of another during the race itself. Nor would it eliminate the usual crop of minor smashes, due to riders who are fresh to the course travelling too fast on their initial practice laps. But it would be of some service, in that it would ensure all riders acquiring a fair acquaintance with the course.)

4. A fresh course. (A shorter course is impracticable with large entries, and the men themselves prefer the variety of a long course to the hypnotic monotony of a short course. If the course is long, it will be safer in proportion as it is familiar.)

5. Safeguarding the present course. (The institution of slow speed controls is obviously impracticable. Dangerous points would be safer if the warnings consisted of broad coloured streaks of tar or paint across the road. When a competitor is crouching and watching a rival ahead, he may miss the overhead banner. It has been suggested that riders should be encouraged to use speedometers, and to note in practice the precise speeds at which dangerous corners are negotiable. It is a well-known fact that few men can judge speed when they are slowing down from racing gait; 25 m.p.h. feels like 5 m.p.h. when you have just been doing 60 m.p.h.)

6. The reinstitution of a fixed petrol allowance, calculated to prevent 500 c.c. engines being run at their full efficiency. (This is certainly the only practicable method of securing a slower race for 500 c.c. engines.)

I am personally inclined to question whether any reasonable revision of the regulations can appreciably increase the factor of safety. As a matter of fact, the speed of this race is not increasing to any perceptible degree. Applebee's five laps in 1912 occupied four minutes less time than Wood's first five laps of 1913; and Applebee averaged 48.69 m.p.h. over five laps, as against Wood's 48.28 m.p.h. over seven laps. The winner's speed in the Junior event was a good 4 m.p.h. faster this year than last, a gain which is largely explained by the better road and weather conditions. Figures seem to show that the limits of speed fixed by the roads and by the engine dimensions have already been reached in the Senior event.

Speed and Safety.

If the Senior event is more dangerous than it was in 1912, the increased danger arises from the tendency of the various machines to be levelled up, largely ascribable to the work done at Brooklands; to the fiercer competition due to the large entry obtained when the trade support the race; and to the increased liability to tyre troubles resulting from an extension of the distance. Not one of these conceivable danger factors will be perceptibly affected by petrol restrictions. Indeed, the time margins between the leading men after the opening laps are likely to be even smaller if the supply of fuel is limited, for it is much easier to procure petrol economy than to coax an extra 300 effective revolutions out of an engine. If the danger has increased, the chief factors are surely as follows:

(1.) Closer racing.
(2.) A larger entry.
(3.) Increased tyre strains.

I cannot see that petrol restrictions will affect these points at all materially.

THE FIRST CYCLE CAR FOR NEWFOUNDLAND.
An 8 h.p. Humberette which is to be used in St. John's by the Rev. G. R. Godden who anticipates it will be of great service to him in his duties, as well as for shooting and fishing expeditions.

Slowing Down the Senior Tourist Trophy.—

The close racing cannot be avoided, nor would any sportsman wish to see it avoided. The large entry might be reduced by making the race an invitation affair; this system would place the responsible officials in a very invidious position. Who is to decide whether any given individual is a qualified T.T. jockey? The T.T. is not on all fours with Brooklands, and some of the best track men are outclassed on the Manx course, while others, who have shone in the island, dislike Brooklands. Moreover, on any system of discriminating between entrants, both Bateman and Surridge, the only two men whose deaths were incurred through the T.T., would certainly have been admitted because they were crack Brooklands jockeys. Raising the entry fees is the simplest method of reducing the number of starters; an alternative method would be to forbid any maker to be represented in the race by more than three or four machines, and to allow him to decide whether any amateurs, and if so, which amateurs, should ride for him.

Tyres—A Suggestion.

The increased tyre strains, to which the one fatality of 1913 and several of the minor accidents were directly due, will be much easier to deal with. We cannot ensure that the tyres employed shall be burst-proof, but we can make regulations as to tyre sizes and weights. If we compel entrants to use a really strong and heavy casing in conjunction with security bolts as suggested by *The Motor Cycle*, it will be to their own interest to fit the best. Alternatively, it would not be difficult to compel all riders who survive the first day's racing to fit new tubes and covers for the concluding laps. If the two days' racing are separated by a twenty-four hours' interval in 1914, we could trust Mr. Loughborough to organise matters so that the tyre fitters could change the tyres without anything else on the machines being touched.

The end and conclusion of the whole matter is that motor cycle racing is a dangerous game, and that, whatever the regulations, and however careful the surveillance, there is bound to be a certain small percentage of serious accidents. The percentage is very little larger than that of hunting or football or push-bicycle racing or any other dangerous sport. Any motor cyclist who exceeds fifty miles an hour under any circumstances is taking his life in his hands, and complete safety is not practicable. The compulsory use of pneumatic helmets is certainly desirable.

These notes are intended to show that there is no justification for panic, that the T.T. Races are about as safe as ever they were, and to indicate one or two directions in which the margin of safety might be fractionally increased.

The Anglo-Dutch Trial.

TO the English mind an international trial conveys the idea of English riders competing on the Continent, but in this case it is the reverse. Continental riders are coming over to England, and considering especially the excellent manner in which the English team were entertained by the Dutch in their own country last year, it behoves us to entertain our Dutch *confrères* to the best of our ability. Subscriptions to the entertainment fund are coming in well, but more money will be needed, and contributions, however small, will be gratefully received by the hon. secretary of the trial.

Observers for the trial are also wanted. The services of Boy Scouts will be probably requisitioned, but motor cyclists who will render the A.C.U. assistance should send in their names at an early date. Their help will be much appreciated, and they will have the opportunity of viewing an exceedingly interesting competition.

An Inspection of Brooklands.

The Dutch competitors, after being entertained to breakfast at Harwich, will be conveyed to Brooklands, where lunch will be served. Here they will inspect the track at the invitation of Major Lloyd, and store their machines there in special lock-ups. They leave Weybridge at 5.25, arrive at Waterloo at 6 p.m., and then proceed to the Imperial Hotel, Russell Square, where their luggage will await them. At 7.30 p.m. they repair to the Royal Automobile Club, where they will be received by Mr. J. R. Nisbet, who will preside at the banquet which will be held at 8 p.m. On the Sunday morning they leave Waterloo at 8.50 by the train arriving at Weybridge at 9.38, and then proceed to Oxford by road by way of Windsor. All the machines must be in Morris's Garage by 7 p.m. The official hotel in Oxford is the Clarendon, Cornmarket Street.

On Tuesday, the competitors start for Coventry, *viâ* Banbury (48 miles), where they are expected at about noon. Their machines will be garaged in the Rudge running shed, and at 1 p.m. the international competitors will be entertained to lunch by Rudge-Whitworth, Ltd., and each one will receive, by the kindness of the directors, a souvenir of the occasion.

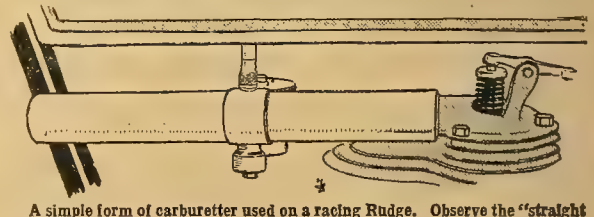
Other Arrangements.

The afternoon will be spent looking over the largest works in Coventry, although, unfortunately, it being holiday time, there will be no workmen engaged. In the evening the competitors will be the guests of the Coventry and Warwickshire Motor Club, who will entertain them to dinner. Later a cinema picture of the trial may be arranged at one of the halls.

Rear Admiral Sir R. K. Arbuthnot regrets that he will be unable to form one of the British team, as he will be away on manœuvres. In his place A. R. Abbott has been invited to ride his Rudge.

The Rudge Co. have contributed £2 2s. to the fund to entertain the Dutch riders.

The trials hon. secretary is Mr. W. Cooper, Elmcroft, Pinner Road, Harrow.



A simple form of carburetter used on a racing Rudge. Observe the "straight through" pipe which is all the carburetter consists of in addition to the float chamber.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Garages.

Sir,—I notice in your issue of June 19th Mr. M. G. Tweedie complains about garages generally not giving a receipt for motors left with them.

Might I ask you to spare enough space to state that we have always made a practice of giving a receipt for any motor left with us, and moreover insist on delivering a car or cycle, as the case may be, only on production of that receipt. Personally I fail to see how business could be conducted without, as this garage is open day and night, and therefore necessitates a double staff. With regard to the charge for cycle cars, I might add our standard rate is 6d. per day and night of twenty-four hours—3s. 6d. per week.

ARTHUR G. FORSTER.

The North London Garage.

Benzole.

Sir,—I have read with great interest from time to time the correspondence in *The Motor Cycle* for and against the use of benzole for motor cycles. I felt a little prejudiced against it for some time, but I am at last a convert. I have only used it for a month, but I am satisfied that there is more power from it than from petrol.

My object in writing you is to know what I am to do after reading your correspondent's letter, "Doncaster," in *The Motor Cycle* of June 19th, where he particularly emphasises the use of plenty of air. Now my experience of benzole is, of course, only short, but I find with my machine (1913 3½ Triumph and sidecar) that I cannot use so much air with benzole as with petrol; if I open out the air the result is not so good.

Is it because the jet is too small for benzole? If I were to have a larger jet so as to admit more air, would it be beneficial in any way? At present, when hill-climbing, I have to be particular about the air question; if the hill is very stiff I have to retard the air lever much more than I did with petrol; this is my only trouble, if it can be called such, and I shall be glad to hear others' experience on this matter.

I should also be glad to know whether it is at all beneficial to use a vapour jet or atomiser.

HULL.

The Transmission Question.

Sir,—I have been interested in the controversy over the transmission question, and have felt sorry for those who only get 200 to 300 miles per rubber belt. I am glad to see there are still a few riders of belt-driven machines who support "Ixion" in his allegiance to that form of transmission. I have been a daily rider, in all weathers, of a 3½ h.p. Triumph since the beginning of 1911, and during that time have got never less than 2,000 miles out of a rubber belt. Only once have I been delayed with belt troubles on the road, and that was my fault, for I left home with the belt almost pulled through. The belt was a Lyso, which had covered 2,926 miles. Seeing that this climate has a bad effect on rubber goods, I think that was a pretty good life. On my present machine, a 1912 Triumph, the original belt is still being used, a ¾in. Dunlop with smooth-rounded top, and has only been shortened twice in 2,500 miles. It looks good for some distance yet. I ride solo, so perhaps if I tried to make my machine do duty as a car by loading it with a 3¾ cwt. sidecar, twelve stone passenger and luggage, I might also have to indulge in 200 to 300 mile belts. As it is, I am a well satisfied user of rubber belt transmission. I have never tried chain transmission, but why should I?

NO DAWDLER.

Singapore.

Hill-climbing Formulæ.

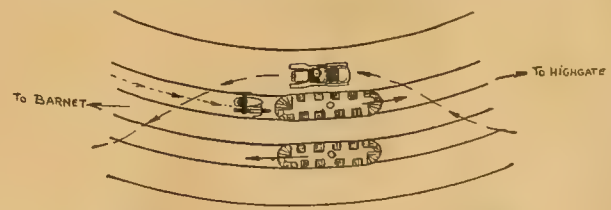
Sir,—In the ordinary hill-climb the formula $\frac{C \times t^2}{W}$ is fairly satisfactory for motor cycles, but in the case of cycle cars the conditions are very much more variable, and the use of such a formula would simply mean that a certain machine would be always bound to win on a certain hill, and it is quite clear that it would only need an adjustment of weight to secure this result, assuming it to be running fairly well. As it is very important to encourage all kinds of machines, and especially all kinds of drivers, it is desirable that machines should compete on an even basis, and as the factors in the formula are relatively variable by the length and gradient of the hill and the points at which the time-keepers stand, it is ridiculous to let each factor have the same weight on different kinds of hills. We are, therefore, using a formula with variable constants which enables this correction to be made, and which does not always mean that unless the hill is extremely short the time squared will become the controlling factor, thus giving a racing and stripped machine the whole event without the least chance of any other cycle car winning, as the weights of bodies vary so much more than do the corresponding weights of motor cycles.

This formula, which I have been at some pains to work out, will be found to produce very just results, and it gives amateurs a good chance. It is $\frac{W}{(C-K)\,T^P}$ K and P are constants, usually 200 and 1.75 respectively.

A. W. LOW, A.C.G.I., D.Sc., ETC.

A Narrow Escape.

Sir,—I should be pleased if you would find a little space in your journal for this letter and the enclosed diagram. I wish to show how recently I very nearly got smashed up on the main road between Highgate and East Finchley. I was driving a 3½ h.p. Premier and sidecar, and was proceeding up the hill behind a tramcar. I had noticed another tram coming down the hill, and also a large pair of head lights behind the tram. I knew my path lay on the near side of



Plan of road—to illustrate letter from Mr. L. Weihs.

the tram in front of me, and just as I turned in to pass the tram a large motor car, the same which I had just seen up the hill shot out past me on my near side, causing me to swerve in and hit the back of the tram. I blew my police whistle to have the car stopped, but it was away in a flash. On looking round I found I was fortunate in only sustaining very slight damage—twisted handle-bars and bent mud-guard. Several witnesses remarked what a narrow escape I had had. I cannot make out what induced the car driver to come right over the road. If any reader saw the affair and managed to get the number of the car I should like to have five minutes with that driver.

L. WEIHS, LH 1907.

Cycle Cars minus Differential Gears.

Sir,—I notice that "Ixion" suggests a solid back axle with no differential for cycle cars. I have been using one for the last six months, so perhaps my experience may be of value. The cycle car is a Violette single-cylinder, 80×140, weight about 7 cwts., friction disc and chain drive, speed on the level 20-25 m.p.h.; roads, fair surface as a rule, but bad in some places. The tyres are Michelin 650×65, "reinforced" on back wheels and "light" on front wheels. After 2,000 miles (about) the right back tyre was unsafe, so I put in an Atlas band and used it for another 600; there was then a hole right through, not a cut. I then put on a new cover, with the result that the steering became very heavy, the car pulling hard to the left. This I put right by fitting a new cover to the left back wheel and changing the old cover, which was nearly worn out, to one of the front wheels.

As regards easy steering and steadiness in grease, there is no objection to a solid axle so long as the two tyres are the same size, and this, I find, means changing both back tyres together; for the difference in diameter of old and new tyres may be as much as half an inch. But, as you will see from the figures I give, tyre wear is distinctly heavy.

REGINALD FISHER.

An Enthusiast's specially fitted up Machine.

Sir,—I enclose some photographs of a machine which I have brought quite up to date in nearly every respect, details of which might interest other N.S.U. riders and readers of your paper.

The machine is a 1912 3½ h.p. N.S.U., fitted originally with the automatic carburetter. Not being satisfied with results or power, at considerable expense I adapted a variable jet, B. and B., with marked improvement. This year I fitted the standard dual control N.S.U. carburetter, with even superior results. The great feature of this carburetter is the admission of the petrol at the top of the float chamber and all air below the jet. It is an excellent carburetter, and deserves much wider recognition. Then I added the following:

1. Bowden control lever in place of N.S.U. More handy.
2. Enots automatic lubricator. A most reliable fitment.
3. B.S.A. pattern carrier, as I often use the pillion seat, and the N.S.U. carrier was not sufficiently strong or rigid enough for this purpose.
4. Xl'All saddle. Most flexible and comfortable.
5. Clayton decompressor. To ensure easy starting on the low gear. I also removed the pedals, as they interfered with straddling over the machine when seated, and are nowadays unnecessary.
6. Square-shaped number plates. The front one Lucas V shaped.
7. Chase silencer, as the cut-out is now forbidden, and I can testify from experience that my machine is distinctly faster than it was with the old silencer fitted, even with cut-out open.
8. Bowden handle-bar control to the magneto.

Other alterations and additions have been: (1) Dunlop belt, (2) Lucas horn, (3) Nebo watch, (4) College mud shield, (5) Glad Eye electric lamp, and (6) a Lucifer dynamo (not yet sufficiently tested).

The machine suffers from weight, but it is built to last, and for reliability, especially as regards the engine. I am more than satisfied. This is the fourth N.S.U. I have had, and it is incomparably superior to any previous model.

There are two points I would like yet to adopt—(1) chain drive, and (2) more efficient mudguarding on both wheels.

For about 500 miles I have been running on benzole. I find (1) a little more difficulty in starting, (2) certainly more power with less consumption, and (3) not the slightest suspicion of knocking on any occasion. No alteration has been necessary in the carburetter.

I am very proud of my improved machine.

J. WHITTINGTON.

Cost of Running an 8 h.p. Cycle Car.

Sir,—I noticed in your issue of June 19th an account showing the expenses per mile of running an Humberette = ⅝ths of a penny. Thinking that your readers might be interested in the cost per mile of a G.W.K. over the same distance, I venture to append the following figures:

Petrol at 41 m.p.g. average	£2	16	6
Oil and grease		9	0
Repairs		5	0
Total (1,360 miles)	£3	19	6

= ¾d. per mile approximately.

The repairs consist of one puncture and a bent axle, set straight after having run into a tramcar. The tyres are Michelin, and, bar the one puncture, have given no trouble at all. The car runs well, is comfortable, and does the work previously done by a 15 h.p. car at about one-eighth the cost. Usual disclaimer.

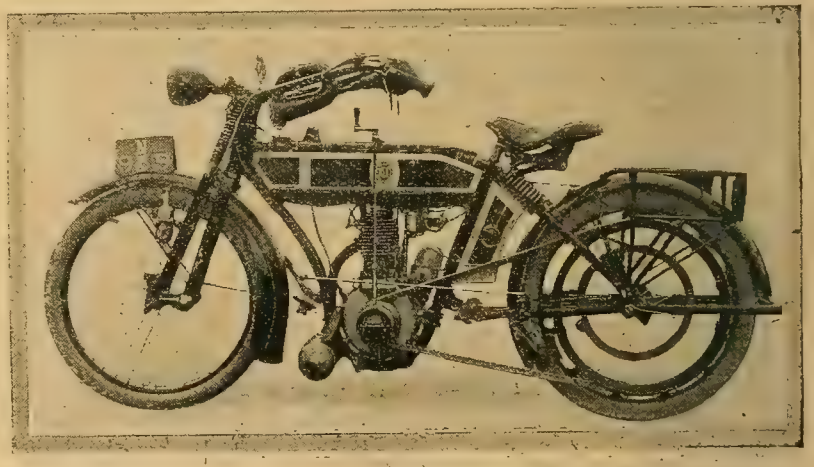
REGINALD C. STONE.

Tyres and Accessories in the T.T.

Sir,—With reference to the letter appearing in the issue of June 19th from the Palatine Tyre Co., we can assure your correspondents that it is quite a recognised thing for competitors in these important events to receive remuneration for using the various accessories necessary for the event, or at all events receiving a considerable sum in case the competitor was successful. We received a large number of applications from riders in the T.T., saying they would like to use our carburetters provided we would agree to their terms. In every case, we wrote to these gentlemen asking what terms other makers had offered them, and on receipt of this information we carefully considered the question, but as the T.T. event was purely a speed contest, in which any carburetter which had a big enough choke tube, and a big enough jet, would do all that was required, the opportunity seemed of little value to us, and we thought the money would be better invested in advertising our carburetters in this journal, although if we had been making accessories such as tyres, the quality of which a race of this description would undoubtedly show up, we should not grumble in paying riders who were prepared to take such serious risks.

We sincerely hope that next year's T.T. race will not be confined to speed test only, but that a very small proportion of the race, especially in the most dangerous portions, will be devoted to half a mile dead slow running without misfiring, with, say, half a dozen walking starts within this half mile. This would then show the buying public that a machine was not only exceedingly fast and reliable, but that it was capable of running really slowly without misfiring, and also capable of being started by pushing it along at a walking pace. If conditions such as these were imposed, the race would, in our opinion, be much more valuable from a buyer's point of view, and under such circumstances we should not think it a hardship to remunerate the users of our carburetters.

CHAS. BINKS.



The 1912 pattern 3½ h.p. N.S.U. machine, which has been equipped with many new and up-to-date fitments. (See accompanying letter).

Sir,—As a motor cyclist of ten years' experience I am pleased to see the letter from the Palatine Tyre Co. It is surely time that steps were taken by the Cycle and Motor Cycle Manufacturers' and Traders' Union, Ltd., and the motoring press to put a stop to practices which not only mislead motorists, but are in themselves pernicious.

A certain tyre firm offers £150 to the winner and 6d. per mile to all starters. This is countered by an opposition firm offering double for all starters on their tyres. A magneto manufacturer gives £25 to the winner if his fittings are used. Carburetter manufacturers vie with each other in offers of £50 for a win, £25 for second, £15 for third place, and from £5 to £10 for all starters. Oil merchants, petrol vendors, plug makers, and tribes of others follow with bewildering offers until it becomes a handsomely paying job to start, and a win secures a fortune.

Can anything be more vicious? What chance has the maker of better fittings if he be unable or unwilling to join the riot and "go the pace"? What chance have motor cycle manufacturers of seeing their tested fittings proved in competitive trial when their riders "improve" their mounts according to the best offer they receive.

Bad as the above practices are, they are placed in the shade by riders—professional and otherwise—who brazenly ask fittings makers not only for goods "for trial," but for "retainers" for using their specialities during the season.

Now, sir, these practices can be stopped, and surely it is high time that steps were taken. May I advance the following suggestions:

1. That publishers should omit in their accounts of winners' machines "So and So's carburetters, Somebody's tyres, Blank's magneto, and Dash's plugs, etc.

2. That the Cycle and Motor Cycle Manufacturers' and Traders' Union, Ltd., should issue a Black List among their members, who would agree not to use the productions of offending firms if they could substitute others.

3. That such a Black List should be supplied to publishers on the understanding that they should not accept from such firms advertisements giving accounts of their wins and records.

By these means I believe the trade could be purified, and merit rather than the longest purse take the premier position.

H.G.L.

Sir,—The letter of the Palatine Tyre Co. in your issue of June 19th begins to shed some light on the enquiry made by "Interested" on June 12th. It has been agitating the minds of many more readers besides "Interested," but with the above exception no satisfactory response has been made. I have heard, on good authority, that one of the winners received a matter of £400 from a certain tyre firm. If that is a fact, it is a direct incentive to a competitor to take the risk and chance of breaking his neck for the sake of the money offered. Some men would use any tyre, no matter how poor in quality, if the inducements were large enough.

What readers are asking themselves is: Who pays for this? The answer is apparent. No firm can afford to do this sort of thing and at the same time put full value in the goods they sell to the public. Either they are philanthropists or purchasers of their goods pay for quality and material they do not get. There are dozens of various makes of British tyres of far better value to the ordinary user than the foreign ones whose reputation is obtained by these ficticious means.

FURTHER INTERESTED.

The Motor Cycle for Business Purposes.

Sir,—Replying to "Traveller's" remarks in *The Motor Cycle* of June 26th, this gentleman emphasises the fact that he does know, and, at the same time, wishes me to enlighten him. The best advice my patience will allow me to give him is to advise him to wait till he has had a season of 20,000 miles, then count every cost (as he should do), and I am willing to wager he will find my figures correct. My experience is that you have to double every maker's estimate of running cost to be near enough, and, if he will do this, he will again find confirmation of the fact that it cannot be done on ½d. a mile. My firm run two 3½ h.p. sidecars, 1d. a mile, one twin 5 h.p. sidecar, 1½d., besides my cycle car, so you see I am not guessing, but giving auditors' facts.

Replying to "B.H.T.A.," he cannot run the combination he mentions for 15,000 miles for £78. I take it he is to buy the machine—then he will have to include £5 interest on outlay—increase his depreciation to 33⅓—reckoning 5,000 miles per average tyre—he will have to double cost of extra bought tyres—repairs, etc., will be double the amount he mentions—he does not mention garage (lucky chap). There are exceptions to every rule, and the facts I have mentioned are only as I have met them. Nobody will deny time saved on journeys when you are not on main line, but I still adhere to my statement *re long* business journeys, train is more comfortable and cheaper.

ANOTHER TRAVELLER X1140.

An Unstretchable Belt.

Sir,—I should like to point out that the belt illustrated in your issue of June 26th is not new. I believe that several belt makers have tried it, and I know one who discarded it some six years ago. I have a piece of this somewhere. I also have a belt with the middle layer of leather interwoven with fine wire, but, in my opinion, a belt that will not stretch is not worth having.

J.T.B.

The Transmission Question.

Sir,—Mr. P. J. Foster presents such a distorted view of the facts of the above question that I feel compelled to cross pens with him.

He refers to the time taken during the A.C.U. trial of an Ariel motor cycle and sidecar to adjust belts, but omits to state that the belts used were experimental ones, and that the machine was found to be considerably out of alignment at the termination of the trial. Under such conditions chains would not have run on the sprockets for five miles.

In cases where the best of both types of transmission are used there is nothing to choose between them as far as reliability is concerned. I have recently had two instances under my notice of long distances being covered by belt-driven passenger machines without adjustment. One was George Brough's 6 h.p. sidecar machine, which ran from Nottingham to London, through the London-Edinburgh-London trial, and back to Nottingham, without adjustment to the belt—a distance of about 1,040 miles. The other instance is of a 3½ Rover and coachbuilt sidecar, which ran over 1,700 miles with one adjustment; this being necessary only because the belt was sagging enough to touch the belt guard.

A point where the belt scores in a way that the chain never can is in cases where the machine is used for both passenger and solo riding. The gear can be lowered or raised according to conditions in two or three minutes by using the adjustable pulley and a spare link; but variation on chain-driven machines takes a considerable time, is a dirty job, and can only be made within certain limitations.

I can recall discussions on this question over the last ten years, and it is still where it was ten years ago; that the best of each type is as good as anyone wants, and that each man claims to have that which is best.

HAROLD KARSLAKE.

Sir,—Your correspondent, Mr. P. J. Foster states with regard to the A.C.U. certificate of performance of the Ariel motor cycle and sidecar, "This alone should prove to the prospective buyer which method of transmission will give him the most satisfaction." In my opinion, the test proves nothing at all, since the average life of belts used was under 700 miles—a figure which no belt user would accept as a normal mileage.

I should be pleased to accept Mr. Foster's belt *v.* chain challenge, though I fail to see how this trial can be carried out, unless we are to ride in each other's company for the whole distance. Perhaps Mr. Foster will also state what conditions he wishes to impose. I would suggest a loss of a mark per minute for any time spent in adjustments.

I should use a John Bull belt, as I am now nearing 1,000 miles with one of these belts without any adjustment having been made. The belt tension appears exactly the same as when the new belt was fitted, and since there has been no appreciable stretch in 800 miles I am hoping to get 2,000 without any other shortening than changing a link in the fastener. About 350 miles of the distance has been with sidecar. The machine is a three-speed Triumph, and I have no interest in the John Bull Co.

F. L. BASSETT.

Hill-climb in the West Country

J. Cocker (3½ h.p. Singer) at the first bend, which is immediately above the starting banner.

CLAPTON-IN-GORDANO was once again the venue of the Bristol Bicycle and Motor Club for their annual open hill-climb. The hill has an average gradient of 1 in 7.22 for approximately two-thirds of a mile, and is sufficiently straight to make a fine hill for test purposes. The arrangements were excellent, and the competitors followed each other with commendable promptitude. The course was well marshalled, and between each class an official rode up the hill with a placard stating in red letters that the class was over. After competitors had returned to the hill foot he rode down exhibiting a notice in white letters stating that the course was again closed for the next class.

Absentees.

F. W. Barnes was one of the few absentees, and Holloway was, unfortunately, unable to ride owing to an accident in the morning. He was driving his big sidecar machine up the slope which precedes the hill with A. J. Orde in the sidecar and P. Grout on the carrier, when, owing to another machine being in the way, he was unable to take the sharp right-handed corner and crashed into the wall. He cut his knee badly, and damaged both wrists and his elbow, but, fortunately, no bones were broken. The sidecar body left the chassis, and Orde damaged both knees and his chest, but he was able to ride. Grout escaped unhurt.

CLASS I., for single-cylinder machines up to 350 c.c., drew so few entries that the expert and general classes were run off together.

H. R. Davies (2¾ Sunbeam) made an exceptionally fine climb, followed by J. Cocker (2¾ Singer), whose performance was almost as good. Heaton's A.J.S. was obviously off colour, but Williams, on a similar mount, came up fast. E. A. Davies, on a 2½ single-geared Premier, failed to reach the top, saying that he was obstructed by the crowd at the bottom corner. Results:

Rider and machine.	Time. secs.
H. R. Davies (2¾ Sunbeam)	43⅘
J. Cocker (2¾ Singer) ...	46⅕
C. Williams (2¾ A.J.S.)	47

Rider and machine.	Formula.
H. R. Davies (2¾ Sunbeam)	2,188
J. Cocker (2¾ Singer)	2,345
C. Williams (2¾ A.J.S.)	2,409

For some reason which was not apparent Williams cut out on the curves, thus probably losing second place.

CLASS II.—Twin cylinders up to 350 c.c.

This class was entirely composed of Douglas and Humber machines. Kickham's Douglas appeared to be the fastest, but he had trouble with the ruts at the foot of the hill. Moore's Humber was also obviously fast. Nearly all the machines made good climbs, but F. C. Wasley, P. Phillips, and W. D. Giles, all on Douglases, and M. Anderson (Humber) were probably the most meritorious. Results:

	Time. secs.
E. Kickham (2¾ Douglas)	42
W. Moore (2¾ Humber)	43⅘
P. Phillips (2¾ Douglas)	49

	Formula.
E. Kickham (2¾ Douglas)	2,181
W. Moore (2¾ Humber)	2,263
P. Phillips (2¾ Douglas	2,617

H. Blocksidge, the late secretary, lost much valuable time by changing up into top on the lower stretch of the hill.

CLASS III.—Single-cylinder engines above 350 c.c. and up to 500 c.c.

Cocker (3½ Singer) was the fastest in the expert class, whilst Dixon, on a similar machine, was also fast. His 14

THE FINISHING BANNER.

P. H. A. Mathews (Ruige), who with J. Cocker (Singer) shared eleven first prizes.

Hill-climb in the West Country.—

stone. however, told somewhat on his time. S. Crawley (Triumph) made a particularly fine climb, but C. T. Newsome, though going well, was not at the top of his form. Results :

	Time. secs.
J. Cocker (3½ Singer) ...	37⅗
S. Crawley (3½ Triumph)	39⅕
A. J. Dixon (3½ Singer)	42⅕

	Formula.
J. Cocker (3½ Singer)	2,211
A. J. Dixon (3½ Singer)	2,249
S. Crawley (3½ Triumph)	2,366

Cocker's time is a record for the hill.

In the general section, Mathews, Orde, Kellar, and Haskins appeared to make the best performance, and C. H. Fry (Rudge) was fast, but, with H. G. Liefelt on a similar machine, he was disqualified by the judges for riding too noisy a mount. Results :

P. H. A. Mathews (3½ Rudge)	38⅘
M. A. J. Orde (3½ Rover)	44⅗
J. B. Kellar (3½ B.S.A.)	45

P. H. A. Mathews (3½ Rudge)	2,092
E. P. Haskins (3½ Singer)	2,710
J. B. Kellar (3½ B.S.A.)	2,971

The increased speed in this class showed the surface of the hill to be bumpy in parts, and also that the top curve is worse than it appears.

A Good Recovery.

CLASS IV.—Singles up to 500 c.c.

Among the experts, H. R. Davies, Cocker, Newsome, Dixon, and Crawley all came up in fine style, Davies's little Sunbeam making a particularly meritorious ascent. Crawley unfortunately hit the bank at the top curve, but made a splendid recovery, and got off lightly with only a bruised leg and a bent footrest. Results :

J. Cocker (3½ Singer)	38⅕
C. T. Newsome (3½ Rover)	41⅗
A. J. Dixon (3½ Singer)	41[illegible]

H. R. Davies (2¾ Sunbeam)	2,011
A. J. Dixon (3½ Singer)	2,186
J. Cocker (3½ Singer)	2,282

Mathews was easily the fastest in the general class, but Tubbs (3½ Humber) did very well, and Williams, Rowlandson (Rudge), Orde, Clement, and Haskins were all fast. Results :

P. H. A. Mathews (3½ Rudge)	39⅗
S. Tubbs (3½ Humber)	42⅕
F. C. Clement (3½ Triumph)	43⅘

P. H. A. Mathews (3½ Rudge)	2,179
C. Williams (2¾ A.J.S.)	2,389
S. Tubbs (3½ Humber)	2,644

W. H. Sheldon (3½ Regal Precision) negotiating the first bend

H. R. Davies (2¾ h.p. Sunbeam) at the first bend. Several competitors wobbled badly in the rut at this point. Davies was one of the best cornerists of the day and again won on formula.

CLASS V.—Racing machines up to 1,000 c.c., rider to weigh not less than 11 stone.

Experts only were allowed to ride in this event, and the times were very good and close. Results :

	secs.
J. Cocker (3½ Singer)	38⅘
C. T. Newsome (3½ Rover)	39
S. Crawley (3½ Triumph)	39⅖

As will be seen from the above times, ⅗s. covered the first three men. Cocker's machine carried three bricks to make weight, neatly packed in tool bags.

CLASS VI.—Three-wheeled passenger machines up to 1,000 c.c.

There were only three competitors in the expert class, but all made good times. Wade on a Zenith-Green showed up very well, while Griffith (7 Zenith) made easily the fastest climb. Results :

G. Griffith (7 Zenith sc.)	48⅘
C. T. Newsome (3½ Rover sc.)	57⅕
A. B. Wade (3½ Zenith-Green sc.)	61⅕

A. B. Wade (3½ Zenith-Green sc.) ...	2,214
C. T. Newsome (3½ Rover sc.)	2,915
G. Griffith (7 Zenith sc.)	3,601

As will be seen from the results of Classes V. and VI., Newsome (Rover) had made up for his moderate performance earlier in the day.

Quite one of the finest performances of the day was put up in the general section by W. W. Douglas, who brought up his little 2¾ mount with sidecar and 10 stone passenger at a good pace, and easily won on formula. Chapman (Zenith) made a good climb, as also did Rowlandson, whose belt broke as he crossed the finishing line. Result :

E. Chapman (6 Zenith sc.)	58
S. A. Rowlandson (3½ Rudge sc.)	70⅕
E. A. Davies (3½ Premier sc.)	71⅖

W. W. Douglas (2¾ Douglas sc.) ...	3,549
E. Chapman (6 Zenith sc.)	4,022
S. A. Rowlandson (3½ Rudge sc.)	4,067

Class VII. was for racing single-cylinders up to 500 c.c., and the expert class brought forth much the same results as Class V., except that Newsome and Crawley changed places. Result :

	secs.
J. Cocker (3½ Singer)	38⅕
S. Crawley (3½ Triumph)	39
C. T. Newsome (3½ Rover)	39⅗

A Hill-climb in the West Country.—

Among the generals, Mathews and Rowlandson again shone, while Clement, Haskins, and Moxley (B.S.A.), whose stand was dragging, all came up well. Results:

	secs.
P. H. A. Mathews (3½ Rudge)	41⅗
S. A. Rowlandson (3½ Rudge)	43
F. C. Clement (3½ Triumph)	44⅕

CLASS VIII.—For singles up to 500 c.c. and twins up to 650 c.c. Experts barred.

This class produced the largest entry of the day, and it was hard to pick a winner between Mathews, Rowlandson, Williams, Kickham, Moore, and Haskins. Results:

P. H. A. Mathews (3½ Rudge)	39⅖	C. Williams (2¾ A.J.S.)	2,150
S. A. Rowlandson (3½ Rudge)	40⅗	P. H. A. Mathews (3½ Rudge)	2,157
E. Kickham (2¾ Douglas)	42⅖	E. P. Haskins (2¾ Sunbeam)	2,215

Where the "Generals" beat the "Experts."

CLASS IX.—For singles up to 500 c.c. and twins to 650 c.c.

This event took the form of a stopping and starting test on a steep part of the hill. Unfortunately it was not the success it might have been, owing probably to the fact that no one knew where the test was to take place till they were actually at the tape. Only three started in the expert class, and of these Heaton and Edmond both got away fairly well, and Wade broke a belt just after getting going.

W. Heaton (2¾ A.J.S.)	64⅗	W. Heaton (2¾ A.J.S.)	4,654
F. G. Edmond (2¾ Humber)	74⅘	F. G. Edmond (2¾ Humber)	6,133

There was a better entry in the general class, and H. Hutchinson (3½ Rudge) got away quite smartly, and Haskins, Moore, E. A. Davies (3½ Premier), and Giles all did well. Several having no free engines stopped and pushed off again; no easy work on a 1 in 7 gradient. Results:

H. Hutchinson (3½ Rudge)	58	E. P. Haskins (2¾ Sunbeam)	3,801
W. Moore (2¾ Humber)	59⅗	W. Moore (2¾ Humber)	4,190
W. Giles (2¾ Douglas) ...	61⅖	H. Hutchinson (3½ Rudge)	4,271

Organisation.

The club is to be congratulated on the organisation of the event. The hill was perhaps a bit too twisty for the faster machines, but it was quite as safe as most climbs. Among the finest performers Cocker and Dixon (Singer) were particularly noticeable, though Mathews (Rudge) rode very well and obtained a number of firsts. H. R. Davies (Sunbeam) was another very successful competitor, and S. Crawley (Triumph) and C. T. Newsome (Rover) both shone at times. Kickham (Douglas) did extremely well in Class II., and in the sidecar class W. W. Douglas (2¾ Douglas sc.) put up an extraordinary performance. The climb was well attended by the public, and machines of all descriptions were represented at the start.

The dust on the roads near Bristol was terrible, and returning from the climb everyone appeared to have a white cloak.

W. Rowan (6 h.p. Swift) on Fintry Hill.

SCOTTISH OPEN TWELVE HOURS' TRIAL.

Eventful Day in the West Highlands.

THE annual open trial promoted by the Glasgow Motor Cycle Club was full of incidents and accidents, and will long be remembered by the participants. A slight variation in the route was made, because the road from Gairlochhead to Arrochar is at present closed to excessive traffic, and in some places is rather dangerous, and the course was as follows: Canniesburn Toll, Bearsden, Bowling, Alexandria, Luss, Tarbet, Arrochar (first control), Rest and be Thankful, Inveraray, Dalmally (second control), Tyndrum, Killin (lunch control), Kenmore, Aberfeldy, Amulree, Crieff (fourth control), Dunblane, Doune, Thornhill, Kippen Station (fifth control), Fintry, Lennoxtown, Blanefield, and finish at Bearsden. The following were the observed hills: Little Rest, Rest and be Thankful and Fintry. Failure to make a clean ascent meant the loss of a medal.

The Start.

An excellent entry of fifty riders, including motor cycles, sidecars, and a Swift cycle car, had been received, and of this number forty-two started, the others no doubt considering the weather conditions none too promising, and deciding not to attempt the journey. E. Hunter (2½ A.J.S.) had a sidecar attached to his lightweight, and arrived at Arrochar to time, but was not heard of afterwards.

Competitors were despatched in couples at minute intervals. A great many of the men appeared to have difficulty in getting away at the start, exceptions being those mounted on Douglas machines, which were easily paddled off by their riders. Shortly after the start, the weather, which had appeared threatening, broke down completely; there was, however, but little belt trouble under conditions far from favourable.

Unfavourable Conditions.

The run up Lochlomond side was completely spoiled by the rain and the atrocious road surface between Inverbeg and Tarbet. Widening operations are being carried out at this point, and in consequence the surface is one mass of liquid mud, in places quite six inches deep. The majority arrived at Arrochar to time, and then commenced the most severe part of the route—the ascent of the Rest. This was rendered more difficult than usual owing to the particularly strong wind which blew right down the hill through Glen Croe. Although the road is now cut through the recent landslide, the surface here is still not what it was.

The Little Rest gave the competitors a foretaste of what they might expect at the hill itself. While a fair number of the solo riders managed to reach the top unassisted, a

D. Bell (6 h.p. A.J.S. sidecar) and A. J. C. Lindsay (Douglas) stop for petrol at the Tarbet Hotel.

Scene at the start. Competitors setting their watches to official time.

good many, however, failed in addition to all the passenger vehicles, except three 5-6 A.J.S. machines and sidecars and the Swift cycle car, which had throughout the whole trial been running excellently. It is significant that, although it is said that a 3½ h.p. machine will take a sidecar anywhere, all passenger machines of this power failed on both the Rests. The best performance of a 3½ and sidecar on the big Rest was that of J. L. Smith (3½ Triumph sc.), who would have reached the summit had he not taken the corner too fast and finished in the ditch. This fault was common, and the older hands, who know the hill well, gave the best displays. One or two of the riders had rather nasty falls at the last bend.

A Chapter of Accidents.

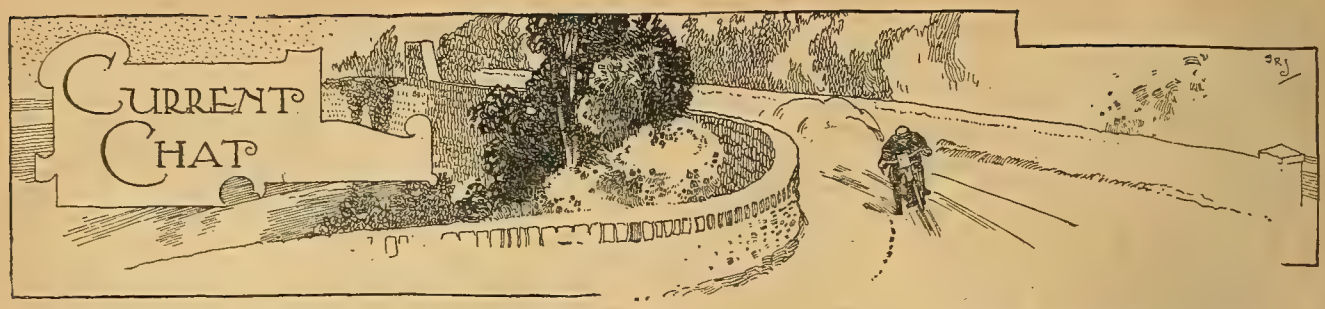
The run down to Cairndow was without incident, R. M. McCulloch (5-6 A.J.S. sc.) being the only competitor noticed in trouble, which appeared to be due to a burnt clutch. This must have been serious enough, as he was not seen afterwards. The road from Inveraray to Dalmally is nothing but a series of corkscrew bends and sharp gradients, and many of the riders have cause to remember this stretch. T. A. McCreadie (2¾ Sunbeam) was found by two fellow competitors lying across the road stunned, his machine alongside. After he came round he was unable to account for the accident, but pluckily resumed; he retired, however, at Killin. J. E. Chisholm (3½ Ariel sc.) also experienced trouble. Rounding a corner rather fast in an endeavour to make up lost time, the sidecar tyre came off, the wheel buckling badly. The rider was, however, able to pull up the combination, so that there were no personal injuries. The remains of the sidecar being despatched home by train, Chisholm resumed the trial with his passenger on the back carrier, arriving in Killin about an hour and a half late. D. S. Paterson (3½ Rudge Multi) had rather a severe fall on this same road, and after resuming met with further trouble in the shape of a broken belt, which delayed him so much that he retired.

From Killin to Crieff, the next check, the only noteworthy incident was rather of a distressing nature, due to one competitor running into another from behind and sustaining a very bad injury to his face.

Very few appeared to have difficulty in the negotiation of the Fintry Hill, and all those who had survived to this point arrived at the finish at Bearsden as follows: G. W. Orr (3½ Ariel), A. R. Fraser (3½ Rudge Multi), D. S. Baddeley (3½ P. and M.), W. Hood (3½ Rudge Multi), W. Deans (6 Hazlewood), A. J. C. Lindsay (2¾ Douglas), W. Hutchison (2¾ Douglas), G. Taylor (6 Brough), R. D. Fleming (3½ Triumph), R. W. Reid (3½ Bradbury), J. W. Binnie (5 Hazlewood), F. Galbraith (7 Indian), W. Alexander (7 Indian sc.), G. Thompson (6 A.J.S. sc.), H. M. Stich (3¾ Scott sc.), D. Bell (6 A.J.S. sc.), B. Paterson (6 Clyno sc.), W. Rowan (6 Swift cycle car), G. Wilson (5 Rex sc.), J. L. Smith (3½ Triumph sc.), D. N. Johnston (8 Matchless sc.), and J. Cameron (3½ Ariel).

FIRST CYCLE CAR HILL-CLIMB AT SOUTH HARTING.

A. Nash (G.N. runabout), winner of the best-supported class.



TIME TO LIGHT LAMPS.

July	3rd	... ...	9.18 p.m.
,,	5th	... ...	9.17 ,,
,,	7th	... ...	9.16 ,,
,,	9th	... ...	9.14 ,,

Racing on the Sands.

At West Sands, St. Andrews, on Thursday, the 24th inst., point-to-point motor cycle and cycle car races will be held, eight classes being included, the distances varying from one to eight miles.

Cockney Wit.

A cycle car chassis was recently being driven to the body builders through the streets of London when a passing taxi-cab driver accosted the man at the wheel, "What have you got there, cocky, an eight-day clock?"

Cycle Cars at Clipstone.

There was a class for cycle cars at the Notts A.C. speed trials at Clipstone, near Mansfield, on Saturday last, but only two entries were received and one of these was a non-starter. The car which ran, the little 8-9 h.p. four-cylinder Calthorpe, therefore had a walk over, but it also ran in the car classes, and out of three runs down the course (slightly downhill), its best time for the flying kilometre equalled a speed of 55.37 miles an hour.

John-o'-Groat's to Land's End.

In defiance of the Auto Cycle Union ban of road records in excess of the legal limit, Ivan B. Hart Davies, of Rugby (often confused with our contributor Rev. B. H. Davies, of Northampton), last week journeyed from John-o'-Groat's to Land's End on a 10 h.p. Singer light car in 34h. 39m., equalling an average speed of 25.57 m.p.h. This is a wonderful achievement, and no less striking as a demonstration of reliability of the car as of the endurance of the driver. We gathered from Hart Davies when he called at our offices with the Singer last week that he was lucky to finish, for he experienced some trouble with his back axle in the neighbourhood of the Land's End. This is almost a repetition of his Triumph motor bicycle record, when, only a few miles to go, engine troubles almost put a final stop to the ride. It will be remembered that after that memorable run, the A.C.U. suspended Hart Davies for some months, and we refrain from giving further details of the latest performance, as we are entirely at one with the Auto Cycle Union in its endeavour to suppress road records when the legal limit is so constantly exceeded, and that by a large margin.

An Impossible (?) Hill.

In the 1913 Michelin Guide, British Isles, p. 387, Llangollen, appears Clyn 5 "Impossible hill for motors." We wonder if this ascent is known and if it has been climbed, as motor cyclists are usually ready to try their prowess on any hill termed "impossible."

Horse-power—Nominal and Actual.

The desirability of a standard horse-power rating for motor cycles, which has been advocated before in our columns, is very plainly shown by the following story:

"On the 1st ult., a road race for motor cycles over a distance of one verst was held in the vicinity of St. Petersburg. F. Holden, an English rider, arrived on the course with a 3½ h.p. Zenith, 90×77½ (493 c.c.) The machine was equipped with full touring outfit, and weighed 241 English pounds. On asking to be allowed to enter the 3½ h.p. class, permission was brusquely refused, on the plea that the machine was one of 4 h.p., but he was ultimately allowed to participate, and made fastest time (44⅜s.), the second being Beyling, a Russian rider, on a T.T. Triumph (499 c.c.), weighing 169 English pounds, entered as a full touring model (time, 45⅜s.) The Russian rider appealed against the judges' decision, on the plea that the winner's machine was one of 4 h.p., and Holden was disqualified. He has, however, appealed to the organiser of the race, but, as things move slowly in Russia, the case is still *sub judice*."

SPECIAL FEATURES:

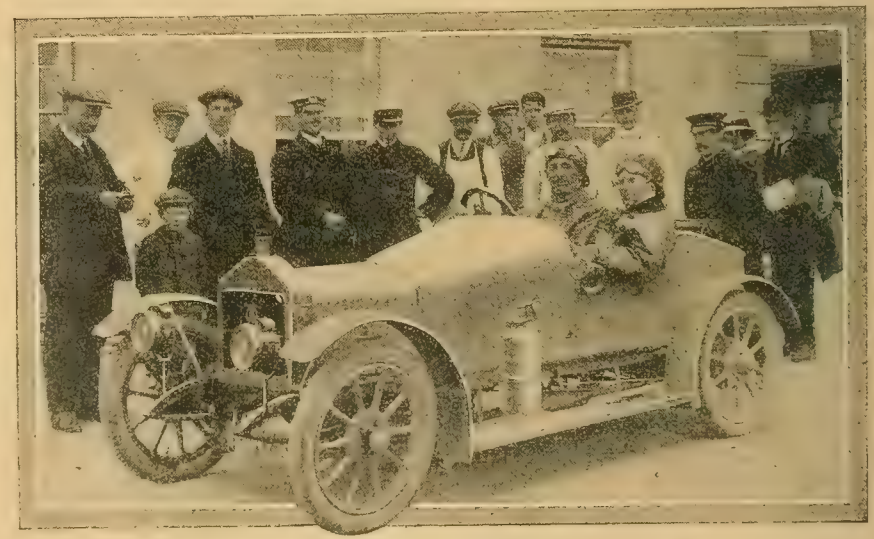
INNOVATIONS
IN THE SIX DAYS' TRIALS.
SLOWING DOWN THE SENIOR T.T.

The Bath Road.

A considerable portion of the Bath Road between Hayes and Colnbrook, Middlesex, is being resurfaced by the Limmer Asphalte Paving Co., Ltd.

Six Hours' Race at Brooklands.

The open six hours' race of the British Motor Cycle Racing Club at Brooklands on Wednesday, July 16th, is creating an exceptional amount of interest. Racing men of note are preparing for the event, and some keen racing—in fact, a Tourist Trophy re-union—is the promise. A long distance race such as this is a very severe trial for the rider. There is a good deal of speculation as to the distances which will be covered in the six hours, and many predict that records will go. Sam Wright will make another attempt to be the first to cram 60 miles into the hour on his twin Humber. G. E. Stanley may ride a 2¾ h.p. Singer with the same idea, and Howard Newman might also accomplish the feat on his little Ivy-Green. J. R. Haswell will be seen in the 500 c.c. event after a long rest. His Triumph is said to be very fast. Altogether the next B.M.C.R.C. meeting promises to be an event of particular interest.



I. B. Hart Davies on the Singer cycle car at the conclusion of his unofficial run from John-o'-Groat's to Land's End in 34 hours 39 minutes.

H. Riddell, who, mounted on a 3½ h.p. Zenith-Green sidecar, broke records up to four hours at Brooklands, as reported in our last issue.

Sparking Plug Adapters.

Since we published the tip of a sparking plug adapter to prevent oiling up on V type twins, we have received many enquiries as to where the adapters may be obtained. Almost any large garage or accessory house can supply such a fitment. Incidentally we have covered another 500 miles on our Humberette and have not had occasion to remove the plugs.

English-Dutch Trials.

Additional subscriptions to the fund to entertain the Dutch motor cyclists when they visit England next month are given below :

	£	s.	d.
Hendee Manufacturing Co. ...	2	2	0
Rudge Whitworth	2	2	0
Edward Lycett	1	1	0
H. Collier and Sons	1	1	0
Temple Press	1	1	0
C. R. Collier		10	6
W. G. McMinnies		10	6
E. M. P Boileau		10	6
Bennett Mitchell...		10	6

A regiment of Boy Scouts to assist in the trial on August Bank Holiday has been arranged by Mr. R. A. Bishop, of Oxford. The assistance of neighbouring club members as marshals is also requested.

Penalty for Using Noisy Machines.

The Leamington police are still taking action as regards noisy machines. Already there have been several summonses issued against the riders of noisy motor cycles, and while the Bench dismissed the cases on payment of costs, it was announced that, in dealing thus leniently with these cases, a precedent was not being established, and future offenders would not be treated with such leniency. As the police in Leamington have always been favourably disposed towards motorists, it is hoped that motor cyclists will be careful to run as quietly and silently as possible through the town.

In several parts of the country the police are very active in taking steps against the riders of noisy machines. No fewer than a dozen riders were convicted and fined 10s. and costs, amounting to about 18s. in all, in Birmingham the other day. The police are working in the vicinity of Northfield and Rubery on the Bristol Road, near Birmingham. It is not generally known that, although a cut-out between the exhaust port and silencer is illegal, a rider may be summoned under the new regulation even if the gases first pass through an expansion chamber before issuing into the open air if a police officer considers the machine is noisy. It is a matter of ear test alone.

A Curious Case.

The other day an Uxbridge resident who had bought a cheap motor bicycle redesigned the frame and fitted an engine in a workshop adjoing an hotel yard. When the alterations were complete he tried the machine in the yard at a time when a local taxation licence officer was passing. The latter asked the owner if he had paid the £1 tax, which the latter said, of course, he had not, and there were not even numbers on the motor cycle. Shortly afterwards the owner received summonses for not taking out the local taxation licence and for riding an unlicensed machine. Fortunately, he was defended by the Auto Cycle Union, and the magistrates dismissed the case.

FUTURE EVENTS.

July 5.—M.C.C. Meeting at Brooklands
„ 5.—Herts County A.C. Open Hill-climb at Kop.
„ 5.—North-Eastern A.A. Open Hill-climb.
„ 5.—Mersey M.C. Open Speed Trials at Colwyn Bay.
„ 13.—GRAND PRIX RACE. Motor Cycles, Sidecars, and Cycle Cars.
„ 14.—M.C.U.I. Irish End to End Open Trial.
„ 21-26.—Scottish Six Days' Trials.
„ 26.—B.M.C.R.C. Race Meeting.
Aug. 2-3.—International Cup Race in France.
„ 2-3.—Hertfordshire M.C.C. Open Half-Day Trial.
„ 2-4.—M.C.C. Devon Trial.
„ 4.—English-Dutch International Trial.
„ 9.—B.M.C.R.C. Race Meeting.
„ 18-23.—A.C.U. Six Days' Trials. (Carlisle as Centre).

Hill-climbing.

Some weeks ago a correspondent enquired whether any motor cyclist had climbed the steep hill out of Branscombe —between Sidmouth and Seaton. We now hear that W. H. Carson has made the ascent on an Excelsior with sidecar and a 13 stone passenger.

More Unofficial Records.

Last week we noticed threading his way through the traffic of Coventry a sidecarist whom we recognised from photographs as W. J. Clarke, of Horncastle. On the back of the sidecar was a notice regarding some record, and as we predicted, a day or two later, a claim to have beaten the six days' sidecar "record" reached us. The mileage given is exactly 1,800, and the hours taken to cover that distance 116½. Clarke rode a 4¼ h.p. Precision engined Monarch with sidecar pattern Roc two-speed gear.

Selecting the Six Days' Trials Course.

The chairman of the A.C.U. Competitions Committee, Rev. E. P. Greenhill, and the secretary, Mr. Lougborough, have just spent a busy week in Lakeland surveying the course for the Six Days' Trials in August. Carlisle, it will be remembered, is the centre, and the daily routes all radiate southwards. We are pleased to be able to state that practically all the acclivities dealt with in Mr. G. D. Abraham's articles in *The Motor Cycle*, "Hill Hunting in Lakeland," have been visited and selected for inclusion in the trial, with the exception of Wrynose Pass and Hard Knott, the surfaces of which are too poor. Messrs. Abraham and W. B. Little accompanied the A.C.U. representatives on their journeys, and with their knowledge of the roads were able to render great assistance.

INSPECTING THE COURSE FOR THE SIX DAYS TRIALS IN LAKELAND.. T. W. Loughborough (A.C.U. Secretary) on a Douglas and the Rev. E. P. Greenhill (Chairman of competitions Committee A.C.U.) on a Premier climbing the 1 in 6 gradient of Whinlatter Pass.

THE A.C.F. GRAND PRIX.

THE FIRST DAY OF PRACTICE. (By Our Special Correspondent).

AS has already been mentioned, the Circuit de Picardie over which the Motor Cycle Grand Prix will be run measures 17 km. 500 m. Motor bicycles cover the course twenty times, making a total distance of 350 km. = 217½ miles; sidecars and cycle cars cover the course fifteen times, making a total distance of 262 km. 500 m. It is comparatively flat, with many straight stretches, but the corners are bad. Tribunes, or grand stands, will be placed at the apex of the triangle formed by the corner round which the vehicles turn coming from the direction of Compiègne, and turn back on the road to Roye. The grand stands have been built parallel to the corner, and spectators will see the competitors arrive, turn, and depart, while the replenishment depots are placed in the inside of the corner. The numbered seats reserved for the public are placed on both sides of the course, while in the centre is a huge official enclosure and the press enclosure. In front of the grand stand and beyond the replenishment depots two weighing-in places are situated, communicating with one another by a subway under the road. Behind the grand stand is a large refreshment room, post office connected to the grand stand by telegraph and telephone wires, and with Paris, London, Lille, and Amiens, the offices of the A.C.F., garages in which the cars will be locked up after the engines, etc., have been verified, a hospital, tobacco kiosks, newspaper stalls, and a huge garage. The prices of admission to the official stand for the Grand Prix Race are as follows: Boxes to hold six 30 francs; reserved single seats 3 francs; admission to enclosure surrounding the stands 2 francs.

Admission to the weighing enclosure on the day previous to the races is 2 francs.

Machines may be stored in the official garage on July 11th and 13th for 2 fr., and on July 12th for 3 fr. The course has been improved, widened, and repaired, and the cross roads and corners have been treated with tarmac, trees which have been thought dangerous have been taken down, and the whole of the course will be treated with calcium chloride.

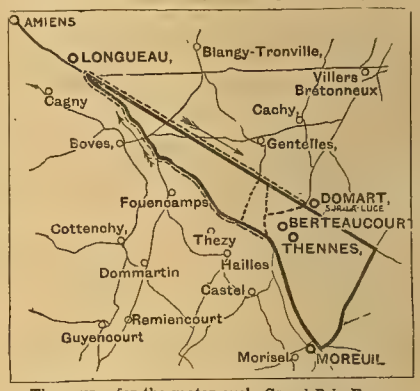
Excursions to Amiens.

The South-Eastern and Chatham Railway will run the following excursions to Amiens on July 10th, 11th, and 12th, available by the 10 a.m. and 2.5 p.m. service from Charing Cross *via* Boulogne, and the 9.20 p.m. *via* Calais, and returning from Amiens at 9.20 a.m., 4.55 p.m. *via* Boulogne, and 11 p.m. *via* Calais. These tickets will be available for fifteen days, at the following fares: First class 42s. 6d., second class 30s. 6d.

First Day of Practice.

Practising began at 3 o'clock on Monday morning. The course was well guarded by gendarmes, and there was a large crowd of spectators. Competitors, however, were few and far between. We noticed a Ronteix and two Bedelias. On Sunday afternoon three Violet-Bogeys went round the course and then returned to Paris. Not a single sidecar combination has yet turned up, but among the motor bicycle riders we noticed Fenton (Clément), Paul (Clément), Cisey (N.S.U.), Lombard (Clément), Woodhouse (B.S.A.), Bloch (René-Gillet), and Closs (N.S.U.). On Monday the Ronteix made five circuits, covering the distance 17 km. 500 m. in 16m. 30s. to 17m. It took the corners well, but did not give much impression of speed. The Bedelias accomplished barely one lap. Fenton is riding a new 350 c.c. Clément with overhead valves and a huge tank. He made two circuits, but each time returned slowly to the starting point. Woodhouse, who was riding a 400 c.c. Clément *during practice only*, covered a lap in 13m. 30s., which works out at 78 km. an hour. Paul and Lombard went round at touring speed. Bloch (Réne-Gillet, a standard machine on which he will race at Amiens) made a good lap in 16m.. Closs and Cisey (N.S.U.) each covered two laps, the former at an easy speed.

I have just covered the course on my Rudge-multi. I found it very dusty after the car practice, but M. Sautin, of the A.C.F., assures me that after being treated with calcium chloride, the dust will no longer exist. That part of the course which forms a portion of the Noyon Road is quite straight and very fast. The by-road which divides the Noyon from the Moreuil roads is very narrow, and, though it is wide enough for motor bicycles, sidecar combinations, and cycle cars, will have difficulty in passing. The right angle turn has been treated with tarmac by M. Sautin, and the motor cyclists may take it and those at Boves at high speed. I do not think the fastest machine will average more than 85 km. an hour. It is quite absurd that only three days of practice should be allowed, and these a fortnight before the race. What chance do the British competitors stand under these circumstances?



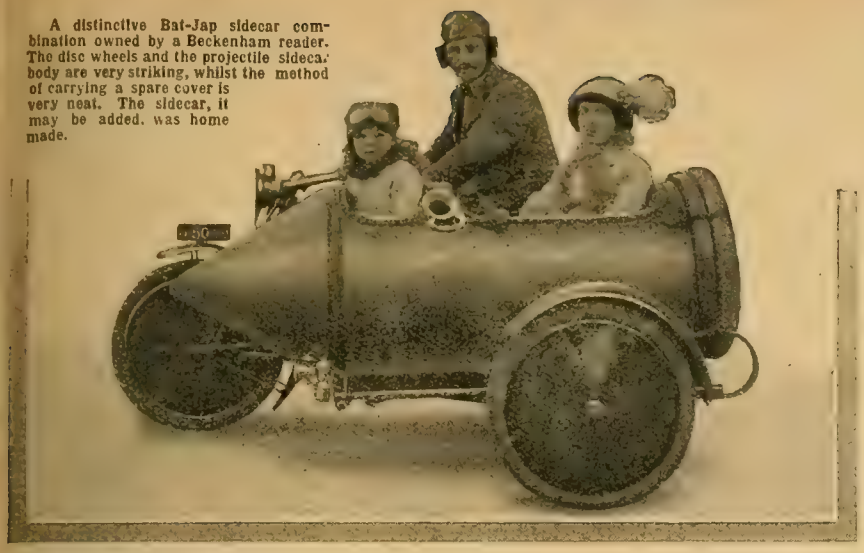
The course for the motor cycle Grand Prix Race on the 13th inst.

We learn that J. W. Woodhouse, who made the fastest time in the Grand Prix de Fontainebleau, may be riding a B.S.A. instead of Hodden, while the other B.S.A. riders will be Isodi and Fenn. The Clement team will consist of Fenton riding a 2¾ h.p. Clement, and Sproston a 500 c.c. of the same make.

The official distribution of the prizes gained by the English competitors in the Paris-Nice Trial will be made at Amiens on the evening of the Grand Prix, July 12th, on the occasion of a reception organised by *L'Aero*.

The Grand Prix Clyno sidecar was on the road last week and is reported to be very fast. We hear that Frank Smith is contemplating an attempt on some of the present track records.

A corner on the Grand Prix course as viewed from the grand stand, showing the subway.



A distinctive Bat-Jap sidecar combination owned by a Beckenham reader. The disc wheels and the projectile sidecar body are very striking, whilst the method of carrying a spare cover is very neat. The sidecar, it may be added, was home made.

FORMULA RESULTS OF CYCLE CAR HILL-CLIMB.

The formula results of the Cycle Car Club's open hill-climb (described on pages 885 and 886) are distinctly interesting. They show that J. F. Buckingham on a single-cylinder Chota put up by far the best performance on formula irrespective of class, though A. W. Lambert on a single-seated Morgan made fastest time of the day.

CLASS I.

	Fig. of merit.
A. W. Lambert (2-cyl. Morgan)...	.3206

CLASS III.

J. F. Buckingham (1 Chota) ...	2.096
A. E. Parnacott (4 Cycar) ...	.7836
K. Kreitmeyer (1 Zebra)	.2817

CLASS IV.

W. G. McMinnies (2 Grand Prix Morgan)	.4647
L. W. Spencer (2 Morgan) ...	.2584
A. W. Lambert (2 Morgan) ...	.2310

CLASS V.

L. Martin (4 Singer)	.3596
J. T. Wood (2 G.W.K.)	.3407
A. G. F. Nash (2 G.N.)	.3247
J. Chater-Lea (2 Chater-Lea) ...	.2436
A. P. Bradley (2 Duo)	.2255
E. H. Armstrong (2 Armstrong)...	.2014
N. Naylor (2 G.N.)...	.1917
C. M. Whitehead (2 G.N.) ...	.1792
G. N. Higgs (2 G.N.)	.1786

The Speeds Accomplished.

The measured distance of the climb is 1,500 yards, and it is interesting to note that the fastest speed was 32.2 m.p.h., accomplished by A. W. Lambert on his single-seater Morgan. The slowest cycle car averaged 9.4 m.p.h.

We give the speeds of the fastest in each class for reference purposes:

Class I.—A. W. Lambert (Morgan), 32.2 m.p.h.

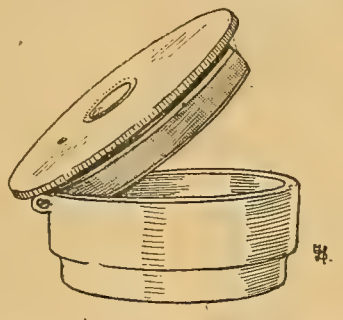
Class III.—J. F. Buckingham (Chota), 20.5 m.p.h.

Class IV.—W. G. McMinnies (Morgan), 29.8 m.p.h.

Class V.—A. G. F. Nash (G.N.), 27.6 m.p.h.

A NEW FILLER CAP.

A quick opening filler cap which has been used successfully in the T.T. Races may be considered to have undergone as stiff a test as is necessary for such a



fitment. This is the case with a simple little device which we have just received. The cap consists of a leather ring which is expanded or contracted by a half turn of the lid. The lid is hinged to the body, so cannot drop off, and the expanding leather washer fits the body so closely as to prevent any possibility of leakage, while half a turn of the lid is sufficient to open the filler

Best and Lloyd, Ltd., Cambray Works, Handsworth, Birmingham.

A FRENCH RACE.

In our report of the Circuit de Fontainebleau it was mentioned that W. A. Davis, on a Douglas sidecar combination, "had a class to himself." When it is realised that the $2\frac{3}{4}$ h.p. Douglas is not exactly a sidecar machine, and that this is

the first occasion in which so small a sidecar combination has ever taken part in a long distance race, it must be acknowledged that the performance was a remarkably good one. With a human freight of 23 stones it succeeded in averaging a speed of 26 m.p.h. throughout the whole race, which extended over 225 miles. Davis's wonderfully regular running throughout the long race evoked general comment among the spectators.

A group of Ceylon motor cyclists, who met at Kadugamiawa rock (under which the road passes) at the beginning of last month.

Thousands of spectators watched a procession of decorated cars and sidecars in Coventry on Alexandra Day. Our photograph shows the three sidecars and a cycle car entered. Left to right: C. H. Bovill's winning Matchless; "Miss" H. W. Hand's Williamson; G. Smith's Humberette, and Miss Hough's Scott sidecar.

THE SCOTTISH SIX DAYS' TRIALS.

The following additional entries have been received for the Scottish Six Days' Trials, bringing the total to eighty-three. The trials start on July 21st from Perth, and the course is a very sporting one over a distance of about 980 miles.

FIRST BALLOT.

G. A. Gregson (5-6 Bat)
R. M. Stalibrass (6½ N.S.U. sc.)
H. Thomson (3½ Kynoch)
J. A. Hoult (3½ Matchless)
J. R. Blackbourn (Morgan c.c.)
W. J. K. Gulland (3½ B.S.A.)
G. Taylor (3½ Rudge)
F. L. Bassett (2¾ Villiers)
E. H. Littledale (3½ Ariel)
James Cycle Co. (3½ James)
T. Laker (2¾ Elswick)
D. S. Alexander (Williamson sc.)
W. Hands (Williamson sc.)
J. G. Beveridge (3½ Rudge)
J. R. Alexander (7 Indian)
B. Alan Hill (7 Indian)
G. Armstrong (Gordon c.c.)
E. M. Oliver (5-6 Hazlewood)
J. Oliphant (3½ Premier)
A. W. Walden (3½ Premier)
G. C. Proctor (3½ Singer)
George Nott (——)
Miss M. Reid (3½ Brough)
F. Finlay (3½ James sc.)
D. Bell (6 A.J.S. sc.)
R. E. Guest (8 Matchless sc.)
C. R. Collier (8 Matchless sc.)
J. B. Robertson (——)
L. E. Cass (Trump-Jap)
A. D. Scott (Triumph)
T. Silver (Quadrant)
C. Q. Roberts (6 Zenith)
L. Sealey (B.S.A.)
H. M. Jameson (Enfield)
G. T. Gray (3½ Rudge)
Humber, Ltd. (3½ Humber)
Sam Wright (Humberette)
F. G. Edmond (2¾ Humber)
S. Tubb (3½ Humber)
G. Wray (Clyno sc.)
J. Steel (B.S.A.)

The second ballot has not yet been held.

Burton-on-Trent and District M.C.C.

A hill-climbing competition was held at Marchington Cliff on the 25th ult. The course was half a mile in length and included a 1 in 6 gradient at a difficult bend. The leading performances were as follows:

Lightweights.—E. Abrahams (2½ Singer), 70s.; G. Williamson (2¾ New Hudson), 70s.; A. Moorcroft (3 Singer), 70s.; tied for first prize.

3½ h.p. Touring Singles.—1, E. Mellor (Rudge) 37s. and S. Williams (Williams) 37s. tied; 3, E. Payne (Rudge), 38s.

1910 and Earlier Models.—1, A. Moorcroft (3 Singer), 60s.; 2, F. Read (3½ Triumph), 64s.; 3, H. Hardwick (3½ Triumph), 65s.

Sidecar Class.—1, A Moorcroft (4½ Singer sc.), 89s.; 2, J. Jordan (4¼ O.K.-Precision sc.), 112s.

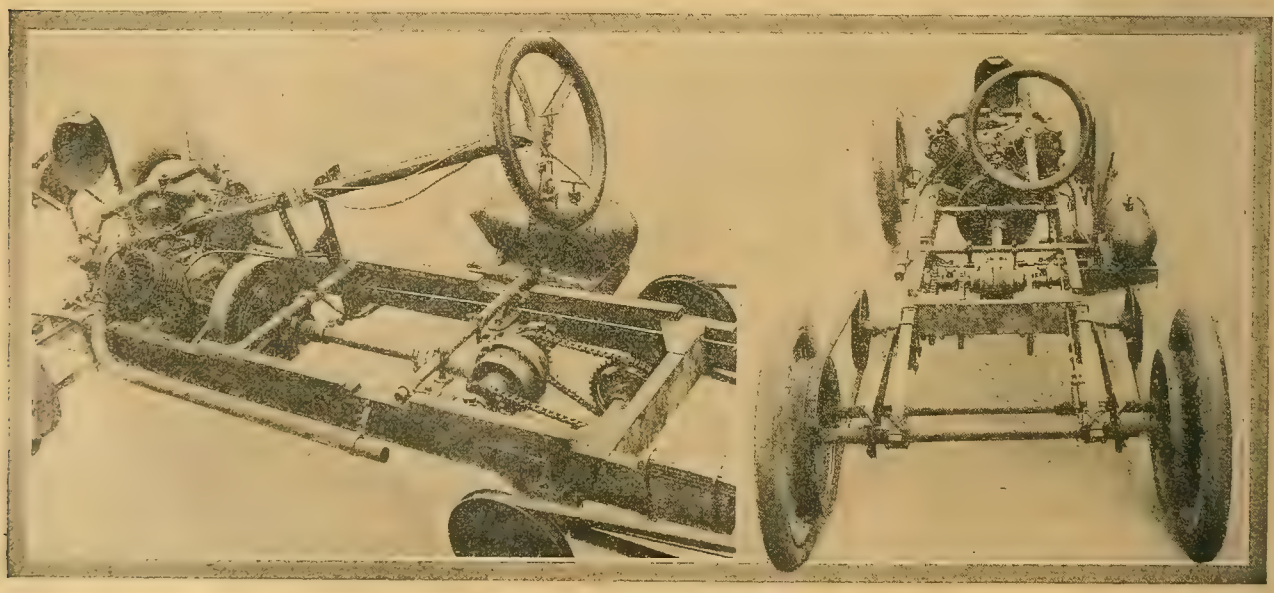
Tyldesley and District M.C.

A hill-climb took place on the 11th ult. The results were worked out on *The Motor Cycle* formula.

Solo Class.—1, A. Hobson (B.S.A.); 2, J. Bullough (8 Dot).

Sidecar Class.—J. Bullough (8 Dot).

A reliability trial was held on the 22nd ult. to Windermere and back, a distance of 150 miles, with two secret checks. Result: 1, N. Nay (6 Clyno sc.); 2, F. Newton (3½ B.S.A.); F. Gore (3¾ Scott); 4, E. Prestwick (6 Enfield sc.).



THE GRAND PRIX G.N. (See page 881).

(1) Showing arrangement of gears and engine position. (2) Rear view showing three-speed gear and general design.

THE GRAND PRIX DUO.

WE recently had an opportunity of inspecting the chassis of the Duo Grand Prix cycle cars at the company's works at Evelyn Street, Deptford. Two will be entered, one fitted with a 90° J.A.P. engine, 85×95 mm., with a chassis of novel construction, consisting as it does of a duplex ash frame with tie rods of spring steel bolted in between the upper and lower portions. The engine, as mentioned above, is the well-known 90° J.A.P. fired by a Bosch magneto (car type) neatly placed between the two cylinders. A Solex carburetter is fitted to each cylinder, and these are controlled by an accelerator pedal. The transmission is unaltered from the standard model, and standard size chains and belts are fitted. The hub sleeves are fitted with combined roller and thrust bearings, and also double Skefko bearings, while the back wheels are fitted with 3in. Palmer cord tyres.

Shock absorbers are fitted to all wheels. These are interesting as they consist of an arm pivoted on the spring shackle, the after end of which forms a disc, which is kept in tension by laminated springs with a Ferrodo disc attached to the frame. The back wheel brakes are a novelty, as they are of the duplex type, consisting of an internal expanding and an external contracting brake acting on the same 7½in. drum. Both brakes are Ferrodo lined

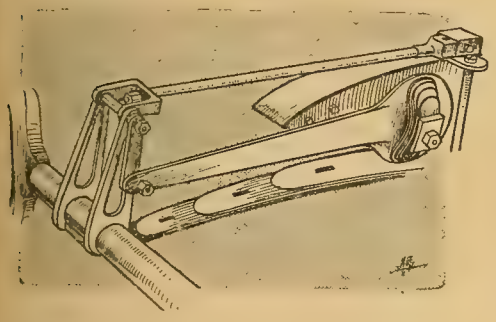
Chassis of the Grand Prix Duo which has a 90° engine set in line with frame.

Fuel Supply.

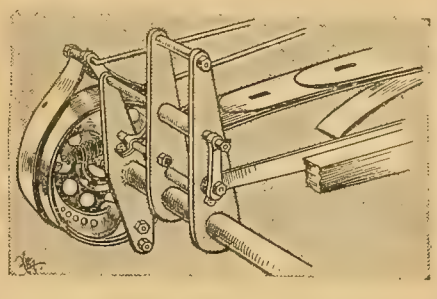
Two petrol tanks are carried, one of the usual cylindrical type above the engine, containing two gallons, and a six gallon tank underneath the floor boards. The petrol is transferred by pressure from the big tank to the small one, and thence by gravity to the carburetter. The machine is controlled by three pedals, the accelerator and two brake pedals. There are two side levers, as in the standard model, one for expanding the pulley and the other for taking up the slack of the belt, by moving the back wheel forward or backward. In the case of the Grand Prix model the spring does not slide, as in the case of the standard model, but remains stationary, and the adjustment is brought about by pivoting the wheel on to a special shackle, which system is clearly shown in the accompanying illustration. The lubricating tank is also carried underneath the floor board, and the oil is fed through two Best and Lloyd drip feed lubricators on the dashboard, which convey it to the front cylinder and to the crank case. The end of the petrol tank comes through the dashboard and is provided with a petrol gauge, which clearly shows the level of the fuel, while also fitted to the dashboard are a clock and speedometer.

A Water-cooled Model.

The second Duo is somewhat similar in most details to the model we have just described. It is, however, the first water-cooled machine of this make to be turned out, being fitted with the new overhead valve, water-cooled J.A.P. engine, 90 × 77.5, which is supplied with gas by means of a Stewart-Precision carburetter. The radiator is of a distinctly attractive appearance. The only other point in which this machine differs from the air-cooled model is that the pulleys are provided with springs to keep the gear normally in top, and to do away with all end thrust while the vehicle is running in top gear. At the time of our visit the water-cooled model was incomplete. The bodies fitted will be of steel built on to hoops of angle iron.



Shock absorber on the Grand Prix Duo.



Braking arrangement and new method of mounting the rear axle.

THE RACING G.N.

Messrs. G.N., Ltd., The Burroughs, Hendon, N.W., have entered two cycle cars for the Grand Prix, one of which will be driven by A. G. Fraser-Nash and the other by C. M. Whitehead. In most respects these two vehicles resemble the standard models of the latest type G.N., and we take this opportunity of referring to these briefly. The twin-cylinder air-cooled engine, fitted with overhead inlet valves, is fixed transversely in the frame, and drives through a Raybestos and steel disc clutch through a propeller-shaft to the primary counter-shaft, to which the power is conveyed through bevel gearing. Chains transmit the power to a secondary counter-shaft, on which is a simple form of dog clutch gear giving two speeds, and on this shaft pulleys are mounted, the final drive being conveyed to the rear wheels by means of rubber belts. The chassis is of ash, suitably strengthened and suspended on quarter elliptical springs fore and aft. The carburetter is a B. and B., and the magneto is an Eisemann. The steering is on the usual wire and drum principle, and the brakes, which are of the shoe type, act one on the inside and the other on the exterior of the belt rims. The Grand Prix cycle car driven by Nash has the engine three-point suspended, and three speeds are fitted, so that the vehicle can be accelerated at a more rapid rate. It must be understood that this is not a standard fitment, but has only been introduced specially for the race. An extra large pressure-fed petrol tank holding five gallons has been fitted to the rear of the vehicle, and also a large oil tank, and in the race Continental tyres will be used. Whitehead's cycle car is similar to the above, except that he is using a Solex carburetter and Dunlop tyres. Of the two vehicles above described, the gear ratios of the former are 3, 4½, and 6 to 1, and those of the latter, to which only two speeds are fitted, 3½ and 5 to 1. A good deal is expected of the racing G.N.'s.

C 2

AMONG THE ACCESSORIES.

Electrical Terminals.

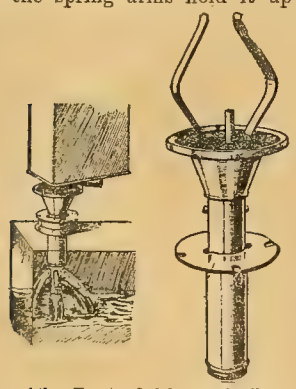
To ensure efficiency it is essential that all electrical connections should be well made, neat in appearance, and easily fitted. The Chater-Lea patent terminal which we illustrate is of tubular form, supporting the rubber cable, and it will be appreciated that there is no strain on the stranded copper inner wire. To

Chater-Lea terminal.

fit the terminal the insulation should be stripped off in the usual manner, and the wire inserted into the tubular slot formed for the purpose; the slot should then be flattened in a vice or with a hammer. The flattening spreads the copper strands through the holes with the result that the job is absolutely permanent. Ten sizes can be supplied for cables varying from 4 mm. to 17 mm. diameter and at prices varying from 1s. to 2s. 8d. per dozen.—Chater-Lea, Ltd., 74-84, Banner Street (Golden Lane), E.C.

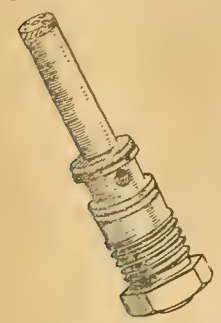
A Quick Petrol Filler.

Our illustration shows a very neat device for enabling a petrol can to be emptied directly into the tank without spilling the liquid. The funnel-shaped end fits over the nozzle of the can, and while the spring arms hold it up to its

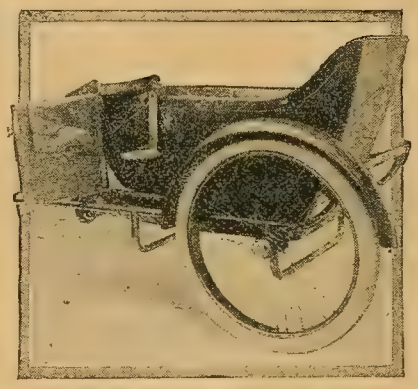


Atlas Empty Quick petrol filler.

work a rubber washer fits round the thread and prevents leakage. The petrol leaves the filler for the tank through several large gauze-covered slots, thus being thoroughly filtered. A tubular cover, flanged at its upper end, covers the gauzes in the normal position, but when it is required to transfer the petrol to the tank it is only necessary to invert the can, placing the flange on the top of the tank. The weight of the can then automatically uncovers the gauzes, against the pressure of an enclosed spring. A slight turn of the flange will keep the ports uncovered until the last drop of petrol is emptied The filler is known as the Atlas Empty Quick, and is sold by the Atlas Non-puncture Inner Case Syndicate, Ltd., 124 High Street, Kensington.



An atomizing jet by Jackson and Co. The cap has four tiny holes.



A sidecar by the Premier Motor Co., with child's seat in front.

A Simple Child's Seat.

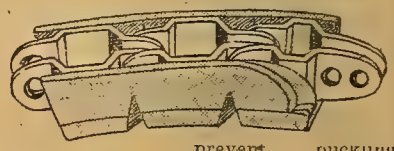
The illustration shows a model of the P.M.C. sidecar in which a child's seat is incorporated. The seat is made of a strip of mild steel, and is supported from the sidecar by two strong bolts. It is neatly upholstered in Pegamoid, and part of the front of the body is cut away to give a comfortable support for the child's back. The seat may be swung into, or out of, position.

The Premier Motor Co., Ltd., Aston Road, Birmingham.

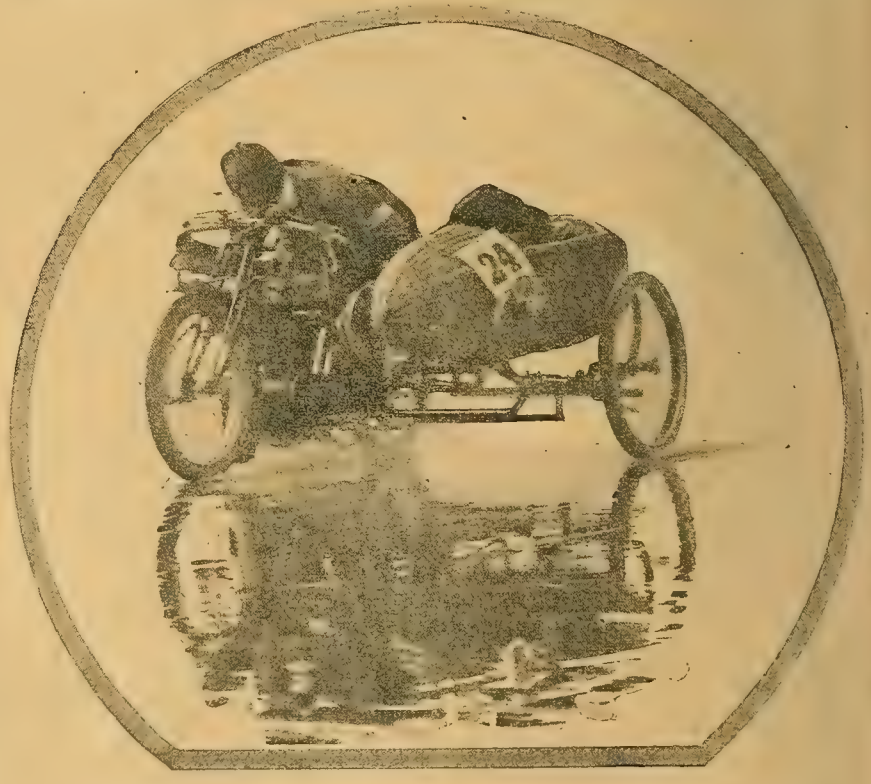
A Steel and Leather Belt.

We have received a section of a new belt of unusual construction which should prove interesting to those who complain of belt stretch.

The belt is composed of a light chain made up of V section steel links, connected by steel rivets, all wearing parts being carefully hardened. This chain is embedded in a raw hide cover, which has small pieces cut out between the links to



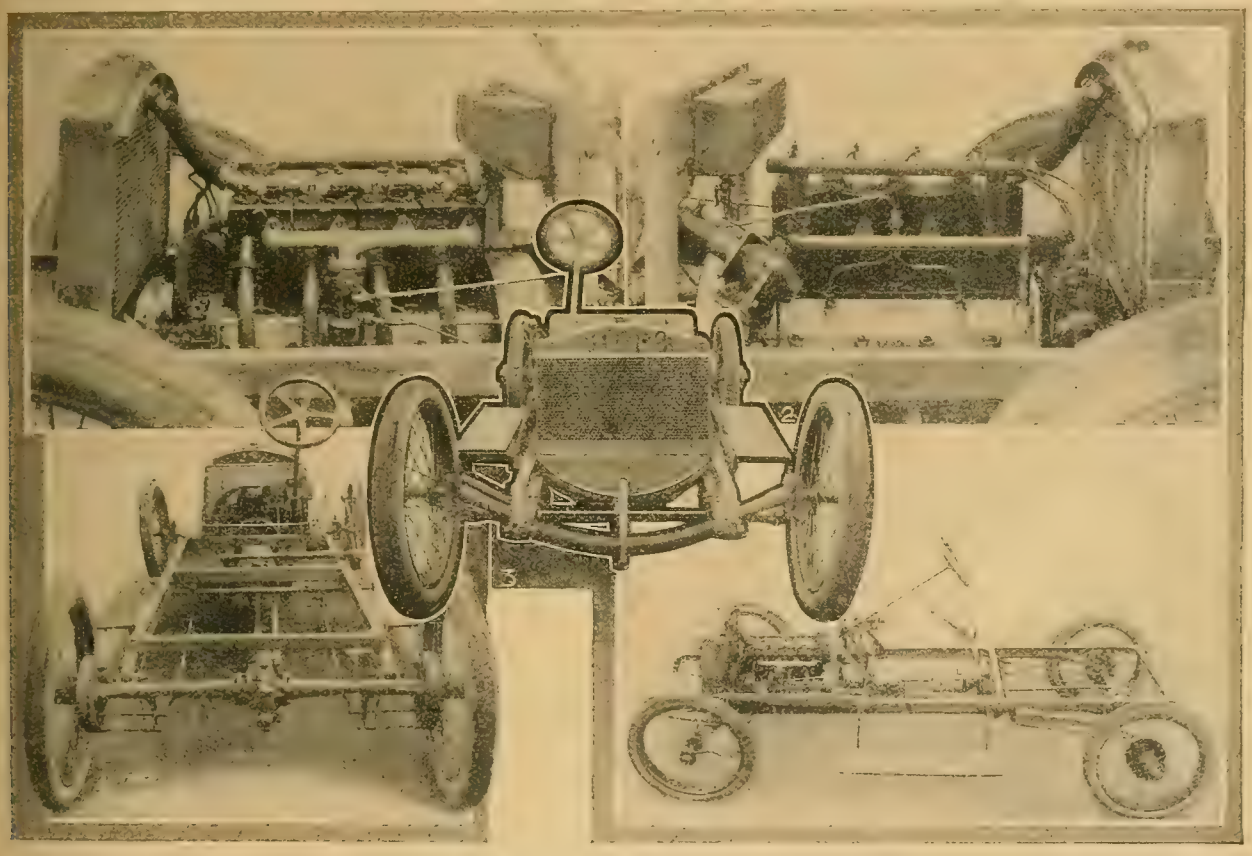
prevent buckling when the belt passes round the small pulley. Stout leather blocks are riveted to the bottom of each link and relieve the links from much of the side strain. Three double hole adjusting links are provided with each belt, each hole giving a ½in. adjustment. The fastening is a simple form of pin and cotter, thus no belt punch or fastener is required. The belt is known as the Morriss American belt, and it is claimed to have done over 30,000 miles on the road without trouble. Its price is 4s. 9d. per foot, and it is being handled by Frank Morriss, 169, Queen's Road, Finsbury Park, London, N.



A striking snapshot of sidecars racing on the beach at Porthcawl. The wet sands showed up the reflections almost perfectly, some of the photographic results being very effective.

Progress at the T.M.C. Works.

THE Wilkinson T.M.C. Co., Ltd., Oakley Works, Southfield Road, Acton, W., are now turning out a new 7-9 h.p. motor bicycle, specially designed for sidecar work. The bore and stroke of the engine are 65 × 75 mm. instead of 60 × 75, and the latest cylinders are flush-sided, which greatly adds to their appearance. The company are also busy manufacturing cycle cars which are fitted with engines of the same dimensions as above. The chassis has been considerably altered since it was last exhibited at Olympia, and the following details will be of interest. For example, the latest type of engine is used, and both to the cycle car engine and to that fitted to the motor bicycle a Claudel carburetter is supplied. The valves of the cycle car engine are now enclosed, and fibre-ended tappets are fitted to deaded noise. The water pump and magneto are carried across the front of the engine, while the oil pump is below the crank case. There is a universal joint between engine and gear box, and the brakes are compensated. The front axle is of the curved tubular type. The change-speed gear is in a gate similar to that formerly employed on Rover cars. The ends of the threequarter elliptical springs are now held in a special casting bolted to the sides of the chassis, and the engine and gear box are carried on a channel steel under-frame.



THE LATEST WILKINSON T.M.C. FOUR-CYLINDER CYCLE CAR.

(1) The engine from the valve side. (2) Off side view showing magneto position. (3) Front view. The distinctive type of radiator will be noted. (4) Rear view of chassis. The shaft drive, engine position, and general arrangement are gathered from this view. (5) Broadside view of chassis.

YORKSHIRE CLUBS' TWO-DAY RELIABILITY TRIAL.

The annual two days' reliability trial of the Harrogate and District Motor Cycle Club was held last week-end over the following course: Harrogate, Pateley Bridge, Greenhow Hill (observed), Grassington, Kidstones Pass (observed), Hawes, Kendal, and Ambleside, stopping place for the night. On the following day Kirkstone Pass, including The Struggle, was observed, and then the course ran by Lake Ullswater to Penrith, Hartside Pass (observed), Barnard Castle, Richmond, Aysgarth, Kidstones Pass (observed), Pateley, Yorkes Folly or Guy's Cliff (observed), Otley, Norwood Edge (observed) to Harrogate. Distance, about 260 miles. Numerous checks were arranged and no adjustments were allowed in any of the controls. Results:

Class I., for any Machines.—Lost no marks: W. Fawcett (5 A.J.S. sc.), W. B. Atkinson (2¾ Douglas), and F. Strafford (3½ Triumph).

E. Maynard (3½ Triumph), lost ten marks, failed on Kirkstone; E. Hawkes (3½ Rudge-multi), lost twenty marks, tyre trouble; R. Swift (3½ Bradbury), lost sixty marks, failed Kirkstone, Hartside, and Yorkes Folly; G. E. Hawkins (3½ Rudge), retired.

Class II., not sufficient entries.

Class III., for Passenger Combinations below 600 c.c.—H. W. Fortune (3½ Premier sc.), lost no marks; F. Wray (3½ James sc.), failed Kirkstone and Hartside, and retired; W. E. Grange (3½ Bradbury sc.), failed on Kirkstone and retired.

The remainder of the entrants either did not start or expressed their determination of stopping the second day in Lakeland. F. Strafford wins a special medal for climbing all observed hills on a fixed gear machine, and H. W. Fortune wins a special medal for climbing all observed hills on a 3½ h.p. sidecar combination.

Liverpool to Edinburgh and Back.

Rain Renders the Night Journey Very Trying.

AT 9 p.m. on Friday night a large crowd assembled at the Sefton Arms, Aintree, which is just outside the Liverpool City boundary, to see the Mersey Club start their twenty-four hours trial. The hotel, like all others in this part of Lancashire (outside the city), was closed at 2 p.m. on account of the farm labourers' strike. Of the fifty entries forty started, composed of twenty singles, sixteen sidecars, and four cycle cars. The night was cool and dull, and the crowd excited and bright. They showed their confidence in the riders' skill by only allowing them a passage a yard wide to ride through for the first couple of hundred yards. Prompt to time, the first man, S. Carty, was despatched, followed at minute intervals by the rest. The police were of considerable assistance, being stationed at all the turns to control the traffic.

The first mishap was past Garstang, about forty miles from the start, when H. W. Coopland (Indian sc.) went too fast round a corner, ran into a hedge, twisted his frame, and had to retire. He says he was following the curve of the telegraph wires and poles, as it was too dark to see the curve of the road properly. At this spot the wires took a "short cut" in place of following the road.

A Long Period of Rain.

While we were having supper at Kendal it commenced to rain, and this continued all the way to Edinburgh, making it unpleasant and greasy; many tyre troubles were reported. The test on the observed hill in the non-stop section of Haysyke, about forty miles past Carlisle, was the cause of a lot of grumbling. Many say they did not realise the sharp turn till past it and so had to dismount.

The return journey provided more excitement. Dr. Montgomery turned his 8 Morgan upside down at Longton and smashed a wheel. Fortunately, he was not hurt. W. Davis, on the smallest machine in the trial, a 2½ Victoria, hit a cow on the nose with his shoulder without coming off. W. E. Smith (4 Hobart) had his exhaust lifter wire pull out of the nipple, and to start had to put a washer between the tappet and valve each time. So he fastened the washer on a wire and pulled it clear after it had acted as a decompresor. We heard a rumour that L. V. Barton (6 Rex) returned without any piston rings and on two borrowed covers. A. C. Naylor (2¾ Douglas), near Penrith, in avoiding another competitor, was run into by W. H. Youd. M. Rimmer (3½ Zenith) had four punctures, and his butted tubes rubbed their butts off. E. F. Jenkins (Morgan) had trouble, and H. Gibson (3½ Bradbury) had to attend to plug and belt.

At the finish the first man to arrive was S. W. Carty (3½ Ariel), followed by N. H. Brown (7 Indian) and L. Mogridge (3¾ Mead-Precision). The 8 h.p. Crouch cycle car would not be started with the handle, so had to be pushed off each time. It was driven by J. A. Yeoman, and gained a silver medal on its first trial. The crowd at the finish blocked the road, wide as it is at this point, and the police had great difficulty in keeping a track open wide enough for the sidecars to finish.

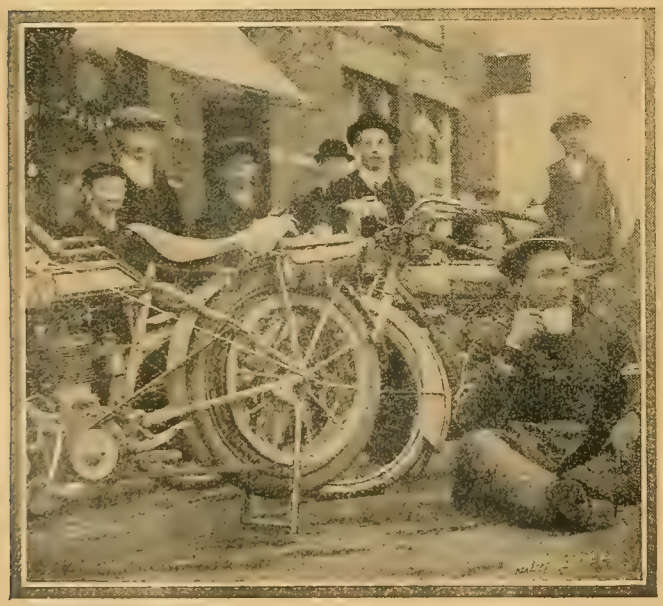
The results show that of the twenty singles to start eleven gained gold medals and six silver. Of the sixteen sidecars five obtained gold medals and three silver. Two cycle cars get silver medals. After the timekeepers had gone through the checks, they awarded (subject to stewards' confirmation later) the Timson Cup to H. Gibson (3½ Bradbury). Results:

GOLD MEDALS.

H. Gibson (3½ Bradbury)	A. C. Naylor (2¾ Douglas)
S. W. Carty (3½ Ariel)	W. H. Youd (3½ Matchless)
N. H. Brown (7 Indian)	W. H. Kelly (8 Rex-Jap)
L. Mogridge (3¾ Mead-Precision)	W. H. Longton (3½ Alldays sc.)
G. A. Gregson (5 Bat)	W. Davies (2½ Victoria)
N. Howarth (3½ Bradbury)	J. McG. Lamb (6 Clyno sc.)
C. M. O'Connor (5 Rudge sc.)	L. R. Pearson (6 Clyno sc.)
J. J. Day (3½ Bradbury sc.)	C. V. Freeman (6 Clyno sc.)

SILVER MEDALS.

L. V. Barton (6 Rex)	A. Cadwallader (3½ Humber)
F. C. Jones (10 Singer c.c.)	A. J. Jenkins (3½ New Hudson sc.)
J. A. Yeoman (8 Crouch c.c.)	H. J. Beal (4 L.M.C.)
A. G. Cocks (2½ Connaught)	M. Rimmer (3½ Zenith)
G. Wray (6 Clyno sc.)	G. Nott (6 Clyno sc.)
A. Marston (6 Dot)	



S. W. Carty (3½ h.p. Ariel) and N. H. Brown (7 h.p. Indian) stop for a cup of tea near the finish of the Mersey M.C. open 24 hours' trial.

OPEN SIX HOURS' RACE.

THE next event to be held on Brooklands by the B.M.C.R.C. will be an open six hours' race for motor bicycles, sidecar combinations, and cycle cars, starting at 11 a.m. on Wednesday, July 16th. The idea is that in this race everyone shall have an opportunity of breaking a record. The stewards of the meeting are Col. H. C. L. Holden, R.A., C.B., F.R.S. (president of the B.M.C.R.C.), Admiral Sir R. K. Arbuthnot, Bart., and the Rev. E. P. Greenhill. The entry fee is £2 2s. for non-members and £1 1s. for members. Entries close at mid-day on Tuesday next, 8th inst.

The usual motor bicycle class ratings will be used, while sidecar machines will be divided into classes up to 350, 500, 750, and 1,000 c.c., and four-wheeled cycle cars into two classes, up to 750 and 1,100 c.c. Machines are classified as follows: Division I., motor bicycles; Division II., sidecar combinations and three-wheeled cycle cars; Division III., four-wheeled cycle cars. All vehicles in Division II. and III. must be built to carry two passengers, and both seats must be occupied throughout the race. The minimum weight of driver and passenger is fixed at 140 lbs.

The start and finish are at the Fork, where, also, replenishment depots will be established. Each competitor will be entitled to have one assistant only.

A handsome silver cup, presented by Mr. H. H. Collier, will be awarded for the best performance in Division I.

The B.M.C.R.C. standard silver cup will be awarded for the best performance in each of Divisions II. and III.

A gold medal will be awarded for the best performance in each class, a silver medal for the second, and a bronze medal for the third.

All competing motor bicycles must be fitted with the regulation round disc number-plate, and also suitable brackets and screws for the attachment of front number-plates, which must be $\frac{3}{16}$in. thick, 8in. long, and 7in. broad, with a $\frac{5}{16}$in. hole in each corner 1in. from each edge. These brackets must be fitted so that there will be a clear and uninterrupted view of the plate from the front. Any machine not equiped with numbers as required will be disqualified at the start.

First Open Cycle Car Hill-climb.

Good Speeds Accomplished at the Cycle Car Club's Event. Long Drawn-out Proceedings.

THE Public Schools M.C.C. had organised a run to South Harting on Saturday last to witness the Cycle Car Club's open hill-climb at South Harting, so we joined them at the Bear Hotel, Esher, and after a few minutes' chat we left for Petersfield. There was quite a good gathering (about fifteen or twenty), among whom we noticed C. Q. Roberts and his brother, G. C. Barton, E. L. Moxey, C. Burney and his brother, and Clive Preen. It was a merry little party, and we made good time to the top of Hind Head, where we all stopped to admire the view. We reached Petersfield just before lunch and, visiting the station, found Dr. Low, Messrs. Westall and Selwyn just finishing their labours, which consisted of weighing in the competing vehicles.

The official hotel was the Dolphin, whose proprietor, not having been warned of the event by the club, was hard put to it to cater for the somewhat large crowd. His efforts were not rewarded with great success, but that was not his fault, and he did his best. After lunch we proceeded to the hill, which is just out of South Harting, a pretty Sussex village. The hill, which has a maximum gradient of 1 in 7, winds up the flanks of the Sussex Downs, and has a somewhat loose surface. It has been the scene of many hill-climbs, of which, perhaps, the most famous was one organised by the R.A.C. in 1905.

The Modus Operandi.

The competing vehicles were all marshalled at the foot of the hill and sent up when the signaller at the top made known that the cycle car just started had reached the summit. No vehicle was allowed to start till its predecessor had finished the climb, and so the time taken to send the competitors up the hill was considerable. The flagging was efficiently carried out by members of the Public Schools M.C.C. The first competitor was due to start at 3 p.m., but it was 3.23 before any one reached the steepest portion half-way up the hill. This was A. W. Lambert in Class IV., who came up at a terrific speed on his Grand Prix Morgan, the front wing of which was loose and blown back vertically by the wind. His was an excellent performance. Parnacott in Class III. came next, making a good ascent, considering the small size of his engine.

A Machine on Fire.

Meanwhile news came to hand that Welham had failed just after the start, and Holzapfel's machine had caught fire before starting, and after the flames had been extinguished he failed to get going. Buckingham (Chota) made a fine climb, but his exhaust was abnormally noisy. Kreitmeyer (Zebra) came up well, but slowly. Next came McMinnies on a Grand Prix Morgan at a splendid speed. His inner tube as he passed the steepest portion swelled out like a balloon as part of the tyre left the rim, and did not burst till he was out of sight, but in spite of this he made a capital performance. Spencer (Morgan) travelled well, but there seemed to be a good deal of back wheel slip on the loose surface. Lambert (Morgan) in Class IV. came up well, and so did Martin (Singer), whose engine seemed in excellent tune, and emitted a healthy hum. Armstrong's (Armstrong) ascent may be described as fair. Bradley (Duo) did well, Naylor (G.N.) made a fair ascent, and Wood and Lieut. L. Hook, R.N. (G.W.K.s) came up in excellent form. Halsall's Wilton ran splendidly till some way past the steepest portion, and then stopped. Nash (G.N.) came up fast, but his exhaust was much too noisy. Whitehead, on a similar machine, came up nicely, but was apparently over-geared. The two G.N.'s were those entered for the Grand Prix. Chater-Lea, jun., showed up well on the Chater-Lea, and so did Higgs (G.N.). Among the unfortunates, Vallat (V.C.) broke his counter-shaft at the start, Turner (Truner) broke his chain, Furneaux (Swift) failed owing to a fouled plug, Lord Exmouth (G.N.) stopped at the second bend, and Barrett (Crouch) failed owing to the carburetter running dry. Holzapfel again made an attempt to start and his machine again caught fire.

A. W. Lambert (8 h.p. Morgan) finishing with one of his front mudguards flying, an incident which might have robbed the driver of fastest ascent of the day.

J. F. Buckingham (Chota) travelling well in the 750 c.c. class, which he won.

The Intervals.

The chief failure in the organisation was the allowance of too long an interval between the competitors, which sorely tried the patience of the spectators as well as the honorary officials who flagged the hill. The following are the times made by the successful competitors:

CLASS I.—SINGLE-SEATED CYCLE CARS UP TO 1,100 C.C. (three or four wheels; awards on formula only).

Name.	No. of Cyls. and Car.	Bore and Stroke. mm.	Weight of Machine. c. q. lb.	Weight of Passengers. st. lb.	Time. m. s.
A. W. Lambert ..	2 Morgan ..	90 × 77.5	5 0 14	9 7	1 58⅘

First Open Cycle Car Hill-climb.—

CLASS III.—FOUR-WHEELED CYCLE CARS UP TO 750 C.C. (two-seated).

J. F. Buckingham	1 Chota ...	89 × 120	6	1	10	21	10	2 20⅘
A. E. Parnacott ..	4 Parnacott ..	52·5 × 57	6	3	0	21	10	4 4⅘
K. Kreitmeyer ..	1 Zebra ...	88 × 106	9	3	0	21	6	5 26⅖

CLASS IV.—THREE-WHEELED CYCLE CARS UP TO 1,100 C.C. (two-seated).

W. G. McMinnies	2 Morgan ..	90 × 77·5	5	2	0	24	4	1 43
A. W. Lambert ..	2 Morgan ..	90 × 77·5	5	0	0	21	7	2 0⅕
S. W. Spencer ...	2 Morgan ..	90 × 85	6	0	0	21	4	2 7⅕

CLASS V.—FOUR-WHEELED CYCLE CARS UP TO 1,100 C.C. (two-seated).

A. G. F. Nash ...	2 G.N.	84 × 98	6	0	7	20	3½	1 50⅘
L. Martin	4 Singer ...	63 × 88	11	1	0	21	1	2 14
J. T. Wood	2 G.W.K. ..	80 × 92	9	2	7	21	1	2 14⅕
C. M. Whitehead	2 G.N.	84 × 98	6	1	14	21	13	2 41
G. N. Higgs	2 G.N.	84 × 98	8	0	0	21	4½	2 56⅘
E. H. Armstrong	2 Armstrong	85 × 85	6	2	0	20	0	2 56⅘
N. Naylor	2 G.N.	85 × 85	6	1	7	22	8	2 58⅘
J. Chater-Lea, jun.	2 Chater-Lea	85 × 85	8	2	14	21	1½	3 0
A. P. Bradley ...	2 Duo	85 × 85	9	3	0	22	9	3 19
Lt. L. Hook, R.N.	2 G.W.K. ..	86 × 92	10	1	0	21	10	3 39

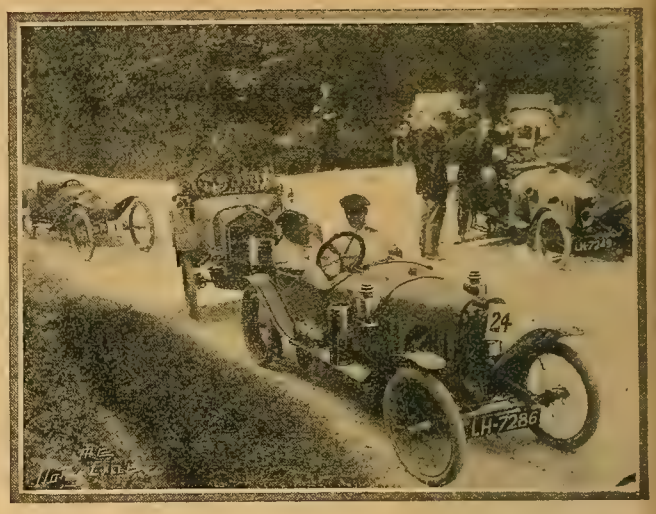
In Classes III., IV., and V. the awards are granted on both time and formula. The latter was as follows:

$$\frac{W}{(C-K)\ Tp}$$

W = Weight.
C = Cubic capacity.
K and = p Constants for length and gradient.

The judges were Dr. A. M. Low, D.Sc., and Mr. Glyn Rowden. We made the journey both ways on one of the new 3½ h.p. Motosacoches, which ran magnificently and had an excellent turn of speed.

After leaving Petersfield, a number of members of the Cycle Car Club left for Selsea, while the Public School M.C.C. went to Havant for the night.



Scene at the foot of South Harting Hill near Petersfield. Lord Exmouth at the wheel of his G.N. At the left of the picture is the Carden.

CLUB NEWS.

East Essex M.C.C.

A reliability trial was held on the 21st ult. The course was as follows: Colchester, Ipswich, Stowmarket, Thetford, Bury St. Edmunds, Sudbury, Halstead, Colchester. The results are as follows: 1, J. C. Bland, junr. (2¾ Douglas), 93%; 2, D. H. Morgan (7 Indian), 87%; 3, A. Gardner (2¾ Douglas), 85%; 4, W. F. Pemberton (3½ Triumph), 80%.

Middlesbrough and District M.C.C.

There were twelve competitors in the 200 miles reliability run for the Gjers Cup on the 25th ult. The route, commencing at Marton Bungalow, was *viâ* Guisborough, Whitby, Scarborough, Malton, York, Tadcaster, Harrogate, Ripley, Ripon, Pateley Bridge, Leyburn, Northallerton, Leven Bridge, and finished at the Bungalow, Marton. C. W. Smith (83 marks) secured the Gjers Cup and gold medal, H. V. Taylor being second, and F. Dixon third.

Airdrie and Coatbridge M.C.C.

A flexibility hill-climb was held on the 25th ult., resulting as follows:

Single-cylinder class.—1, J. Jefferson (4¼ Excelsior), fast climb 45⅘s., slow 2m. 40s., figure of merit 3.4; 2, W. D. Craig (3½ T.T. Triumph), fast 41⅗s., slow 2m. 3⅗s., figure of merit 3.0; 3, J. Darroch (3½ Rudge), fast 40s., slow 1m. 46⅗s., figure of merit 2.6.

Twin class.—1, B. Boyle (8 Matchless), fast 43⅗s., slow 2m. 53⅕s., figure of merit 3.9; 2, D. Grimson (8 Matchless), fast 42⅘s., slow 1m. 56⅖s., figure of merit 2.7.

Surrey M.C.C.

The annual trial from Guildford to Exeter and back took place on the 17th and 18th ult., there being thirteen starters, including four sidecars. Several others accompanied the run, although not competing. The return journey was made by way of Lyme Regis and Dorchester. Owing to a bridge being under repair near Seaton, a *détour* had to be made on to the beach to reach Lyme. The roads throughout were in a very loose condition owing to the dry weather, and tyre trouble was frequent. The following finished within one hour of schedule time: 1, S. Holbrook Crow (8 Chater-Lea sc.); 2, P. Mitchell (3½ Premier); 3, L. A. Lymposs (3½ Triumph). The above scored non-stops, and were within the time margin at all controls. 4, T. G. Meeten (3½ Rudge); 5, C. Acheson Crow (2½ Singer); 6, H. J. Oates (3½ Singer); 7, H. P. Burch (3½ P. and M.) The above scored non-stops, but were early or late at controls. 8, E. Cox (6 Zenith sc.); 9, C. J. Feeny (3½ Triumph); 10, H. Mitchell (3½ Premier).

There will be a speed trial at Clandon Park, near Guildford, on the 16th inst.

Cheltenham M.C.C.

A petrol consumption trial was held on the 11th ult. over a hilly course which resulted as follows:

CLASS I. (For solo machines).—1, W. B. Gibb (2¾ Douglas), 170 m.p.g.; 2, E. Colwell (3½ Triumph).

CLASS II. (For sidecars and cycle cars).—1, Mrs. E. M. Baker (6 Zenith sc.)

A Royal Enfield Reliability Trial.

On Wednesday last week, a trial for amateur owners of Royal Enfield motor cycles was held, a special permit having been granted by Mr. A. I. Greenwood for the event. The course was to Aysgarth and back, a distance of 110 miles, Kidstone Pass (a steep hill in the 1911 A.C.U. Six Days' Trial) being included. The winner proved to be Hy. Hodge, of Leeds, who was mounted on a 6 h.p. sidecar combination. He was awarded the twenty guinea silver challenge cup for one year and a gold medal.

Ready to start from the City Square, Leeds, in the Royal Enfield reliability trial.

Club News.—

Wimbledon M.C.C.

The result of the second club trial is as follows: 1, R. C. Martin (Triumph); 2, H. W. Bull (Triumph); 3, C. Stacey (Douglas).

The Brookdale Club, Catford.

The night trial held on the 21st ult. resulted in a win for H. A. Cooper (3½ Bradbury sc.), with S. Gibson (6 Enfield sc.) and F. Kennard (6 Matchless) second and third.

Sheffield and Hallamshire M.C.C.

On the 21st ult. there was a 300 miles reliability trial to Carlisle and back for the Bisby Trophy, presented by the president. For some unaccountable reason only six competitors faced the starter. Results: 1, D. Bradbury (3½ Rudge), winner of the trophy and prize, lost 1 mark; 2, Sawer (3½ Premier), lost 4 marks; 3, Swan (3½ Rover), lost 11 marks.

Leeds M.C.C.

The final run off of the Beulah hill-climb took place on the 21st ult. Result: 1, C. Foster (3½ h.p. Bradbury sc.), 51⅜s.; 2, C. Benn (3½ h.p. Triumph), 41⅘s. After this event a minor speed-judging competition was held, with the following results:

SIDECARS.

	Time allotted.	Actual time.	Difference.
A. Lees (6 Dot)	65s.	69⅘s.	4⅘s.
— Green (3½ Rudge)	67s.	72⅖s.	5⅖s.
A. T. Jenkins (3½ Triumph) ...	97s.	103s.	6s.

SOLOS.

R. Cawthorne (3½ Cawthorne) ...	75s.	75⅕s.	⅕s.
R. Kirk (3½ Triumph)	54s.	52⅖s.	1⅕s.
C. Benn (3½ Triumph)	56s.	53⅗s.	2⅕s.

Hamilton and District M.C.C.

A speed test was held on the 21st ult. over half a mile on the Carlisle Road. Results:

500 c.c. CLASS.—1, J. Darroch (3½ Rudge), 31s.; 2, R. Torrance (3½ Premier), 33⅕s.; 3, J. Clelland (3½ Rudge), 35⅕s.

650 c.c. CLASS.—1, Dr. Totheringham (3½ Bradbury), 30⅜s.; 2, J. Darroch (3½ Rudge), 30⅜s.; 3, R. Walker (5-6 A.J.S.), 37⅕s.

T.T. CLASS.—1, J. Darroch (3½ Rudge), 28⅘s.; 2, R. Torrance (3½ Premier), 31⅗s.; 3, Wm. Rodger (3½ Triumph), 33s.

ANY CAPACITY CLASS.—1, J. Sword (8 Matchless), 26s.; 2, J. Brown (7 Indian), 29s.; 3, J. Darroch (3½ Rudge), 30⅖s.

The results of a petrol consumption contest which was run off on the 11th ult. on formula were as follows: 1, T. Gibson (7 Indian); 2, Wm. Scott (5 Indian); 3, R. W. Brown (7 Indian); 4, J. Low (3½ Triumph); 5, Wm. Rodger (3½ Triumph); 6, Dr. Totheringham (3½ Bradbury).

Armstrong College M.C.C.

A hill-climb was held by this newly formed club recently near Rothbury. Result: Handicap. 1, Jackson (Dene-Precision); 2, H. Hunter (Dene-Precision); 3, Stead (2¾ Douglas). Scratch Race: 1, Philip (Matchless); 2, Lynch (N.U.T.)

Belfast and North of Ireland M.C.C.

A hill-climb was held on the 14th ult. at Carnmoney. Result:

CLASS I.—1, Francis Willochs (3½ Jap); 2, R. McKibben (3½ O.K. Precision); 2, John Robb (3½ Jap).

CLASS II. (Flexibility.)—1, James Miller (3½ Campion-Jap); 2, John Robb (3½ Jap); 3, Francis Willochs (3½ Jap).

A reliability trial of 200 miles will be held on July 12th.

Manchester Hundred M.C.

The Manchester Hundred Motor Club were favoured with glorious weather for their 100 miles novices' open reliability trial for motor cycles, sidecars, and cycle cars. The competition was confined to amateurs who had never won a prize in any open reliability trial, and an entry of forty was obtained, thirty-six of whom faced the starter at the Ram's Head Hotel, Disley. The results were as follows: 1, A. E. Dearnaley (3½ B.S.A. sc.); 2, S. P. Dawson (3½ Kynoch); 3, E. Robson (G.W.K. cycle car). The winner, A. E. Dearnaley, was enthusiastically chaired by his colleagues round the hotel grounds.

Newcastle and District M.C.C.

A hill-climb has been held on Lakeside near Rothbury. Results:

350 c.c. class.—R. Scoon (N.U.T.) beat G. Raper (A.J.S.)

500 c.c. class.—W. Atkinson (Rudge) beat R. B. Smith (B.S.A.)

775 c.c. class.—R. Scoon (6 Nut) beat C. Armstrong (Ivy-Precision).

1,000 c.c. class.—H. N. Hull (6 Matchless) beat J. Hodgson (6 Matchless).

Passenger class.—R. Bradford (8 Matchless) beat F. Oliver (8 Chater-Lea).

Oxford M.C.C.

A hill-climb took place at Whiteleaf Hill, Monks Risborough, on the 19th ult., in connection with the Mid-Bucks M.C.C. Results:

Class A (under 350 c.c.).—1, H. G. Hill (2½ Calcott), Oxon; 2, C. Dickinson (2½ Singer), Bucks.

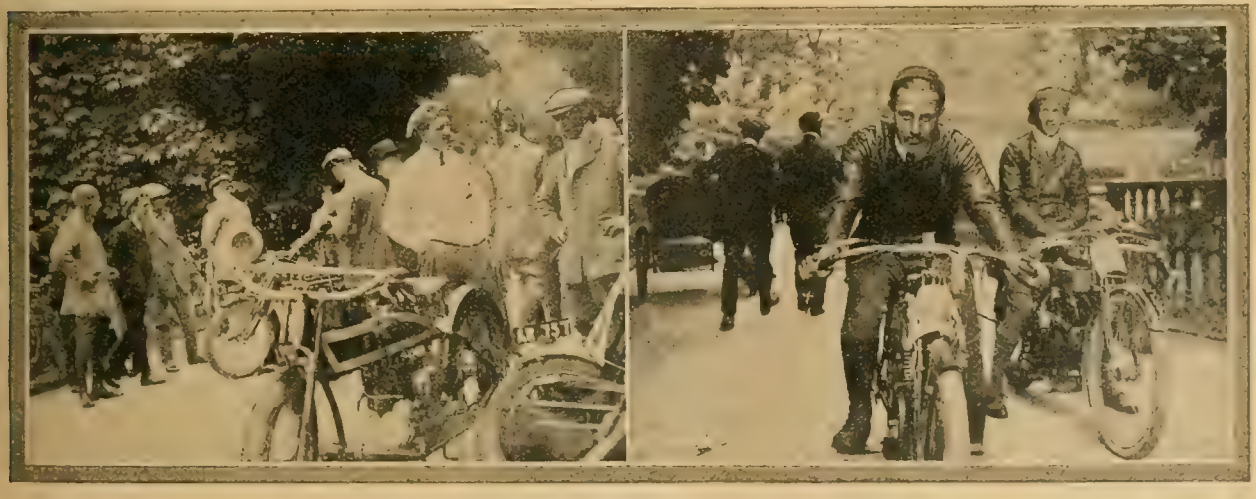
Class B. (under 500 c.c.).—1, H. G. Hill (2½ Calcott), Oxon; 2, G. W. Russell (3½ Rover), Bucks.

Class C. (under 500 c.c., variable gears).—1, H. L. Turner (3½ Rudge), Bucks; 2, C. B. C. Loxley (3½ Triumph), Oxon.

Class D. (passenger machines).—1, H. R. Annis (3½ New Hudson), Oxon; 2, A. James (6 Zenith), Oxon.

The Oxford M.C.C. won four events to nil.

Fastest time of the day.—1, G. W. Russell (3½ Rover), 57⅕s.; 2, H. G. Hill (2½ Calcott), 57⅗s.



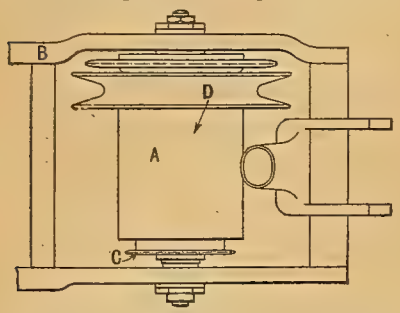
HERTFORDSHIRE M.C.C. SPEED TRIALS IN LUTON HOO PARK.

H. G. Hill and E. H. Lees examining the four-cylinder Henderson, which machine caused a good deal of interest

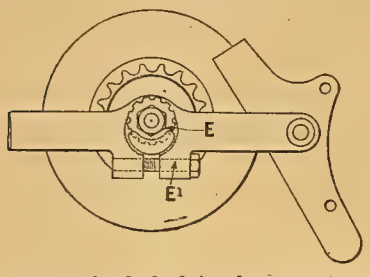
A. J. Dixon (Singer) and W. F. Newsome (Douglas) who shared a number of premier awards.

The Hazlewood Counter-shaft Gear.

A three-speed hub A, such as the Armstrong, is mounted in a bracket B on the frame. The drive is by chain from the engine to the sprocket C, and



from the hub shell to the rear wheel by means of the pulley D. Adjustment of the chain is effected by providing the hub with an eccentric mounting E,

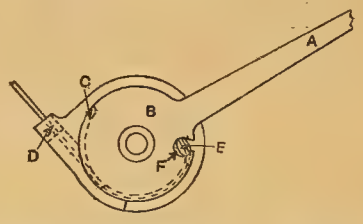


which can be locked in the correct position by a clamping bolt E¹.—Hazlewoods, Ltd., and A. Walsgrove, No. 22,585, 1912.

PATENTS by Eric W. Walford F.C.I.P.A.

Bowden Wire Attachment.

The inventor of this lever is endeavouring to produce a more substantial construction with easy detachment of the wires. The lever A has a circular plate B in the periphery of which is cut a groove C for the reception of the Bowden inner cable D. This cable is provided with a stop E which can be passed through a reduced aperture into a cavity F. When inserted in this cavity the pull on the wire turns the stop E into such a position that it cannot pass out



through the reduced aperture and it is accordingly held securely. Detachment can be effected by slacking the wire so that the stop can turn round and pass out of the cavity.—A. A. Scott, No. 27,418, 1912.

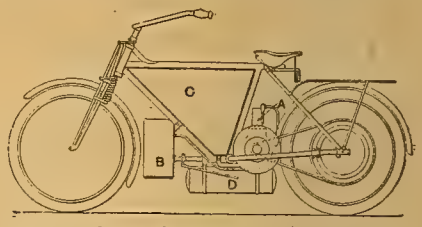
A Driving Belt.

This is an articulated transmitter composed of blocks of leather A B arranged vertically and overlapping one another,

being connected by screws C. Intervening plates D of metal serve to strengthen the belt and prevent stretch. —W. R. Sleigh, No. 9,088, 1912.

A Steam Motor Bicycle.

On this machine the engine A is arranged between the chain stays, which are widened out near the crank bracket to accommodate the engine. The boiler or generator is arranged at B, and is supplied with water from the tank C, whilst the burner receives fuel under



pressure from the tank D. It is also suggested that the tank C inside the frame should be divided into two compartments, one for water, and the other for petrol or other fuel used.—H. Pearson and P. Cox, of Pearson and Cox, Ltd., No. 20,522, 1912.

New Telephone Number.

The telephone number of *The Motor Cycle* publishing offices in London has been changed to City 2848 (five lines).

New Address.

Kemps' Vulcanising Depot, of 19, Hardman Street, Manchester, the tyre repairers, have opened a branch at 125, Devonshire Street, Sheffield.

"The Autocar Handbook."

The fifth edition of *The Autocar* Handbook includes special chapters on cycle cars and miniature cars, which are likely to be of special interest to our readers. The whole of the text has been recently revised, and seventy pages of matter added. The chapter on "Ignition" includes large detailed illustrations explaining the working and construction of a magneto in the simplest possible manner. The price of the book is 1s. 9d., post free, from Iliffe and Sons, Ltd., 20, Tudor Street, London, E.C.

A New Series of Maps.

The proprietors of Horlicks malted milk have just issued a set of most excellent motoring maps, scale twelve miles to the inch, of England and Wales, Scotland and Ireland. They are beautifully clear and show distinctly first, second-class, and other roads, while the distances between towns are also given. Each map will be sent to any motor cyclists who forwards 3d. in stamps to Horlicks Malted Milk Co., Slough, Bucks, or the whole set of three may be obtained for the modest sum of 8d.

SPARKLETS

Belt Successes.

The successes of Pedley belts continue week by week. This week's list includes four firsts in Herts Open Speed Trials, both firsts at B.A.R.C., and eight new sidecar records from the km. to four hours at Brooklands.

Walthamstow Carnival.

Mr. G. Best, 91, Forest Road, Walthamstow, organising secretary for the carnival at Walthamstow, in aid of the Walthamstow and Tottenham Hospitals, to be held on Saturday, July 26th, will be glad to hear from motor cyclists who may care to take part in this event.

Maps and Guides.

An excellent map, printed with Messrs. Bartholomew's customary clearness and accuracy, is the Contour Motor Map of the British Isles, showing clearly the main through roads and the altitudes of different parts of the country. This map also shows plans of the cities of London, Manchester, Edinburgh, Glasgow, and Dublin, on a sufficiently large scale to enable the motor cyclist to find his way in or out.

Reviews.

"The Motor and Gas Power Pocket Book." International Correspondence Schools, Limited, Kingsway, London, W.C., 5s. A useful handbook for engineers, giving formulæ, mathematical tables, and a host of most useful information.

An Italian Order.

After tests extending over some months the Italian Government have just placed an order for a large number of motor cycles for its army, Italian makes being the ones favoured. English carburetters, however, were preferred, the British-made Amac being specified.

Luton Hoo Speed Trials.

In our report of the speed trials at Luton Hoo, it was stated that C. M. Down's Enfield would not run properly. We learn that the reason of this was an unfortunate collision before the event which caused damage that could not be rectified in time, and was in no way due to the machine itself, which, we understand, was the same that ran so steadily in the T.T.

Catalogues Received.

Chater-Lea, Ltd., 74-84, Banner Street, Golden Lane, E.C. (Chater-Lea cycle cars); Continental Tyre and Rubber Co., Ltd., Thurloe Place, London, S.W., ("Successes 1912." A booklet portraying scenes from the various events in which Continental tyres have proved successful); The Hendee Mfg. Co., Ltd., 178, Great Portland Street, London, N.W. (Indian motor cycle parts for 1909 to 1913.)

A.J.S.

THE ONLY ONE

Sidecar Machine in IRISH 24 Hours' Trial (over 400 miles) to carry Sidecar and Passenger throughout the whole journey —succeeding on the DONEGAL HILLS—finishing exactly to time and gaining MAXIMUM MARKS was the

A.J.S.

Out of 21 entries 17 were sidecar machines, or sold as such.

You cannot do better than invest in the RELIABLE

A.J.S.

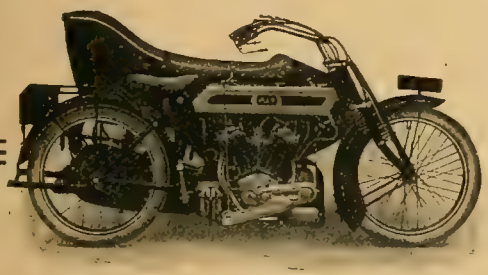
for your sidecar combination.

The One That Can Do The Work.

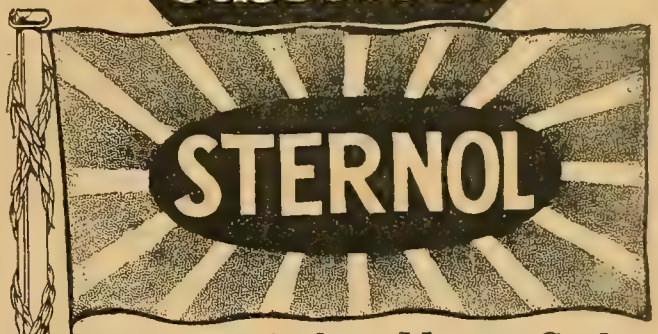
A. J. Stevens & Co., Ltd.,
Retreat Street, Wolverhampton.

LONDON: H. Taylor & Co., Ltd.,
21A, Store Street,
Tottenham Court Road, W.C.

DUBLIN: Wallen's, 6-7, Nassau Street.



Still MORE STERNOL Successes



Elite Oil for Motor Cycles.

Brooklands.

The British Automobile Racing Club Midsummer Meeting, 21st June, 1913—

Fifteenth Short Motor Cycle Race.

C. G. Pullin .. Rudge .. FIRST .. Cup.
G. E. Stanley .. Singer .. THIRD .. Cup.

"Daily Express" Motor Cycle Benzol Race:

G. E. Stanley .. Singer .. FIRST .. Cup.
(Average speed 69½ m.p.h., the fastest time ever done by a 500 c.c. in a race of this distance.)
C. G. Pullin .. Rudge .. SECOND

Hertfordshire M.C.C.

Luton Hoo Open Speed Trials — 21st June, 1913.

Class I c. Racing Single Cylinder to 300 c.c.
A. J. Dixon .. Singer .. FIRST.

Class 3 c. Racing Single Cylinder to 500 c.c.
A. J. Dixon .. Singer .. FIRST
Fastest time of the day Single Cylinders on Sternol.

¶ All these riders used "Sternol" Elite Oil, as offered in our Price List and supplied to the Public. It was not a special preparation. It was "Sternol" Elite Oil, just as you can obtain it from any motor agent.

¶ If you want to get the best results from your engine you must use "Sternol" Elite Oil.

ORDER A TIN TO-DAY.

One tin is sufficient. Ask your dealer for it, and insist on getting it. Refuse all substitutes. In any case of difficulty write to us.

STERNOL

(Stern Sonneborn Oil Co., Ltd.),

56, Royal London House, Finsbury Square, London, E.C.

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HIGHEST GRADE

The KEY to the Lighting Problem

you'll find in "The P. & H."—that's the LAMP you need to satisfactorily settle the question of "efficient lighting"—its powerful penetrating light, and uniformly perfect service, enables you to travel by night in perfect safety absolutely trouble-free.

OUR MODEL 127C

Has Extra Large PROJECTOR, 6½in. Front; powerful 5in. Real Mangin Reflector; Bray "RONI" Burner—which cannot crack lens or mirror—fitted into a perfect arrangement for adjusting; 5½in. Plate Glass Convex Lens; Special GENERATOR can be easily cleaned and re-charged; and adjustable stamped steel DOUBLE CARRIER, of exceptional strength, complete with best quality Rubber Connection, easily fitted on handle-bar stem or lamp bracket.

Price: Nickel or Ebony Finish 36/6

—This Model offers the highest Lamp value on the market—examine it at your Agents, and note its marked superiority. Ask for our "Lamp Booklet."

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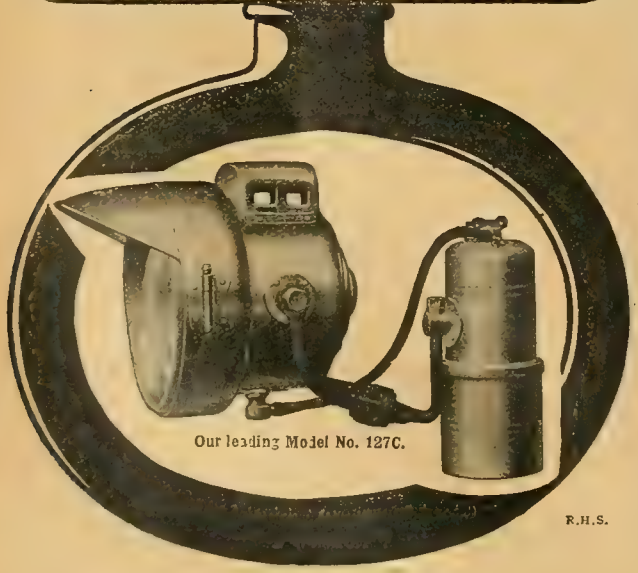

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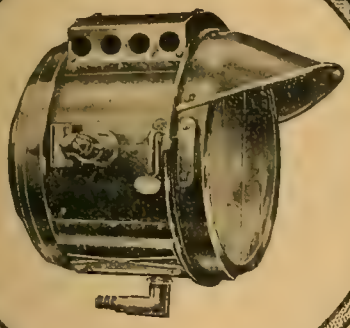

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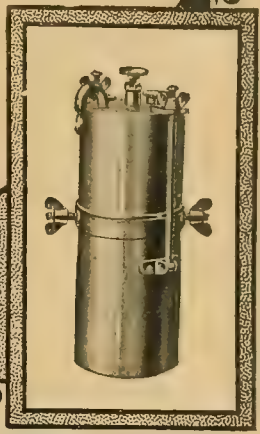
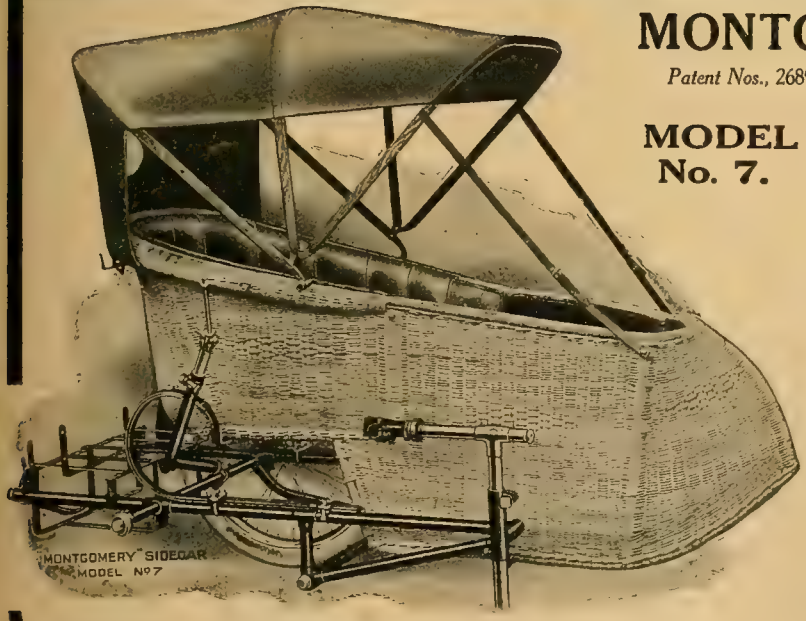


MONTGOMERY SIDECAR

Patent Nos., 26893/10, 26894/10, 26895/10. *Prov. Patent*, 24482.
Regd. Nos., 610486, 610485.



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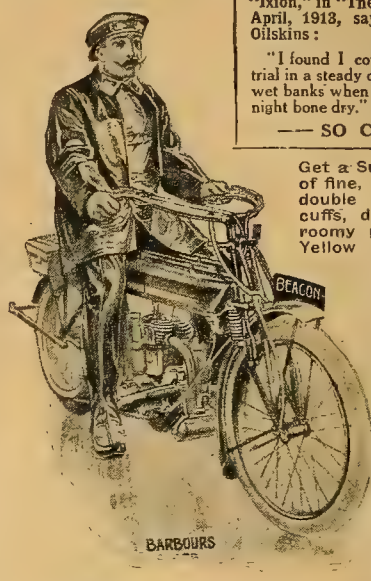

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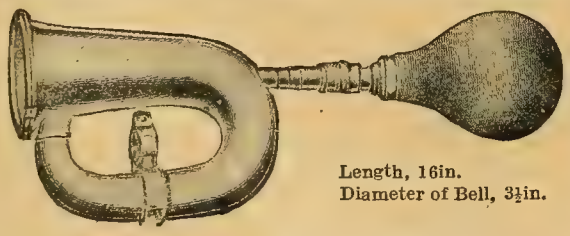

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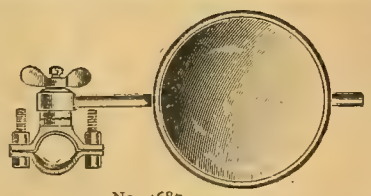

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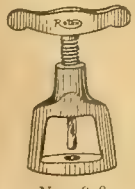

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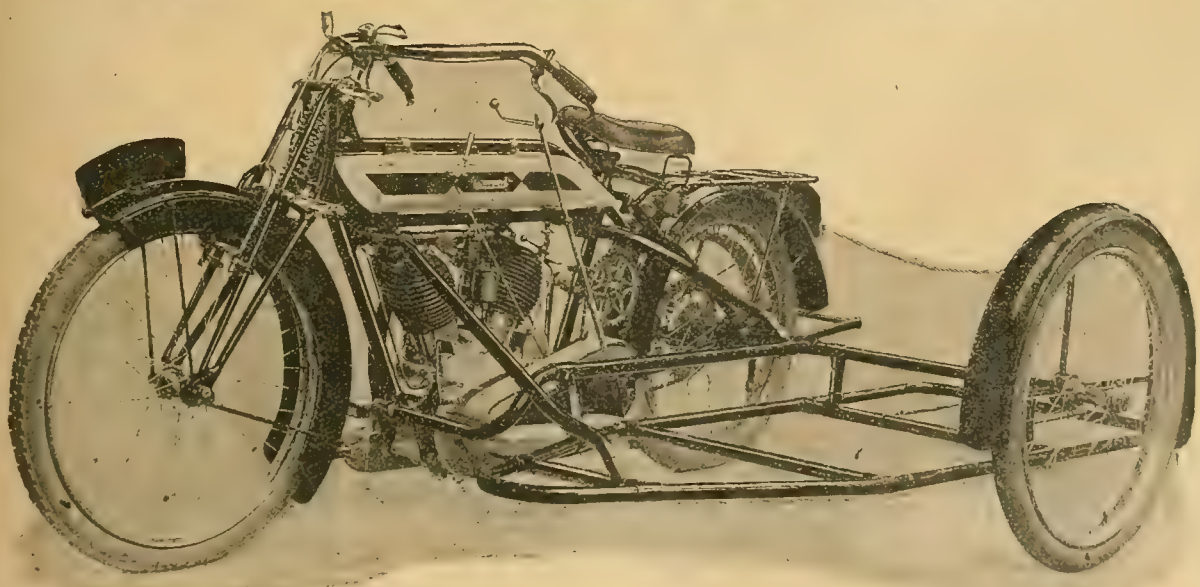

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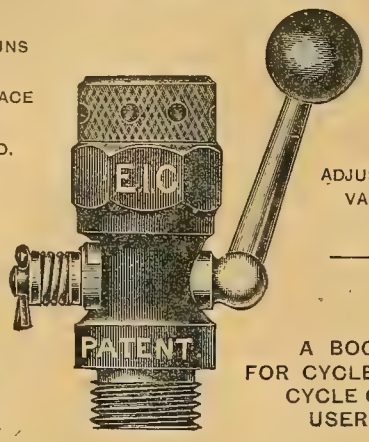

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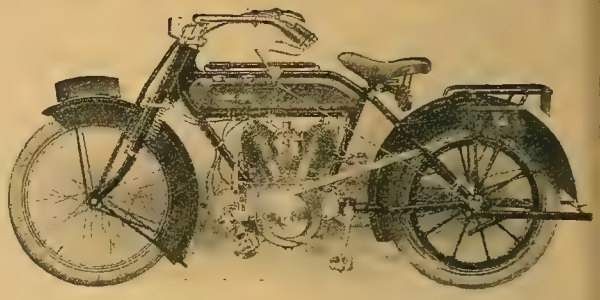

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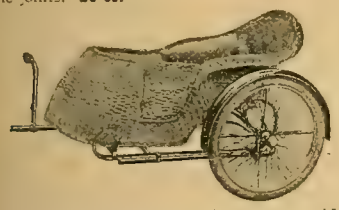

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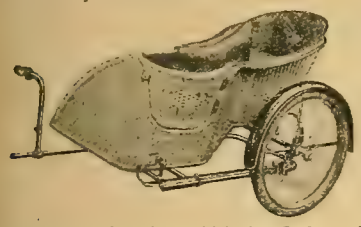

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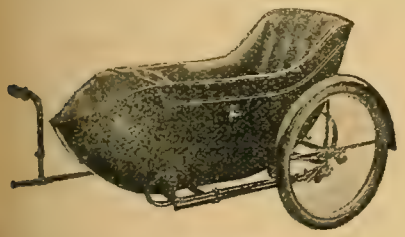

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Standard machine, as turned out by makers, fitted with 3½ h.p. Precision engine, M.O.V., Best and Lloyd lubricator, Hutchinson rubber-studded tyres, Bosch weather-proof magneto, handle-bar control, spring forks, stand, carrier, toolbag, and number-plates. Listed £52 10s. **Our Price, £35 10s.**
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We are Special Agents for these High-class Engines, and keep a large stock. We are prepared to take your present engine in exchange, and give prompt delivery. We are also in the position to supply THE TRADE.

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HODGSON is sole Bradford and district agent for Sunbeams, Excelsiors, and Premiers; all models in stock.—10, Horton Rd., Bradford. Tel.: 5361. [4958

1911 Triumph, Zenith Gradua gear, Cowey speedometer, Lucas lamp, horn, accessories, splendid condition; best offer.—Taylor, Oakwood, Batley. [8371

HUMBER Lightweight, 1910½, in good order, good tyres, not run 50 miles this last 18 months, spares; bargain, £18.—Ernest Holdsworth, Chevet, Wakefield. [X226

LINCOLN-ELK Motor Cycles offer real value.—4¼ h.p., 2-speed, passenger model, £46; easy payments, immediate delivery.—Sole agents, Cooke's, Longsight. [8073

TRIUMPH, free engine, 1911; Rover, free engine, 1912; Triumph, standard, 1910; Triumph, free engine, 1909; all in excellent running order.—Stockdale, Lytham. [X8797

WE are in a position to supply, on good trade terms, Scott motor cycles to Scott agents, and into districts where not already represented.—Hitchens, Ltd., Morecambe. [8458

1913 Zeniths; immediate delivery any model; cash, exchange, or deferred terms; state amount wanted for your old machine in first letter.—Hitchen's, Ltd., Morecambe. [7570

1913 2¾h.p. Precision, Bosch, B. and B., Druids, 2¼ Hutchinson, Brooks, tools, lamp, etc.; cost £40, sacrifice £35; unridden, must sell.—Jowitt, 106, Lawrence St., York. [X627

1913 3½h.p. Bradbury, 2-speed, chain drive, brand new, only been ridden 5 miles; private reasons for selling; cost £62, accept £50 for quick sale.—16, Cloth Hall St., Huddersfield. [X234

1913 New Enfield Combination for immediate delivery, best offers; 1913 3½h.p. 2-speed chain driven Bradbury for immediate delivery.—Bambers, 19, Liverpool Rd., Birkdale, Southport. [8242

2¾h.p. F.N. Motor Cycle, running order, new belt, good tyres, tubes, etc.; must sell; £6/10, offers; also pair of Premier spring forks, 15/-, worth double.—C. Parker, 35, Clarendon Rd., Blackpool. [8235

P. and M., Scott, 1913 models in stock, immediate delivery; 1913 Scott, not run 500 miles, absolutely as new, £62; 1913 Douglas N, in new condition, £37; 1912 Rudge Multi, new, £48.—Everingham, Pocklington. [X727

GOOD Lightweight Motosacoche, Bosch mag., Druid spring forks, Whittle belt, good Dunlop tyres, perfect order, good condition; £12; good gent's cycle part exchange.—18, Magdala St., Smithdown Rd., Liverpool. [X850

1911 2¾h.p. Douglas, 2-speed and clutch, Hutchinson tyres, practically new, Dunlop belt, practically new, N.A.B. spring seat-pillar, kit of tools, etc., machine in perfect condition; £32.—4, Welbeck Rd., Birkdale, Southport. [8241

LEA-FRANCIS, 1913, 3½h.p., bought 9th June, £71/7/6, only done 20 miles, perfect condition, with best Lucas lamp and horn.—Herschell, Daneshey, Meols, Cheshire. On view Harrisons, 73, Bold St., Liverpool. [X636

1913 Rudge Multi-speed, free engine, Lucas lamp, horn, tools, perfect condition, a bargain, £45; 1912 Royal Enfield, 2-speed, free engine as new, £36.—Fitchie Bros., Motor Agents, Fylde Rd., Preston. [X770

1913 Victoria, 3½h.p. Precision engine, Bosch mag., Druid forks, Dunlop tyres and belt, B. and B. carburetter, Sturmey-Archer 3-speed; £47, complete; grand sidecar machine.—Fitchie Bros., District Agents, Fylde Rd., Preston. [X769

GREAT Bargains, must be sold.—1911 Douglas, like new, £24; 1912 free engine B.S.A., £38; 5-6h.p. twin Rex, 1909, free engine, new condition, £20; 5-6h.p. twin Rex and sidecar, 1911, 2-speed, free engine, £32; 1912 Premier and sidecar, 3¾h.p., twin-cyl., 3-speed gear, £45; written warranty given with each machine; offers wanted.—J. Guttenberg, The Moor, Sheffield. [0288

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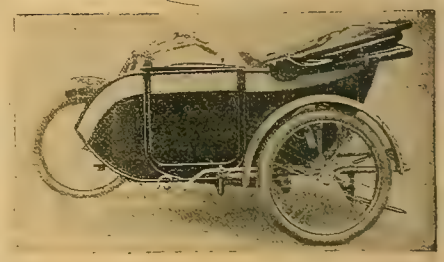

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NEW and 2nd-hand at the leading depots for the Midlands; agents for Douglas, Scott, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, Birmingham and Leicester. [X6047

COLMORE.—1911 3½h.p. Humber, free engine; £29.

COLMORE.—1911 2½h.p. New Hudson, 3-speed; £25.

COLMORE.—1912 Douglas, model K; £37.

COLMORE.—1912 3½h.p. Campion-Jap; £34.

COLMORE.—1912 3½h.p. Precision, 3-speed, and sidecar; £39.

COLMORE.—1912 Scott, splendid condition; £56.

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1911 Free Engine Triumph; £29, grand value.

1912 Rex Sidette, 6h.p., 2-speed, free engine; £43, complete.

1911 Douglas; very great bargain, £24.

1912 Humber, 2¾h.p., 3-speed; £34; only wants seeing.

1911 Singer, bought August, 1912; £33; any trial given.

1912 Macbeth, 3½h.p., 3-speed; £38; competition winner.

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1912 6h.p. Matchless, 2-speed, free engine; £49.

COLMORE Depot, 62, High St., Leicester. [8437

F.N., 2½h.p., new, perfect, medal 120 miles non-stop; cash, £42, or nearest.—Pontifex, King's Rd., Hay Mills. [X852

DOUGLAS, Motosacoche, and Excelsiors; immediate delivery.—Midland Cycle Depot, 15, Hales St., Coventry. [X508

3½h.p. Triumph, rebushed new lamp, tyre, tubes, belt; bargain, £22/10.—Moore, Station Rd., Quorn, Leicestershire. [X791

1911 Bradbury, 2-speed hub, Cowey, F.R.S., nearly new tyres and belt, spares; £28.—Purser, University, Edgbaston, Birmingham. [X863

3½h.p. Triumph, Oct., 1911, just overhauled Triumph works, clutch, Lucas King Road lamp; £37/10.—3,576, *The Motor Cycle* Offices, Coventry. [X584

1913 Rover, clutch, done 400 miles, Lucas lamp, horn, A.C.U. insurance policy; bargain, £48.—Haith, pawnbroker, Victor St., Grimsby. [X219

SUNBEAM, also Campion, latest J.A.P., 2-speed, new (see Exchange column); twin Enfield, little used, cheap.—Watson, Tuxford and Retford. [X785

TRIUMPH, free engine, 1912½, as new, Lucas £3 lamp, and all spares; £42; owner going abroad.—Fred. Mawer, 34, Tentercroft St., Lincoln. [X804

3½h.p. Humber, Sturmey-Archer 3-speed, not unpacked, owner cannot take delivery; £54 cash, usual price £57/10.—Richardson, Motor Garage, Northampton. [X653

BARGAINS.—1¾h.p. F.N., Bosch, B. and B., low, reliable, £12; 2¾h.p. Minerva, B. and B., battery, fast, powerful, reliable, £11.—Sibson, Bond St., Leicester. [X822

3½h.p. Rover, perfect condition, free engine, Cowey speedometer, accessories, and spares; 40 gns., or nearest; cash wanted.—59, Abington St., Northampton. [X821

1910 Triumph, engine as new, new tyre and Dunlop belt, every accessory; real bargain, £26, or exchange free engine machine.—Rogers, Bungalow, Stechford. [X921

3½h.p. Rec, Mabon clutch, mag., just overhauled and rebushed, tyres retreaded; sacrifice, £12, or pedal cycle and cash.—A. Raven, 218, Knox Rd., Wellingborough. [X651

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1909 5 h.p. 2-speed Twin **REX** de Luxe, and new rigid sidecar	£34 10
1912 3-speed **BRADBURY** and sidecar	£50 0
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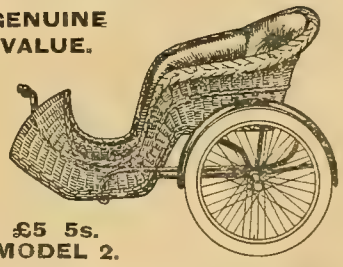

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HUMBER, 1912½, 3½h.p., free engine, 2-speed gear, handle starting, only run 2,000 miles; bargain, £34.—Drapery Stores, 64, Tilton Rd., Small Heath, Birmingham. [X597

TRIUMPH, 1909, in good condition, new Michelin tyre on back wheel, new piston and cylinder just fitted; accept £24, or best offer.—Fancourt, St. Paul's St., Stamford. [8178

1911 T.T. Premier, new back tyre and belt, front cover in good condition, new cylinder and piston, complete with horn and lamp; a bargain, £28.—Simpson, 72, High St., Leicester. [X851

MOTOSACOCHE, 2h.p., 1910, Druids, mag., Whittle (new), B. and B., Michelin (new), requires slight repairs; £14, or best offer.—Saunders, Bishops Rd., Sutton Coldfield, Warwicks. [8161

ENFIELD, 2¾h.p., 1911, single speed, overhauled and engine modernised last August, splendid condition, lamp, horn, tools; £24, or with Cowey £26.—No. 3,590, *The Motor Cycle* Offices, Coventry. [X847

SCOTT, 1913, used few times only, speedometer, Lucas horn, mirror, watch, F.R.S. lamp, dissolved acetylene, spare tube, tyre; cost £90, sacrifice £68; owner buying car.—Dr. Black, Park Row, Nottingham. [X747

NORTON, 5-6h.p. Twin, Bosch, Amac, Brooks 170, back rest, P. and M. gear, engine re-bushed, everything else new, fine condition, very fast and slow, Millford large wicker sidecar, Leamington passenger spring seat, £45; exchange small car or A.C.—Mays, 123, Oxford Rd., Acocks Green. [X712

PLASTOW, Grimsby, has the following 1913 models in stock: 1913 Triumph 3-speed, 1913 Bradbury 3-speed, 1913 Humber 3-speed, 1913 Premier 2-speed (counter-shaft), 1913 Douglas model R, 1913 B.S.A. 2-speed (chain drive); also 1912 Multi Rudge £39, 1911 Indian £39, 1909 Triumph £25, 1908 Triumph £21, 1911 Humber lightweight £17/10, 1910 twin Enfield £16/10; exchanges and offers entertained. [X734

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

IMMEDIATE Delivery of A.J.S., Singer, or James from district agents, John Aldrich and Co., Diss. [7873

1912 Rudge Multi, Lucas King of the Road lamp; cost £65, take £43.—Foll, surveyor, Woburn Sands. [8264

RUDGE, 1912, free engine, lamp and horn, condition as new; £35.—W. Watkinson, 36a, Lowther St., Newmarket. [X218

NEW Free Engine Ariel Motor Cycle, spring seat pillar; £47, cost £53/15.—Luff, Charsfield, Wickham Market. [X53

ENFIELD, 2¾h.p., 1912, 2-speed and free, lamp, horn, enamel as new; £32.—Watson, 34, Beatrice Rd., Norwich. [8148

1913 3½h.p. Standard Bradbury, absolutely brand new, but slightly shop-soiled; £42.—Parker and Son, St. Ives, Hunts. [8219

2¼h.p. Moto-Reve Twin, mag., Druids, fast, powerful, reliable; £12/10; appointment.—36, Northumberland Av., Wanstead. [X861

1912 F.E. Triumph, 1911 standard Triumph, 3½h.p. variable gear Ariel, 2½h.p. Premier, in splendid condition.—Feaviour, Harleston. [8135

ONE N.S.U., 3½h.p., 2-speed, free engine, B. and B., machine in splendid order; bargain, £18/10.—S. Goode, Duke St., Haughley, Suffolk. [8246

TRIUMPH, 1910, 3½h.p., free engine, new 1912 cylinder just fitted, everything good; bargain, £24.—Percy Smith, Wherstead Rd., Ipswich. [X704

DOUGLAS, Douglas, Douglas.—All 1913 models in stock for immediate delivery. Let me book your order at once.—Flanders' Motor Cycle Depots, Norwich and Yarmouth. [0308

1912 3½h.p. Triumph, standard model, ridden 1,500 miles, perfect, £33, cost £48/15; or 1913 3½h.p. T.T. Triumph roadster, decompressor, ride and start walking pace, new month ago, ridden 200 miles, faultless, £44.—Myers, Rous Rd., Newmarket [8316

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

5-6h.p. Rex, fine order; £12/12; bought B.S.A.—Wills, chemist, Merthyr. [8344

1¾h.p. Wolf, mag., in good condition; £9, or nearest offer.—Mace, Tenbury. [X647

LEVIS, 2½h.p., absolutely new and unused; cash offers wanted.—Daniel, Troedyrhiw. [X780

SCOTT, 1910-11, 2-speed, new pistons, new wiring, perfect; £28.—2, Albany Rd., Cardiff. [X592

1913 Humber, 3½h.p., 3-speed, very slightly shop-soiled; bargain, £47/10.—Howell, Hereford. [X849

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ALL THOROUGHLY OVERHAUL (not merely with the carb deposit scraped out) AND

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1239.	1912	**ZENITH,** 6 h.p.
1241.	1911	**REX** de Luxe, 4 h.p., 2-speed
1265.	1912	**BRADBURY,** 3½ h.p.
1276.	1912	**ZENITH,** 6 h.p.
1283.	1912	**ZENITH,** 3½ h.p.
1284.	1912	**CLYNO,** 6 h.p., 2-speed
1285.	1912	**CLYNO,** 6 h.p., 2-speed
1286.	1911-12	**MATCHLESS,** 8 h.p., 2-speed, and Matchless Sidecar
1291.	1912	**BRADBURY,** 3½ h.p., 2-speed
1295.	1912	**CHATER-J.A.P.,** 8 h.p., free engine
1302.	1911	**ZENITH,** 3½ h.p.
1318.	1912	**ZENITH,** 3½ h.p.
1321.	1912	**F.N.,** 5-6 h.p., 2-speed
1327.	1912	**BRADBURY,** 3½ h.p.
1332.	1911	**ZENITH,** 6h.p.
1334.	1912	**SINGER,** 4 h.p., 2-speed
1338.	1912	**BRADBURY,** 3½ h.p., free engine
1341.	1912	**ZENITH,** 6 h.p.
1342.	1912	**ZENITH,** 6 h.p.
1352.	1911	**REX** de Luxe, 5 h.p., 2-speed
1354.	1912	**TRIUMPH,** 3½ h.p., free engine
1357.	1910	**PREMIER,** 3⅜ h.p., twin cylinder
1358S.		5-6 h.p. **F.N.,** 4-cylinder, clutch model
1362.	1912	**RUDGE,** 3½ h.p., free engine
1363.	1912	**RUDGE,** 3½ h.p., free engine
1368S.	1911	**F.N.,** 4-cylinder, 2-speed
1370.	1912	**QUADRANT,** 4½ h.p., 3-speed
1373S.	1912	**F.N.,** 4-cylinder, free engine
1375S.	1911	**MOTO-REVE,** 2 h.p.
1378S.	1912	**F.N.,** 4-cylinder, free engine
1384.		Model "A" **HENDERSON,** 4-cyl., 7 h.p., F.E.
1387S.	1912	**RUDGE** Multi, 3½ h.p., and wicker S'car
1390S.	1912	**SCOTT,** 3⅜ h.p., 2-stroke, 2-speed, water-cooled, and wicker Sidecar
1393.		Model "A" **HENDERSON,** 4-cyl., 7 h.p., F.E.
1394S.		**RUDGE** Multi, 3½ h.p.
1395S.	1912	**J.A.P.-CHATER,** 6 h.p., free engine, and wicker Sidecar, with child's seat
1396S.	1912	**HUMBER,** 3½ h.p., 2-speed
1397.	1912	**DOUGLAS,** 2⅜ h.p., 2-speed, kick starter
1398S.	1912 (Late)	**F.N.,** 2⅜ h.p., 2-speed

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JULY 10TH, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

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Carburetters and Flexibility.

ENGINE flexibility is a matter worthy of more serious attention. In our leaderette of June 19th we suggested that the secret of slow running on top gear lies chiefly in the use of an automatic carburetter. This suggestion is thrust upon the public by the fact that the automatic carburetter is employed almost exclusively on cars for both touring and racing purposes, though, of course, multi-cylinder engines render the problem of the automatic carburetter much more simple. One has only to take a ride in a car of large horse-power and watch the driver picking his way through traffic on top gear merely by the use of one pedal, to appreciate fully the use of an automatic carburetter. We should very much like to see more attention paid to this most important factor of a sweetly running engine controllable at all speeds.

Accordingly we feel that some encouragement is necessary, and with this end in view we give it as our opinion that the A.C.U. would confer a great benefit upon the motor cycle public by organising a special trial either on Brooklands or preferably in a touring trial such as the forthcoming six days' event in Lakeland, in order thoroughly to test the automatic carburetter. The first prize should be awarded to the manufacturer whose carburetter gives (1) the fastest speed, (2) the slowest speed, and (3) greatest economy.

We are fully aware that pilot jets are here and there standard fitting, and carburetters provided with this device are a distinct advance on the ordinary type. Such a carburetter practically conforms with our ideals, but unfortunately the British manufacturer has not interested himself to any great extent in this fitting. To meet the demands of those who desire to use single-geared machines in traffic, manufacturers have devoted more time to the perfecting of the decompressor before seriously considering the undoubted advantage of a pilot jet device. One of the advantages that a pilot jet has over the decompressor is that, whereas a decompressor proper (this does not refer to the variable compression device) allows a large portion of the gas to escape, the pilot jet allows the engine to run on an infinitesimal amount of gas. In this way, there is a considerable saving in fuel.

In conclusion, we would again draw attention to the fact that the average motor cyclist would gladly undergo the pain of a decrease in speed by one or two miles an hour, provided he could obtain: (1) genuine economy without any decrease in power, (2) slow running on top gear and complete controllability even with the clutch out, and (3) good acceleration without misfiring.

Win, Tie, or Wrangle!

WE notice with regret a growing tendency, on the part of some few competitors in motor cycle competitions, to indulge in unsportsmanlike grumbles whenever they fail to win.

Now, in our opinion, one of the great advantages of sport, in the best sense, as practised in this country, is that a man learns to lose like a gentleman, and a true sportsman would rather lose a good game than win by any means which can be described as "not cricket"; it is, therefore, hard to comprehend the moral outlook of the man, who claims to have made a non-stop when such is not the case. We hope that there are not many such, but we are afraid that numerous riders allow themselves to make criticisms and complaints of trivial happenings when they are unsuccessful.

It should be remembered that nearly all the work in connection with club events is done by honorary officials, many of whom are business men, and consequently have only their spare time to give to the arrangements; this they do gladly, and no one who has not experienced it knows how much work the arrangement of a successful trial involves. To say the least, it is, then, somewhat ungracious to grumble, and we know many an enthusiastic worker who has been checked or disgusted by the petty quarrels. It is within our recollection that really good men, who at one time did an immense amount of work to forward the movement, have now dropped out altogether, and their names would be almost unknown to new converts. We can account to some extent for their retirement from motor cycling circles. Quite recently a writer accused the observers in a certain trial of unfairness—not to say dishonesty. (We think of having a w.p.b. of large size for communications of this sort and a bonfire every other day.) Such an accusation is, of course, preposterous.

The spirit which we wish to foster is one of emulation and scrupulous fairness. A man should win if he can, of course by fair means, and leave no stone unturned to secure the best possible result; but if he is beaten—it may be by bad luck—he should take his beating like a Briton and not indulge in petty and unsportsmanlike recriminations.

How I made a New Engine "Rev."

By "ROAD RIDER."

I RECENTLY took delivery of a new engine (500 c.c.), which was geared 4½ to 1 by its makers on the top ratio of its Sturmey-Archer hub. The first mile of open road showed that the machine would require a great deal of "running in," for it would barely touch 40 m.p.h., which meant an engine speed of less than 2,300 r.p.m. The only noticeable defect was that it would not take much extra air with the throttle full open on a very hot day. Examination showed that the carburetter was provided with a 32 jet and full-sized air cone; also that the float was half full of petrol. I substituted a new float, and a 38 jet, removing the air cone altogether. This made no difference to the running, though it considerably reduced the petrol consumption (from 55 m.p.g. to 80 m.p.g.) The next experiment was to advance the ignition timing a little, to drill six large extra air holes $\frac{1}{16}$in. in diameter, and to double the frequency of the lubrication.

Too High a Gear.

As a natural consequence the speed increased a little, but the gear seemed rather too high, for the machine would touch 45 m.p.h. on top gear (2,600 r.p.m.), whereas on the second gear of 6.6 to 1 it would do 42 m.p.h. (about 3,550 r.p.m.) I took the opportunity provided by every secluded mile of straight road to drive the engine all out on *second* gear (thus shortening the "running in" period by compressing the maximum number of engine revolutions into a minimum road distance), oiling it furiously all the time, and emptying the crank case of oil at every stoppage to avoid carbonisation. These experiments showed that the engine was almost equally fast on gears of 4½ and 6.6 to 1, a fact which indicated that higher speeds would be obtainable by lowering the top gear ratio; 4½ to 1 was too high, and on a 6.6 to 1 the buzz of the exhaust was too like a huge angry bee. So the next step was to substitute an automatic carburetter, which I will not name, because it is not on the market, and to lower the top gear to 5 to 1. The reduced gear proved a great advantage. On the 4½ gear the machine would have been unusable but for its three-speed hub; it picked up from a slow when hot very reluctantly indeed, and knocked most sinfully, so that I had been fain to change down on many quite insignificant hills no worse than 1 in 14 or so. But the 5 to 1 gear transformed the machine, which was now capable of 55 m.p.h. on top (about 3,500 r.p.m., which is splendid for *top* gear), while on its proportionately reduced second gear of 7.32 to 1, it could touch very nearly 4,000 r.p.m. when warm and well lubricated (between 40 and 45 m.p.h.) The great tip in tuning up is to test all adjustments *singly*, and to test them *on second gear*, at which the top pace is not unsafe on a deserted public road.

The Advantages of the Automatic Carburetter.

The next step was to make comparative tests of the standard two-lever carburetter and the automatic substitute, and with one important exception the two vaporisers produced identical results. Each carburetter gave a top speed of about 55 m.p.h. and a consumption of about 80 m.p.g. with the 38 jet and without an air cone. On each the machine could be driven at about 9 m.p.h. on top speed, though it was much easier to get smooth slow speed running with the single lever device. The factor which has led me to retain the automatic carburetter is that when it is fitted *the engine never knocks*, whereas with the two-lever device there is a cruel knock whenever the hot engine is picking up from 10 m.p.h., whenever I attempt to accelerate on a moderate gradient, and whenever I reopen the throttle after temporarily closing it for braking purposes. This indicates that *the knocking on this particular engine is solely ascribable to imperfect mixture*, the error being in the direction of weakness or excess of air; but, however careful I am in the setting of the two-lever device, I am unable to prevent a certain amount of knocking; and a novice would suffer from it more than I did.

A Forecast.

I know this particular make of engine pretty well, and I am able to prophesy about its future history. When I have covered 2,000 miles I shall have the entire engine down, clean away the accumulations of carbon, change the exhaust valve and spring, and raise the gear to 4¼ to 1. By this time every part will have bedded down nicely, and I shall expect to get 60 m.p.h. or a little over on the higher gear, *i.e.*, I shall get a higher road speed at 3,200 r.p.m. than I now get at 3,500 or 3,600 r.p.m. Similarly, I shall get a higher road speed on second gear; whereas I now get over 40 m.p.h. on a 7.32 gear, say 4,000 r.p.m., I shall then get nearly 50 m.p.h. on a 6.23 gear—say 3,900 r.p.m., and the acceleration on the bottom gear of 8¾ to 1 will be so certain and terrific that I could climb the worst freak hill with absolute ease, knowing that full engine power will leap smoothly into operation the instant the valve is dropped after rounding an acute hairpin. At present I should funk a bad freak hill even with my present bottom gear of 10.3 to 1, for the engine would probably knock fiercely after a hairpin, instead of expanding into an ear-splitting hum; it might not knock with the automatic carburetter. I have not tested the combination on an Amulree as yet, but it would certainly knock its heart out on either side of Amulree with the standard carburetter. After another thousand miles I would guarantee to climb either side of Amulree with a red hot engine and the standard carburetter on a gear of 8.75, whereas now I should fail with a gear of 10.3.

Looking down Buttermere Hause from the upper 1 in 4½ bend. This will prove one of the most trying hills during the A.C.U. Six Days' Trials, August 18th to 23rd.

By George D. Abraham, author of "The Complete Mountaineer," "Mountain Adventures at Home and Abroad," etc., etc.

ACCORDING to the immortal bard,

"Hills draw like heaven and stronger sometimes . . .
To pull you from the vile flats up to them."

But so far as motor cyclists are concerned the pull is prone to be in the opposite direction. In other words, during the forthcoming trials in the Lake Country it is the hills that will count, and the rider who most realises this fact is the one who will "come out on top" in more ways than one.

If variety is charming surely never such a beautiful array of hills has been brought before the glutton in gradients. For the Trials "freaks" have been altogether eliminated. Surfaces are, as a rule, remarkably good, and nothing of the "Hard Knotty" nature remains: even Blea Tarn Hill has been excluded, Honister is left alone, and no competitor will pull a wry face because Wrynose is "not in it."

Still there will be long hills and short hills, hills straight and hills curly enough to demand not only every scrap of power from standard machines, but also every iota of skill on the part of the riders and drivers. The writer's strongest impression during the hill-hunting expeditions has been what a splendid opportunity these six days' trials will afford the makers to keep up with the modern trend of motoring. We have all tasted of the speed craze, but this stage of motor enthusiasm palls, and the powers that be assist far too frequently and expensively in the disillusionment.

The Charm of Hill Hunting.

Nowadays there is a greatly growing tendency to explore and appreciate the byways and beauties of our land. The mountain regions of Lakeland, as well as Wales and the Highlands, afford an almost inexhaustible source of enjoyment for the explorer on whom the dusty delights of the trunk roads pall. For such there is comfort in the knowledge that the mount of his choice can go anywhere. The Six Days' Trials in Lakeland next August will show exactly the machines that can do this.

Another recent hill-climbing expedition has confirmed the writer's opinion that the most difficult problems for the Trials will be found amongst the hills of Southern Lakeland. Coniston was to be the meeting place, and again the motor cycling enthusiasts added to their reputation as late-comers. In fact, the special Carlisle contingent failed altogether to materialise. However, the time of waiting was not wasted, for the notorious hill above Coniston railway station was yet virgin ground so far as motor cyclists are concerned, and its conquest followed in due course.

New Hills for the Six Days' Trials.—

Mr. T. W. Loughborough, the secretary of the A.C.U., was with us. He had come up to choose the hills and routes for the Trials, and the plan was to show him something spicy in the way of gradients. The Station Hill, with its rugged and lofty rise up to the breast of Coniston Old Man, proved too severe and rough in his opinion, and will scarcely be included in the Trials' list.

The First Ascent of a New Hill.

As usual, Little, who came from the West Coast, was late, and to Harrison on his Swift fell the honour of making the first ascent of the notorious hill. He found it possible to strike straight up across the corners on the lower turns over gradients of 1 in 3½ and 1 in 3¼, and on the upper part some opportune advice enabled him to dodge a deep wrinkle in the roadway which upset some of his followers. To us on the heights there came up from the foliage-screened hollow much noise and roar of engines. G. W. Braithwaite, on his single-geared Rudge, was struggling valiantly but ineffectually with gravitation and a refractory belt. Finally, Hutchinson on his Zenith shot upwards out of the wooded shade on the rough open of the mountain side. Unfortunately, the watercourse diverted his flight. It was a stirring experience, especially for the rider. The machine developed aerial tendencies and came to earth on the mountain side, but no harm was done. In the end, Little, on his Premier, was the only other climber to surmount the hill, which, later on, will doubtless afford some record-breaking enthusiast an approach to the upper heights on the top of Coniston Old Man itself.

However, on the present occasion, Mr. Loughborough was anxious to see some of the new trial hills in the neighbourhood. Unluckily for all concerned he was mounted on a comfortable and speedy car. Suggestions to visit first a new hill noticed by the writer, but described by a Coniston authority as all "bog at t'bottom," were not received with enthusiasm. As usual, native knowledge was utterly wrong, and quite unaware of the new portion of road at the foot of Yew Tree Hill. Later in the day our party, much thinned in numbers, found it to be almost the most fascinating hill that will be included in the Trials.

The Secretary Lost.

But at the outset we followed Mr. Loughborough to Hawkshead over High Cross, though incidentally one enthusiast managed to make the divergence by Yew Tree Hill. After a considerable wait at the quaint little village where Wordsworth went to school this wanderer arrived short of breath, but full of talk about a "gem of a hairpin bend."

Meanwhile plans had been made to explore the hill which leads from Hawkshead over into Grizedale, and the secretary departed on his car with instructions to wait for the "small fry" on the top of the hill. Alas! the ways of hill hunters are hard to understand

A group of hill hunters on the top of Yew Tree Hill, Coniston. Left to right: H. Hutchinson (Zenith), G. W. Braithwaite (Rudge), W. B. Little (Premier), J. Randall (Sunbeam), and H. Harrison (Swift).

New Hills for the Six Days' Trials.—

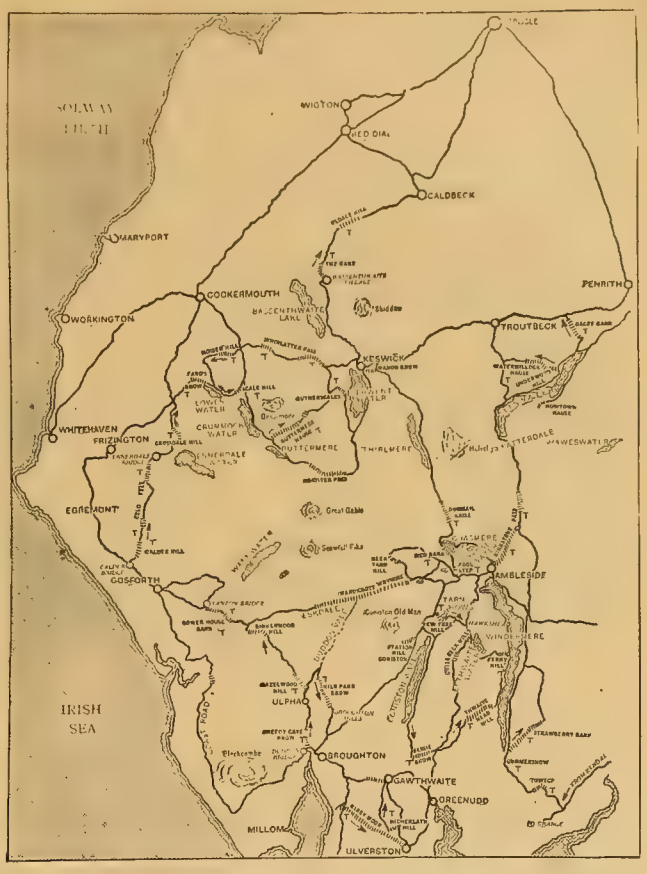
and follow. Sad to say, we never saw him again that day. But, mounted on his two-speed Douglas, he followed our route on a later day. Besides other things, he learned on that occasion that providence takes special care of motor cyclists who are pitched head over heels down a mountain side. Many a mountaineer has found a rock in his way on a smaller fall: an experience which is prone to preclude all further interest in old age pensions.

However, reverting to our last hill hunt, it may be mentioned that the main party turned to the right at Oxen Park in Grizedale. Thence we crossed over into the Crake Valley below Coniston Lake by Oxen Hill, to descend finally near Lowick Bridge by a delightful hill known locally as Bessie Brow.

Seven Corners in Half a Mile.

During the trials this hill will be taken in the opposite direction, thus during our first visit it had to be ascended also, and the woodland echoes were soon stirred with the music of well-tuned engines. The whole incline was nearly half a mile in length, and possessed of seven engrossing turns. The middle one had gradients of 1 in 3½ and 1 in 3¾. The other corners were mostly 1 in 4½ and 1 in 5, but all were sharp and awkward of approach, though the surface was perfect. Most of the machines climbed Bessie Brow splendidly. The Zenith was fast, and a 2¾ h.p. Sunbeam (three-speed) ridden by an Ulverston expert came up smoothly and sweetly.

Even in this lonely spot a crowd gathered quickly to watch the first motor cycles go up Bessie Brow. One keen dalesman, from whom enquiries had been made, followed us on foot from Grizedale, three miles away. Little made a specially thrilling ascent for the



Showing the positions of the various noted hills referred to in the accompanying letterpress.

Topping the rise on Tarn Hows Hill at Coniston. Some of the finest views in the Trials will be afforded to the competitors from this point. Coniston Lake is seen in the background.

edification of the late comers. There was somewhat of a stampede when he dashed round the half-way bend only to miss a descending machine and the spectators by inches.

Beautiful Coniston.

Then we turned northwards along the shore of Coniston Lake. For miles the road, beautifully foliage-fringed, wound close by the water's edge with wonderful views in front of the Old Man, gathering in grandeur at every turn. The view from near Ruskin's home at Brantwood was one which many a "Trials" rider must surely appreciate, for there are few fairer in all Britain. At Waterhead we hurried into the mountain gateway of Yewdale, and a mile and a half from Coniston village a sharp upward turn to the right marked the beginning of Yew Tree Hill. Still farther on, only a few yards away, was the old waterlogged approach to the hill, and as on the day of the Trials, the climb will be approached from Ambleside, some care will be required to take the right road. This will be the second of the two turns.

Some of us, three motor cyclists and a car, tackled the climb at once. We soon had a sample of the gradient, for before reaching the gateway that led up to the mountain side there was a twenty yard stretch of 1 in 3¾. Then through the gate there came a long, steep rise for about two hundred yards of 1 in 4½ and 1 in 4¾. The surface was not as smooth as a main road, but yet quite free from any slippery tendency. However, the riders of the Sunbeam and

Climbing the mountain road up to Kirby Moor—an excellently surfaced gradient of 1 in 4½, fully 2½ miles in length. This new route will be followed in the trials.

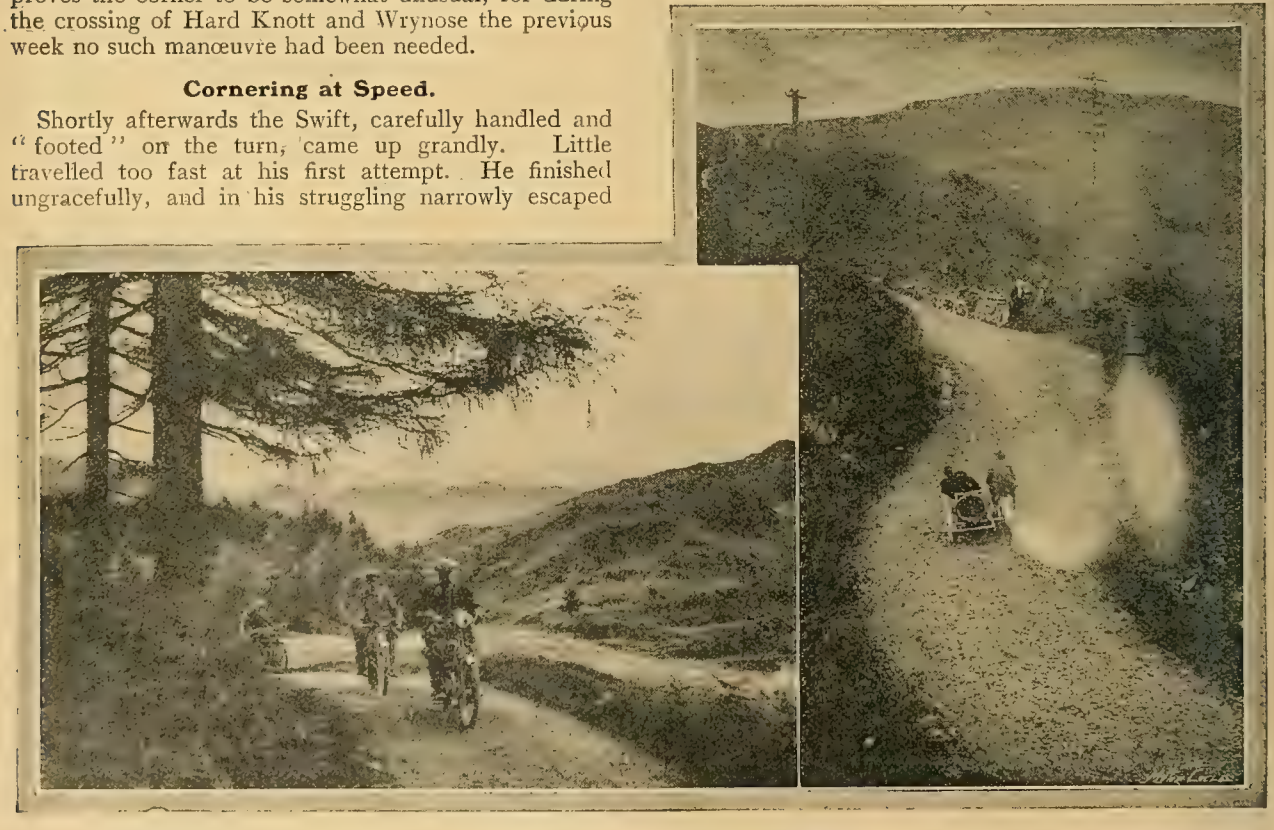
the Rudge soon had an opportunity of reconsidering a restart by the gateway, while the little 10 h.p. car sped merrily up past them to the "hairpin." This proves the corner to be somewhat unusual, for during the crossing of Hard Knott and Wrynose the previous week no such manœuvre had been needed.

Cornering at Speed.

Shortly afterwards the Swift, carefully handled and "footed" on the turn, came up grandly. Little travelled too fast at his first attempt. He finished ungracefully, and in his struggling narrowly escaped the rocky right hand bank. The Zenith failed to miss contact here, and despite our persuasion to try again finally "retired hurt," but only to the extent of a bent footrest. The Sunbeam and the Rudge arrived as much by man-power as horse-power. There was general regret that G. W. Braithwaite was not riding his own machine, for this kind of work is his special forte, and we should have been treated with a fine exhibition of skilful cornering.

Then Little showed us how to take the "hairpin" to perfection, and still later, at high speed again, missed the turn and saved himself by a straight dash up the bracken-covered mountain side. A few yards higher the ferny covering hid a ditch, and in this rider and machine disappeared suddenly. The Premier has had many hard knocks of late, and it seemed no worse for this last proof of its hardihood.

After measuring the gradient on this remarkable "hairpin" bend —1 in 3¾—we turned upwards from Yew Tree Hill and mounted over some continuous 1 in 5 to the larchy heights of Tarn Hows. There was steady climbing for fully a quarter of a



Through the pine woods by Tarn Hows, Coniston—one of the prettiest parts of the 1913 Six Days' Trials route.

Negotiating the sixth corner on Towtop. This is undoubtedly the roughest hill to be included in the Trials.

New Hills for the Six Days' Trials.—

mile until this famous Lakeland beauty spot, with its heather-encircled sheet of water, lay below. Then, when some smaller hills in the vicinity of Hawkshead had been inspected, we all turned homewards with memories of another glorious day on the heights.

The Question of Speed Trials.

Turning to topographical details regarding the forthcoming Trials, it may be mentioned that very probably the real test day will be that on which the speed events are to be run. They are likely to be held at Lowther Park, Lord Lonsdale's estate near Penrith. A suitable road for this purpose has been difficult to discover. The private way to Eskdale, through Muncaster Park, was considered, but it was not straight enough. After the Lowther speed tests the way will most probably lie over Shap to Kendal, and a local hill, probably Brigsteer, will be ascended.

Thence the serious day's work begins with Towtop, followed by Gummershow, which will be reached by the village of Higher Newton. Gummershow—not as so often misspelt Gunnershow—is at present in an unpleasantly rough state. Though the work will be finished before the Trials begin, timber felling is now in progress, and the heavy loads are taken down to Lakeside on Windermere, or to Winster.

Climbing Station Hill, Coniston. This hill has gradients of 1 in 3½, and leads up to Coniston Old Hill. It will not be included in the trials owing to the rough surface. Mr. T. W. Loughborough may be seen standing nearest the lowest motor cyclist.

Then, after lunch, a special hill-round may be made. Foolstep, near Skelwith Bridge, will very likely be negotiated before taking the way over Oxenfell to reach Yew Tree Hill in Yewdale, near Coniston. Those who extricate themselves from the "hairpin" will proceed happily up over Tarn Hows summit, and soon, turning to the right, proceed down the left or east shore of Coniston Water to visit Bessie Brow. Over the crest of the Brow there are several trying "steps" ere Grizedale Valley is crossed, and Rusland Vale entered near Thwaite Head. From this latter village there is an interesting hill, curly and as steep as 1 in 4½, which was missed on our final hill-hunting day, but later on visited by Mr. Loughborough.

From the top of Thwaite Head Hill the road drops steeply to the west shore of Windermere. An interesting return may be made to Ambleside by following the road which keeps most closely by the shore line almost as far as the Ferry Hotel. On the way there are two awkward downward dipping corners to negotiate before the long climb of the Ferry Hill on the main road begins. Beyond this, and through the village of Hawkshead, it is simply an ordinary undulating Lake Country road to Ambleside. The backward journey to Carlisle will probably be made over Kirkstone Pass, taking Dacre Bank, or Underwood Hill to Watermillock Hause, on the way. Such will doubtless be a typical day during the Trials.

No Secret Hills.

There was an idea, amongst local enthusiasts at least, of including some secret hills in the routes, but this has not been approved officially. The two important gradients suggested for this purpose were the Higher Lath Hill above Ulverston and Crossdale Hill near Ennerdale. The former leads up past Newbiggin Farm to the tarn of Knott Hollow on Osmotherly Moor. Past the tarn the Gawthwaite Road may be reached through Hawkswell.

The features of Crossdale Hill are its four interesting bends with gradients of 1 in 4 and 1 in 4½. This climb will be most conveniently visited on the northward way after crossing Cold Fell. The approach lies through Ennerdale Bridge, and after avoiding the right-hand turn to Anglers' Inn, Crossdale village is reached two miles further on. A sharp turn to the left just before reaching the houses gives the approach to the hill, from the crest of which Lamplugh is gained after passing Knockmurton Mines.

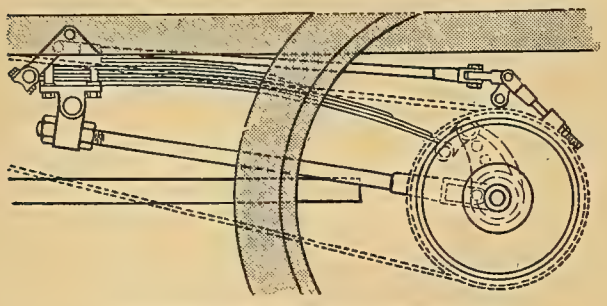
In one of the circuits in the northerly district a new hill-round which leads from Lorton to Mosser will doubtless be included, and the short but steep rise to Scale Hill Hotel would be ascended during the return to Keswick by Buttermere Hause and Gutherscales Hill on the west margin of Derwentwater.

On the whole, the Trials riders, many of whom come from abroad, and their followers will travel through the most beautiful scenery that our country can show, and, what with grandeur and gradients, the Six Days' Trials in Lakeland will undoubtedly garner memories and pleasant recollections which must last a lifetime.

The Springing of Cycle Cars.

THE RANGER.

A CYCLE CAR, the springing of which might have been dealt with among the other descriptions, is the Ranger. In this case, as shown in the accompanying drawings, grasshopper springs are used fore and aft, and in each case are supplemented by radius rods. The rod which takes the drive in the back axle is arranged so as to be adjustable at its front end, so that the tension of the driving can be adjusted,

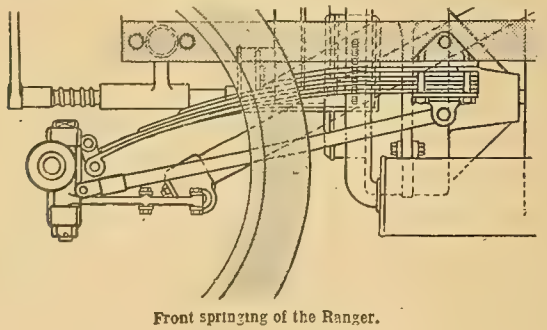


Quarter elliptic springs at rear end of Ranger chassis.

whilst the use of a shackle at the end of the spring allows the adjustment to be carried out without affecting the spring in any way.

I much regret that in my article in the issue of *The Motor Cycle* for June 26th, I should have made statements which have brought corrections from Messrs. Morgan and Co., and from G.W.K., Ltd.

With regard to the Morgan springing, all I can say is that at the Olympia Show, at which the notes for this article were principally taken, the attendant on the Morgan stand, in reply to my questions as to the additional subsidiary springs, told me that the nuts below the springs were screwed up so tight as to prevent all but the very slightest amount of give, and that, to all intents and purposes, the spring platforms were rigid. I find I made a note about this point at the time in my sketch book, and I further satisfied myself by putting all my weight on the back of the chassis and finding that the subsidiary springs were unaffected. It looks to me as though the particular chassis which I inspected had had the springs wrongly set up, and it is obvious that I was misinformed by the stand attendant. In any case, I tender my apologies to Messrs. Morgan. Much the same remarks apply to the G.W.K. description. This was taken from their polished chassis at Olympia, and if they have altered their design since then it is merely my misfortune not to have got wind of it. W. G. ASTON.



Front springing of the Ranger.

A CORRECTION.

The following are the letters to which I refer.

The G.W.K.

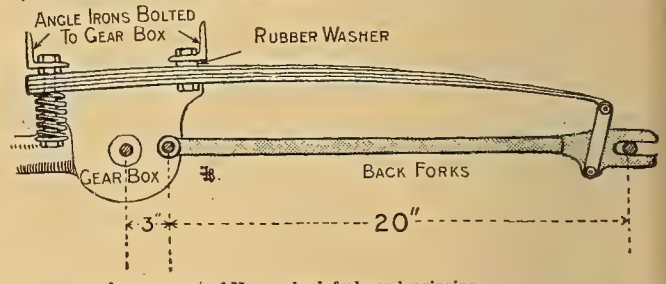
Sir,—In Mr. Aston's article dealing with cycle car springs reference is made to our car, and we regret to have to point out that this description is wrong. If the springs were made sufficiently stiff to take the torque strains, as your correspondent says they do, the springing would be much too harsh to be comfortable. As a matter of fact, torque rods are provided on our cars to take this strain.

These torque rods hang on a swinging link in line with the front universal joint. The springs are not anchored directly over the centre of the axle, as your illustration depicts, but are anchored behind the centre of the back axle so that two or more leaves can be brought over the centre of the axle, allowing a much more flexible spring to be used than would be the case if they were fixed as in your illustration. This probably is taken from one of our early cars in which they were so fixed, but this was found to be unsatisfactory.

For G.W.K., LTD.,
J. T. Wood, Director.

The Morgan Runabout.

Sir,—The writer of the article on the springing of cycle cars is misinformed in regard to the springing of the Morgan, and he is evidently without first hand knowledge of our car. He compares the springing unfavourably with that of the Autotrix. As a matter of fact, the principle is precisely the same. The centre of the radius forks is in a direct line between the counter-shaft and the back wheel (and not below it as in his description and sketch), and only 3in. behind the counter-shaft. Therefore, there is no strain whatever on the chains.



Arrangement of Morgan back forks and springing

Another important point of the springing he has not noticed at all, viz., the strong spiral spring which comes into action under severe shock. We have fitted this ever since the Show, but possibly the writer's information is taken from an early 1912 model.

We enclose a sketch which makes our meaning clear, and can be compared with the sketch in the article referred to.

THE MORGAN CO., LTD.

COMPLIMENTARY DINNER TO "TIM" WOOD.

The members of the Bradford Motor Cycle Club have given a dinner to "Tim" Wood and Mr. A. A. Scott, the designer of the winning machine. The chair was taken by Mr. S. Johnson, the president of the club. The Trophy was placed on the centre table draped with the Scott colours, *i.e.*, dark purple. Wood, in a suitable speech, responded to the hearty toast proposed by Mr Felix Scriven. Mr. Bullus, in proposing the health of Mr. Scott, recalled how, a good many years ago, he had been present at a certain hill-climb held by the Bradford Club. He was competing on what was then supposed to be a very powerful twin, but being no feather weight, had several attempts at the hill, and always conked out at the same spot. Presently, to his great astonishment, a light-looking machine with a most peculiar hum came steadily up the gradient with no signs of conking, and, furthermore, this machine had a passenger seated on the carrier—a very rare sight in those days. The rider was no other than Mr. Scott, who was testing one of the first Scott machines made.

OCCASIONAL COMMENTS
by "IXION"

My Annual Toss.

Like many motor cycling journalists I reckon to have at least one good toss per annum. It generally comes during one's work on the big reliability trials. If you have to watch 100 riders climb a test hill, and then overhaul the field again before the afternoon test hill, you have to keep up a high average speed over roads which are generally dangerous and often unknown. One or two skids or mistakes at blind corners are probable in a season's work. However, my first good tumble this year was unconnected with my work. I was "scrapping" merrily along at 45 m.p.h. as a private individual when a bolting horse, frightened by a steam mowing machine, compelled a lightning brake stoppage, and a loose road, producing a dry skid of the lurid order, completed my discomfiture. I picked myself up ruefully, and thanked the providence which watches over us mad motor cyclists for reserving the 'ard 'igh road for my machine, and depositing me gently on some softish turf. The peculiar thing about my small injuries was that my Burberry overalls emerged scathless, but my tweeds and underclothing were almost as badly cut as my cuticle. My right boot was minus any heel, and my lamp and footrests were in a parlous condition. Now I may point some morals, as follows:

1. When you perceive that a tumble is inevitable, tuck your head into your stomach, let yourself curl up into a ball, and *roll*. To stiffen yourself and throw out your arms is to ask for concussion and fractures.

2. The lamp always comes off worst in a tumble; and three-guinea acetylene outfits should be eschewed by the speed merchant. I do not know whether some genius can invent a lamp mounting which shall be tumble-proof. The lamp, of course, has to be set in a vulnerable position, but a spring swivel under its bracket might conceivably ease the blows it must receive.

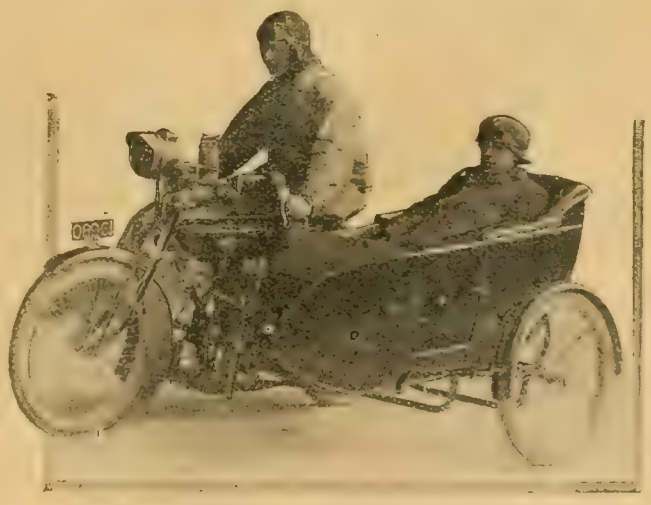
3. The footrests—well, what I have to say on this subject is sufficiently lengthy to deserve a separate paragraph.

Footrests and Falls.

Take the two machines in my garage as examples. One has its front footrests mounted on a $\frac{5}{16}$in. steel rod, which also acts as a frame bolt. This rod is supported by the frame for its central 3in., and projects for 5in. on each side to carry rubber footpads. The whole affair is a dead tight driving fit—nuts, washers, hollow footrest spindles, frame-holes, aluminium packing tubes, etc., etc.—there is no clearance anywhere. The consequence is that quite a small blow on the steel spindle upsets the whole contraption. If removed, it cannot be replaced—one kink is fatal; and the steel spindle is too stiff to be straightened unless it is heated red-hot, and very carefully hammered out on a surface plate, after which the screw threads at each end must be re-tapped—an atrocious piece of detail design. My other machine is theoretically superior. Its footrests are carried on L-shaped steel pieces, adjustable for angle by toothed ratchets. The central mounting which carries them is unaffected by falls. You have merely to take off a nut, when the short L-shaped carrier drops into your hand, ready to be trued up. But even here there has been a blunder. The steel of the L-shaped part is far too good. It is difficult to get it straightened, even if you use a huge vice and a two-foot wrenching lever. Let such designers take a hint from the Ford cars. Many of the Ford parts—front axle, wing stays, steering connections, etc.—are made of a special vanadium steel, no more costly than the steel employed by the short-sighted British designers of whom I speak; and this vanadium steel can be twisted about *ad lib.* without heating, and does not crystallise under the process. If a similar steel were employed for these L-shaped footrest carriers, they could be trued up by a couple of kicks. But as it is, it is difficult to true them, even if a fully equipped workshop is available.

Flexibility.

Our leaderette of June 19th was undoubtedly correct in emphasising the need of automatic carburetters if the average motor bicycle is to equal the flexibility



UNOFFICIAL SIX DAYS' SIDECAR RECORD.

W. J. Clarke (3½ h.p. Monarch and Compeer sidecar) who, as we mentioned in our last issue, is credited with covering 1,800 miles in six days. His daily distances were as follows:

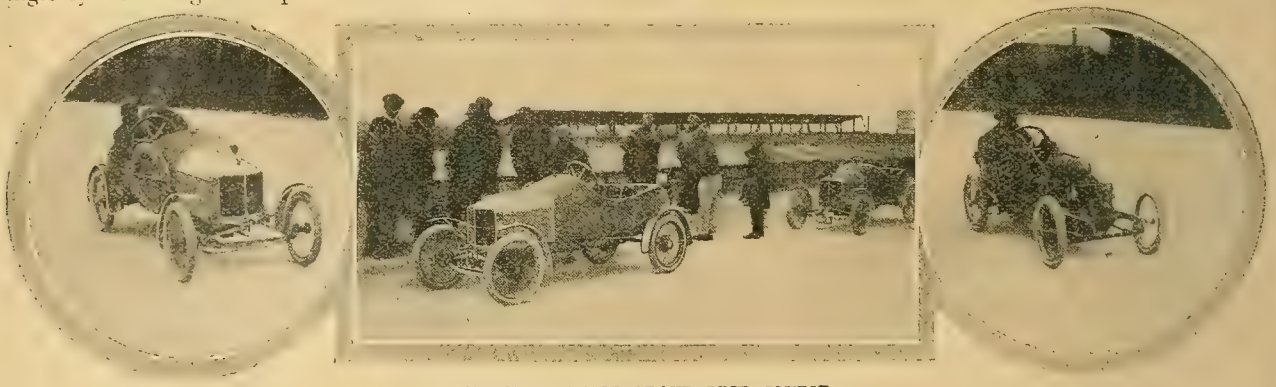
Monday	378 miles	in 22½	hours.
Tuesday	268 ,,	,, 18½	,,
Wednesday	332 ,,	,, 20	,,
Thursday	268 ,,	,, 19	,,
Friday	283 ,,	,, 19½	,,
Saturday	271 ,,	,, 19	,,
	1,800 miles	118½	hours.

Occasional Comments.—

of such cars as can travel at any speed from 4 to 50 m.p.h. on top gear ratio. I can only recall a single formal flexibility test of motor bicycles in which Frank Hulbert bettered the above figures on quite an early model Triumph. But such performances are only possible when an expert is handling a specially tuned machine. The ordinary 3½ h.p., as delivered to the general public, can seldom show better figures than, say, 10-45 m.p.h. on one gear. Our leader writer laid the main emphasis on carburation, and he is so far right that few men can handle the air control of a two-lever carburetter with sufficient delicacy to secure the potential maximum of flexibility; its position may vary with the temperature, the gradient, the specific gravity of the spirit, and the tune of the machine, whereas a first-class automatic carburetter may—and sometimes does—rise superior to all these variable conditions. When I ride my pet 1913 machine, I never try to keep on top gear at less than 15 m.p.h. if my two-lever carburetter is attached; for the air lever is so tricky at speeds under 15 m.p.h. that it is simpler to drop to second gear than to be continuously tap twiddling on top gear; with an automatic carburetter I only change down when the speed drops to 10 m.p.h. or so, for the automaticity is perfect between 15 and 10 m.p.h. I think our leader writer should have drawn attention to the fact that no single-cylinder car shows a flexibility range of 4-50 m.p.h.; indeed, I do not suppose that any twin-cylinder car has touched these figures. Flexibility is, of course, a much simpler ideal to attain with a four-cylinder engine. The impulses almost overlap, and no matter how feeble they are, they keep the flywheel on the move, and maintain carburation; whereas with the single-cylinder engine at present characteristic of the motor bicycle, a weak impulse is followed by a long wait for a second weak impulse, and there is hardly sufficient suction to vaporise a tiny puff of explosive mixture. There is a further point—how far are excessively slow speeds desirable on a motor bicycle? I find steerage balance difficult when the speed drops below 10 m.p.h. on a two-wheeler, and I question how far the lower end of a 4-50 m.p.h. range is worth having. I should say that a 10-50 m.p.h. range supplies all that is really desirable, especially when a second gear is available for brief traffic emergencies.

The Right Side for Speedometers.

It seems to me that there are two good reasons why the ideal side for the speedometer is the near side. Most men use their left hand for single-handed steering, and operate their hooters with the right hand. The right-hand side of the handle-bar is already normally encumbered with the front brake lever, two carburetter levers, and a hooter, whereas the left-hand side of the handle-bar often carries nothing but the valve lifter, and occasionally a magneto lever as well. In other words, there is much more room for the speedometer dial on the *left-hand* side of the bar. Furthermore, if all the accessories are mounted on the right-hand side, as is customary, the balance of the machine is upset. I could ride both my 1913 machines "hands-off," as delivered, at any speed from 15-45 m.p.h. on a decent road, and the trick is handy when gloves have to be adjusted, or a wind vesta applied to the bowl of one's pipe; but since the accessories were bolted in their fore-ordained places, the machines have lost this easy balance, and "hands-off" riding has become very tricky work, even on the best of surfaces. Why should not the left-hand side of the bar be recognised as the standard place for the speedometer dial?



CYCLE CARS ON THE GRAND PRIX COURSE.

(1) The Ronteix in full flight. (2) Two Ronteix cycle cars after a spin round the course. (3) A Sphinx travelling well.

WEAR OF BIG END BEARINGS.

An article under the above heading, signed "A.M.I.C.E." touches on a most important point. It will be generally admitted that the most unsatisfactory part of the modern motor cycle is the big end bearing. "A.M.I.C.E." states that few 85 mm. cylinders have big ends of more than 1in. × 1¼in.—few indeed, the majority are smaller than this, and twins are usually worst offenders. Bearings of this size *must* have proper lubrication if they are to give reasonable service, and this is just exactly what they do not get. With the present design it is marvellous that the big ends last as long as they do, for the flywheels throw the oil directly away from the bearing, while the overhanging rims protect it from any oil which might otherwise drip on it. There seems to be a general impression that the big end dips in oil every revolution, but this cannot be, as the flywheels throw the oil round the crank case. It is, however, just possible that a ring of oil is whirled round between the rims, and that this is occasionally deep enough to reach the crank pin. Positive oil feed to the bearings is a most crying need.

UBIQUE.

GRAND PRIX OF FRANCE.

Distance: 360 Kilometres.

RUN ON 22nd JUNE,

—WON—

by W. DAVIS, riding a

Douglas

2¾ h.p. Motor Cycle with Sidecar.

Averaging 25 miles per hour.

Translation from the journal "L'AUTO," 23rd June, 1913.

"While I am writing about the lightweights, I would like to point out the grand performance of the DOUGLAS only 350 c.c.; it drew the Sidecar with marvellous regularity, and averaged 25 miles per hour for 225 miles. Davis, the driver, and the passenger weighed over 23 stone; I need add nothing to this, figures speak for themselves."

Translation from the journal "L'AERO," 23rd June, 1913.

"Davis, on his DOUGLAS 2¾ and Sidecar, did one of the best performances of the day."

Although the "DOUGLAS" is not recommended or sold for sidecar work, the above performance proves the wonderful power and reliability of the machine.

DOUGLAS BROS., Kingswood, BRISTOL.

LONDON—336, Goswell Road, E.C. **PARIS—190 Boulevard Pereire.**

An Echo of the T.T. Races:

"I think the fact that I did not have the slightest trace of tyre trouble speaks volumes for your tyres in view of the great speed attained."

So writes O. C. Godfrey of the

Continental

T.T. Pattern Tyres

he used.

We give a further extract from his letter:

"P.S.—It may interest you to know that I took my machine over for the French motor-cycle Grand Prix Race at Fontainebleau on Sunday last **fitted with exactly the same tyres** as those supplied for the T.T. Race.

I may say that I gained leading position very shortly after the start of the race and held the lead up until I had covered 260 miles, when I was then leading by 6½ minutes."

Compare this with the experience of riders who used other makes.

Brough shouted that he had punctured in every lap.

W. Heaton lost his chance of success by puncturing three times in his last lap

H. Greaves punctured and had to blow up his tyre repeatedly.

Edmond retired on the second lap, when lying well up, had tyre trouble.

"Duggie" Brown's tyre came off, tape and all at Sulby Bridge.

J. L. E. Emerson also retired owing to tyre troubles.

Extracts from "Motor Cycling," June 10, 1913.

CONTINENTAL TYRE & RUBBER CO. (Gt. Britain), LTD.,
3/4 THURLOE PLACE, LONDON, S.W.

D327

B16 *In answering this advertisement it is desirable to mention "The Motor Cycle."*

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Slowing Down the T.T.—A Suggestion.

Sir,—As a suggestion for reducing the speed in future T.T. Races, I throw out the following idea for Dr. Low or some other brilliant inventor to work out, that a wheel or fan be made, fixed to and driven by the engine, with the spokes of fan made flat and of a size large enough to offer a resistance of about 2 h.p. or so, thus keeping the speed down to the necessary limit. Some such idea as is used by some makers for a bench test would do. CT. 806.

Drip Feed Lubricators.

Sir,—With reference to the drip feed lubricators fitted to Messrs. Jacobs and Le Grand's Singers illustrated in your issue of June 26th, I may say that these were fitted in accordance with my advice to the gentlemen interested, and the lubricators are of our standard pattern, and that we carried out the attachment. It is interesting to note that simply flooding the engines with oil has improved their pace. If you would mention these facts on the "*palmam, qui meruit, ferat*" principle it will be esteemed a favour by

A. C. DAVISON.

Puncture Stops.

Sir,—I have lately had occasion to make a chemical examination of several so-called "puncture stops" which have been from time to time put on the market, and have been very much struck with the diversity of character of the various substances put forward.

One—a German compound—appeared to be a mixture of molasses and bran, while another was a milky fluid said to be the juice of an African plant and closely resembled the latex of a rubber tree. Most of them were of a sticky nature and gave a tenacious film on drying; but the one that has puzzled me most, and for which the makers have recently been claiming great things, appears to be a simple suspension of chalk in water. I should like to hear in what way such a mixture would be likely to act in order to be of use in stopping a puncture. Perhaps someone can enlighten me on this point. PERCIVAL J. LYCETT.

Spring Footboards and Twin Lamps.

Sir,—I think it would be of interest to the many thousand Triumph riders if you will allow me to add a few lines of explanation to the excellent picture you published recently of my 1913 Triumph. The spring footboards can be fitted without alteration to the 1913 Triumph, and are adjustable in every direction without interfering in the least with the pedal gear, the advantages of which are thus preserved. I think it would be impossible to exaggerate the comfort they confer on the rider.

The twin lamps also supply what many hundreds besides myself have felt to be a real want, and enable me to keep up my daylight average at night. They are small car lamps with 5in. Mangins and 17 litre burners; they are attached by a special bracket, consisting of two arms of solid steel, the two lamps being locked together in the middle. They are exceedingly satisfactory in use, and at forty miles show less vibration than most single lamps at twenty miles. The lamps and footboards were fitted to my design, and are not expensive. (REV.) JOHN E. FITCHER.

Ultra-lightweight Motor Cycles.

Sir,—I was much interested in "A.W.D.'s" letter in your issue for June 19th. I must say "A.W.D." has opened up a subject of the utmost interest. The cost, for instance, of a ½ h.p. twin-cylinder horizontally opposed engine after the style of that fitted to Douglas motor cycles, complete with all necessary attachments, built, of course, on the simplest lines, could, I am sure, be brought far below that of the present lightweight machines. Problems such as the most suitable form of transmission, speed gear (if any), etc., would, of course, require some thought, but should not present any great difficulty. Such a machine should maintain at least a speed, say, of 14 to 15 m.p.h. on ordinary give and take roads, and take any fairly sharp rise with assistance by pedalling.

It would be interesting and most helpful to hear the opinion of motor cycle manufacturers in this really important matter. H. DIXON.

NEW HILL FOR THE SIX DAYS' TRIALS.

Underwood Hill—leading to Watermillock Hawes. This gradient of 1 in 4 will be included in the trials on the road between Carlisle and over Kirkstone Pass to Ambleside. It is one of the severer hills, but except in one place the surface is good.

Substitutes for Petrol.

Sir,—Whatever may be said of fuel mixtures, I notice very little remark upon the mileages obtainable. Very few say what make of engine or carburetter they use. I have not, so far, ventured any experiments, but should be glad of riders' experiences with Douglas 1913 T.T. engine fitted with Amac carburetter. I recently came from Ballyhaunis to Armagh, a distance of 140 miles, averaging over 20 m.p.h. My tank holds one gallon and one pint, and I had a quart and half-pint left on reaching Armagh without any replenishment. This works out at 172.3 m.p.g. The petrol used was second-grade Shell.

The usual disclaimers apply. BI 117.

Sir,—As a motor cyclist, I should very much like to add my experience of benzole.

I have a 6 h.p. Royal Enfield motor and sidecar. My passenger and I weigh 22 stones. Recently I commenced a journey of 104 miles with eleven pints of benzole in my tank, and on completing the journey I had left two and a half pints. So 104 miles were travelled on eight and a half pints of benzole, which, I think, is very good. I may add that the journey was partly over the Yorkshire Wolds. I have been using benzole for about six months, and I find, on examining my cylinders and plugs, that they are extremely clean and free from any carbon deposit. As far as I remember my mileage was 75 m.p.g., so I consider there is a great saving in the new fuel. I trust that others will try benzole and give us their experience. T.J.G.

The Motor Cycle for Business Purposes.

Sir,—I was somewhat amused at "T.H.B.A.'s" estimate of cost of running a 5-6 h.p. machine and sidecar for 15,000 miles, particularly the gigantic sum of £7 7s. 4d. allotted for tyres during that period. If he multiplies these figures by three he will doubtless be somewhat nearer the mark.

My own brilliant record for tyres on a 4 h.p. single, no sidecar, for 5,000-6,000 miles is as follows: First cover, 2½in. heavy rubber-studded tyre, one of the best makes and marked "heavy." burst under 1,000 miles. This might have been bad luck if the cover had not pegged out entirely in three or four places in the next 500 miles. No satisfaction from the makers, and over £1 spent in useless vulcanising. The next cover was a bit cheaper and lighter, and lasted longer, but this one went at the bead long before it was worn out. I managed to obtain a very fair allowance from the manufacturers off cost of new one. My next was another extra heavy rubber-studded cover of different make. This lasted about 1,500 miles before going at the bead, long before the studs were worn out. I spent 10s. on repairs, and ran it on the front wheel for about 1,000 miles. Besides the above covers I bought two cheap covers, primarily for the front wheel, though I was compelled to use them on the back occasionally when the "heavy" covers gave out. I must say I obtained more value for money with these cheaper tyres. I even went to the trouble of obtaining the makers' own rim for one of the back covers I had. I am running now what looks to be a really good medium priced tyre on the back wheel, and after 1,300 miles it looks still good. I may be in luck at last.

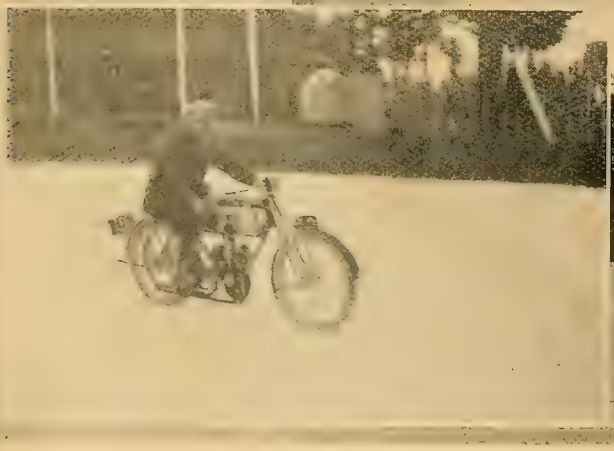
I find I am by no means alone as regards tyre trouble, my brother having used up seven or eight covers in about 11,000 miles. He runs heavy 2½in. covers on a light weight. Most of our covers give up the ghost long before being worn out. I have ridden motor cycles for seven years, and from my own and friends' experience have come to the conclusion that the medium weight tyre is better value for money than the heavier covers, many of the latter being too heavy for the strength of the walls and bead. Some of these should be marked "extra rotten," instead of "extra heavy."

C. E. TURNER.

Foreign Motor Cycle Tour.

Sir,—I and a friend are arranging a trip to the Continent this summer for the first two weeks in August. We propose going from Dover to Ostend, thence to Ghent (exhibition), on to Brussels, thence to Berlin *viâ* Dusseldorf and Frankfort, and back to Hamburg and Bremen, thence by water to Harwich. Would any fellow readers who have made such a trip be prepared to volunteer their experiences together with the best roads and hotels? Also would it be cheaper to make the trip by means of one motor cycle and sidecar or two motor cycles?

A. P. LONG.



PRACTISING FOR THE GRAND PRIX, TO BE HELD ON THE 13th INST.

(1 A group outside the Grand Stand in the early hours of the morning.
(2) Dubost (Rene Gillet), at speed past the replenishment depots. (3) One of the competitors on the banking near the Grand Stand.

GEARS—and the T.T. RACES

Remarkable vindication of the "HUB" Three Speed Gear.

IF any doubt were entertained regarding the absolute efficiency of the "HUB" Three-Speed Gear it should be conclusively dispelled by the great success of "The ARMSTRONG" 3-speed MOTOGEAR achieved in the JUNIOR and SENIOR T.T. RACES.

— The popularity of "The ARMSTRONG" amongst expert riders — its signal efficiency and absolute dependability under the most severe running conditions — abundant proof that this Three-Speed Hub Gear does not slow the machine — that it accomplishes that which two-speeds cannot — that it gives no trouble — is the simplest, most reliable and altogether best form of variable gear in the world — and that its selection as the supreme exponent of the Hub form of Three-Speed Gearing was well justified, is evidenced in the following facts:

(1.) THAT more than 40 competitors used ARMSTRONG Gears in the two events.

RESULT THAT the Junior T.T. Race was won by Mr. Hugh Mason on a machine fitted with the ARMSTRONG Gear.

(2.) THAT in the Junior Race, ARMSTRONG Gears were 1st, 6th, 8th, 12th and 15th.

PLACES THAT in the Senior Race, ARMSTRONG Gears were 8th, 9th, 11th, 12th and 23rd.

THAT in both the Senior and Junior events, 4 ARMSTRONG Gears finished in the first 12 home in each Race.

(3.) **GOLD MEDALS** THAT in addition to the Junior Tourist Trophy, 3 Gold Medals were awarded to the riders of ARMSTRONG Gears.

(4.) **SPEED** THAT the Fastest Lap ever accomplished in the Junior T.T. Race was this year done by the winner on an ARMSTRONG Gear. This is a most important point, because people who use Bracket Gears continually state that Hub Gears slow the machine. The above result proves the opposite.

(5.) THAT far more ARMSTRONG Gears were used in the races than any other make of gear. This must indicate that the ARMSTRONG Gear is considered by expert riders as being the best gear obtainable for this exceptionally severe strain.

(6.) THAT of machines fitted with other makes of 3-Speed hub gears, none finished in either Junior or Senior Race (see "THE MOTOR CYCLE," June 12th, pages 776-785).

(Although other gears are advertised as having "given no trouble," it is a noteworthy fact that NONE of these finished the race! It is particularly noteworthy here — and a fact to be well borne in mind — that 10 machines fitted with "The ARMSTRONG" MOTOGEAR finished the race!! — and in no instance was any other make of hub 3-Speed Gear successful!!)

(7.) THAT "THE MOTOR CYCLE," June 12th, page 777, states: "Mason, with his middle ratio, was able to elude Newsome at Creg Willy," whilst "on the mountain THREE-SPEEDERS scored more decisively still."
THAT "THE C.T.C. GAZETTE," July, page 278, states: "Mason's machine was driven by a special Twin J.A.P. motor through an ARMSTRONG 3-Speed Gear, the extra gear giving him some advantage over the 2-speeded Douglases."

This indicates the advantage of THREE-SPEED over TWO-SPEED GEARS

(8.) THAT throughout the race ARMSTRONG Gears gave every satisfaction, thus demonstrating the superiority of the Hub form of gearing, even in a punishing competition like the T.T.

THAT the result obtained proves very plainly that the Gear was more reliable than many other mechanical parts of the Motor Cycles, for on reading the Press reports it will be noticed that out of the many riders knocked out of the race through mechanical troubles, none were due to fault in the ARMSTRONG Gear.

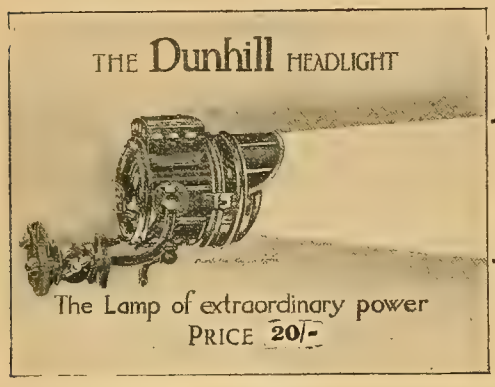
(9.) THAT although so many ARMSTRONG Gears were used in this excessively severe test, in no case did an ARMSTRONG Gear prevent a rider from finishing.

These points considered, clearly demonstrate two vitally important facts:—
(a) THAT the 3-Speed Gear is the best form of gearing for Motor Bicycles invented up to date.
(b) THAT the ARMSTRONG is immeasurably superior to any rival form of 3-Speed Gear.

— Specify "The ARMSTRONG MOTOGEAR" — the proved BEST Three-speed Gear!

The ARMSTRONG 3-SPEED GEAR Co., Ltd., BIRMINGHAM.

YOU WANT ACCESSORIES



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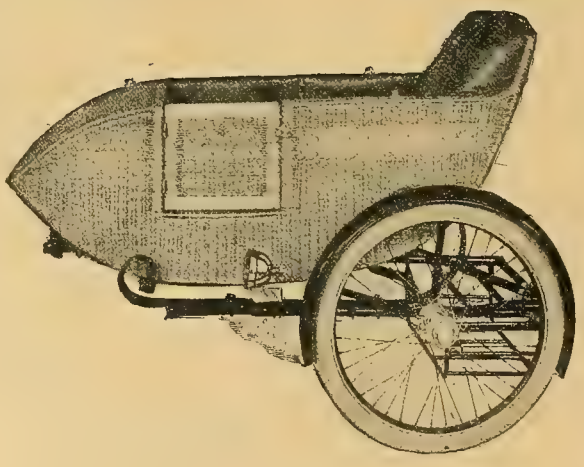

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In answering this advertisement it is desirable to mention "The Motor Cycle."

Climbing Branscombe Hill.

Sir,—With reference to the paragraph on page 877 of your issue of July 3rd, which would seem to give Mr. Carson credit for being the first to climb Vicarage Hill, Branscombe. No date is given, so perhaps Mr. Carson would be interested to know that I climbed the hill on August Bank Holiday, last year, with two passengers, on my 6 h.p. Royal Enfield and sidecar; the gears used were standard, about 8½ to 1 on low. H. MELLOR JAMESON.

Tyre Holes under Patches.

Sir,—As one who habitually rides his tyres to destruction, I should like to give you my opinion of repairing them. At one time I had much bitter experience with punctures and tried a great many different makes of repair outfits. I have now definitely decided to keep to one, viz., Patchquicks, which I swear by. The great point is to use a large enough patch and to affix it properly. After doing so it is extremely rare to have the slightest trouble with it again as long as the tyre lasts. I would venture to suggest that the experience of "Ixion's" friend is almost unique. Does he use tyres of inferior quality? And has he ever had a patch blow off? I have, and, in my opinion, it is one of the most trying things that could happen to a motor cyclist.
V.A.

Hill-climbing Formulæ.

Sir,—Dr. Low's formula described in your issue of July 3rd is most ingenious; but if it is correct the ordinary formula $\frac{W}{C \times T^2}$ is something worse than incorrect. The following is a rough comparison of the two fastest passenger machines and the two best on formula at South Harting on Dr. Low's formula and on the old formula:

Car		Dr. Low's formula	Old formula
Chota	2m. 29s. ...	209 ...	60
Cycar	4m. 4s. ...	78 ...	36
Morgan ...	1m. 43s. ...	46 ...	92
G.N.	1m. 50s. ...	32 ...	74

Surely there is something wrong somewhere?
H. GEORGE MORGAN.

Sir,—Referring to Dr. Low's letter in last week's issue, it is unfortunate that the results of the first public use of his formula appear in the same number, because one is tempted to investigate whether the "very just results" claimed are actually obtained in practice. The outstanding feature of the results on formula is the figure of merit attributed to the Chota, with a score of no less than 2.096; the second highest is .7836, and the third best is .4647, followed by a string of .3, .2, and .1's. Assuming the accuracy of the published figures, and taking account of the 1.75 index, it is clear that the Chota could have taken 70% longer and still have been first, or have taken 130% longer and come out second on formula. Again, to equal the Chota's figure of merit the speed of the fastest Morgan would have to be increased to 94 m.p.h. up the hill.

Turning to the theoretical aspect, if a competitor uses a small engine, of which the cubic capacity is equal to K (which is understood to be taken as 200 c.c. in this case), the denominator will contain zero as one factor, consequently the time taken may be anything less than infinite, and still this competitor must come out on top. Again, if the engine is smaller than this figure (K), the factor will become negative, with a result which is absurd in the mathematical sense. It would appear, therefore, that the use of the factor (C—K) is wrong both in practice and in theory.

In spite of Dr. Low's remarks about the greater divergence of weight in cycle cars than in motor cycles, he employs no other than the customary factor W; that is to say, the actual weight of machine and passengers.

The use of a variable index to the time factor is certainly a good point, because it is known that the T^2 formula does not suit all hills equally well. But could not the variation in this factor be adjusted automatically, so that the selection of an index would not be left to the judgment of overworked officials?

The best test of the fairness of a formula is to take the figures of merit of the first few competitors and to note the differences; if machines of varying type can be taken, the better the test. Applying this to the published results of the South Harting climb, Dr. Low's formula gives very widely separated figures, and to that extent also it is a disappointment. CYRIL J. FEENY, A.M.I.Mech.E.

[We publish our correspondent's letter as it is interesting, but we would point out that the official figures of the Cyclecar Club hill-climb are not correct, as will be seen by reference to page 905. Respecting the constant K, this is chosen with reference to the c.c. of the competing machines, so the case imagined by our correspondent could never arise.—Ed.

Tyres and Accessories in the T.T.

Sir,—Your correspondent "Interested" directly invites the views of tyre manufacturers upon his letter. His suggestion is that tyre firms compete in order to secure the use of their tyres by the likely winners of motor cycling events. He also submits that, if this is so, the public are being deceived and the winning tyre is not necessarily the best tyre, but the tyre that carries the biggest subsidy.

If I reply that your correspondent is very close to the truth, it is not necessarily in protest against the methods of advertising which other tyre makers prefer to adopt. They have their own business interests to look after, and have perfect liberty to spend their money in subsidies to riders or in any other legitimate way that appeals to them. I do not blame the riders who accept the subsidies. They have their living to get; and so long as they can command free tyres and a cash payment for making themselves running advertisements of particular goods, they cannot be blamed for their share in the transaction. After all they have to make reasonably sure that the commodity they are paid to use is a fair average commodity, because, if it were less than average, it would let them down.

At the same time, from the public point of view, there is an element of deception in the practice. For a very important event, special tyres might be prepared. If that make of tyre wins, the public who buy the stock tyres under the impression they are the same quality are deceived.

Again, a competition with an international interest like the T.T. is important enough as an advertisement for the winning tyres, for tyre firms to spend very large sums. The one with the largest resources might make a win for its tyres practically inevitable by covering the whole of the first-class riders.

Again, and most important of all, from the consumer's point of view, the firm whose resources were not equal to the subsidies demanded by the likeliest riders, or who objected to that method of advertisement, might have an infinitely better tyre than the winner used, a motor cycle tyre of far greater utility, durability, and economy, yet that fact would be obscured by the publicity given to the winner. That is a direct loss to the consumer.

Sooner or later the better tyre will win in the market on its merits—if the organisation behind it can hang on until success comes. If, however, it has no resources to hang on with, it must go under. The public are losers in the first case in the immediate sense, and losers in the second place all the time. The important point is that the winner of a big race may not be shod with the best tyre, but, on the contrary, shod with comparative shoddy. If that is not so, if there is so much virtue in the win, then the tyres which do not win, or meet with mishaps, like punctures or bursts, are much less virtuous. In that case the names should be made public, in the public interest, as tyres to avoid. If that were done, we should find that the virtuous winning make was also an unvirtuous losing make.

Certainly, I think the public should be made aware of the fact that subsidies are given to first-class riders—indeed subsidies are demanded. Also, I think it should be made clear that tyres which win races are not necessarily the best tyres for the utility work of the road. A tyre that collapses under the exceptional stresses of road racing might easily outlive by thousands of miles the ordinary road life of the winning tyre. The value of a win in such an event is, therefore, a very dubious quantity from the consumer's point of view, and, for the reasons given, likely to be very misleading. W. YARWORTH JONES,
Managing Director Victor Tyre Co., Ltd.

SPEED TRIALS AT COLWYN BAY.

Fastest Speed: 76¼ m.p.h. by J. J. Cookson (Matchless). Continued Singer Successes.

SPEED trials, reminiscent of the events held at Southport and Blackpool some years ago, were arranged by the Mersey (Liverpool) Motor Club at Colwyn Bay last Saturday. The Mersey Club is a comparatively new organisation, and consequently deserves much credit for the successful handling of such an important meeting. The club was rewarded with nearly 250 entries of cars and motor cycles, but it must be recorded that there was an extraordinary number of non-starters. About 5,000 people witnessed the tests, which were, however, only moderately interesting, for the sight of a solitary motor cyclist speeding along at about a mile a minute, and continued for about five hours, is not calculated to enthuse even the keenest sportsmen. To make matters worse, some of the competitors were entered in a number of classes and were seen many times, and, further, the timekeepers, for some unknown reason, withheld the times until 8 p.m., so that nobody really knew what was happening or who were likely winners.

Against Records.

The wind was blowing rather strongly in the faces of the competitors when at noon a commencement was made with the cars. Practising had been indulged in during the morning, and many interesting machines were exposed to public view, the eight-valve Indian with its direct chain drive to the rear wheel attracting the most attention, whilst there was quite a fleet of Matchless big twins. In the motor cycle classes, competitors were started in pairs, the times in the kilometre events being taken from a standing start, whilst in the half-mile sprints a good distance was allowed in which to get up speed. Occasionally spectators were treated to a duel, but runaway wins were the order.

G. E. Stanley was, as usual, in form with his Singers. He was always quick off the mark, his perfectly tuned engines responding with alacrity, and once under way few could hold him. It is some time since Stanley found his match on 2¾ h.p. or 3½ h.p., but Edmond, on a twin Humber, developed an astonishing turn of speed, and was able, for once in a way, to check Stanley's career by averaging exactly 60 m.p.h., and this with mudguards. It has come to be regarded as an achievement to beat Stanley at his own game, and the Humber exponent should be encouraged to further deeds. Charlie Collier, on his neat and prim T.T. Matchless, once or twice gave Stanley a close run, but Collier himself was once well beaten by J. H. Fox, an amateur rider of a Matchless-Jap. There were other lesser known men who exhibited great promise, including H. J. L. Greatwick, who used a twin Blumfield engine, Gilbert Hall (Scale-Jap), and F. C. Topham (Dot).

J. P. Nicholson (Zenith) and C. R. Collier (Matchless) on the starting line.

Another Singer rider who won several firsts and was always well up was J. Cocker, so with the success of their cycle car, which equalled the time of the famous 20 h.p. Vauxhall car, Singer and Co., Ltd., may be said to have had another field day.

The wind was the cause of a surprising number of stray hats about the course; it was quite a common sight to see competitors returning on foot for their headgear. Several wisely wore pneumatic racing helmets for safety. Stanley also had T.T. garb and even elastic bands around his riding breeches to cut down windage!

Few of the passenger machines in the racing class event were stripped, their owners preferring to enter them in the touring class also.

12 stone Rider of a Lightweight.

Busby was riding a strange mount to him, a Sunbeam, but did splendidly, despite his twelve stones weight. D. C. Bolton, on a very light Rudge with A.S.L. fittings,

Scene at the starting line showing Hugh Gibson (3½ h.p. Bradbury sidecar) who won two events. In the picture may be seen S. W. Carty (Secretary of the meeting), Mr. T. W. Loughborough (A.C.U. Secretary), and at the right Mr. A. G. Reynolds (timekeeper).

Speed Trials at Colwyn Bay.—

impressed one by his speed, and was, in fact, only bettered by the redoubtables—Stanley and Collier.

Edmond lost one event by gathering his carburetter control which had slipped round the bar and thereby closing the throttle, for Whitworth, whose Douglas was going remarkably well, beat him by ⅕s. Whitworth used a two-speed Douglas and was usually well ahead of his opponent in less than 100 yards.

The events of the day were Classes 8 and 14 for machines up to 1,000 c.c., the high speeds attained greatly pleasing the bored spectators. J. J. Cookson's success was well deserved, though Harry Reed pressed him to within ⅛s. It was some consolation to the latter that his Dot machines were successful in other classes. George's eight-valve Indian did not get away well at the start, H. Marsden, on a Matchless, beating him. Marsden and Brewen (8 Zenith) actually tied for time on two occasions. Hugh Gibson was often in the picture. He was once well beaten by D. C. Bolton when close to the finishing line, but his Bradbury had no equal in the sidecar class.

The times were remarkably close, the slight advantage of the 3½ h.p.'s over the best lightweights calling for special comment. The complete tabulated results, times, and speeds are given hereunder for comparison:

Standing Kilometre.

CLASS 6.—Racing motor cycles up to 500 c.c.

		secs.	m.p.h.
1.	G. E. Stanley (3½ Singer) ...	43⅕	51.75
2.	C. R. Collier (3½ twin Matchless)	43⅗	51.27
3.	J. Cocker (3½ Singer)	44⅗	50.12

CLASS 5.—Racing motor cycles up to 350 c.c.

1.	G. E. Stanley (2¾ Singer) ...	47⅖	47.16
2.	V. Busby (2¾ Sunbeam)	50⅕	44.53
3.	{T. C. de la Hay (2¾ Sunbeam) ... {F. S. Whitworth (2¾ Douglas) ...	51⅘	43.15

CLASS 10.—T.T. machines up to 500 c.c.

1.	J. Cocker (3½ Singer)	44⅘	49.89
2.	C. R. Collier (3½ Matchless) ...	46	48.60
3.	G. Hall (3½ Scale-Jap)	48	46.57

CLASS 18.—Racing passenger motor cycles and cycle cars up to 1,100 c.c.

1.	B. Heywood (10 Singer c.c.) ...	44⅗	50.12
2.	E. Longden (8 Dot-Jap sc.) ...	61⅖	36.55
3.	G. de Planta (10 Singer c.c.) ...	62⅕	36

CLASS 1.—Standard racing motor cycles up to 350 c.c.

1.	V. Busby (2¾ Sunbeam)	51⅖	43.69
2.	F. S. Whitworth (2¾ Douglas) ...	53	42.20
3.	R. E. Grice (2¾ Sunbeam) ...	56⅖	39.80

CLASS 4.—Standard touring motor cycles up to 1,100 c.c.

1.	H. J. L. Greatwich (5 twin Wright-Blumfield)	46	48.63*
2.	N. H. Brown (7 Indian)	50⅕	44.74
3.	W. H. Kelly (8 Rex-Jap) ...	54⅕	41.43

* Disqualified as machine was not "standard touring."

CLASS 7.—Racing motor cycles up to 750 c.c.

1.	G. E. Stanley (3½ Singer)	43⅕	51.75
2.	J. H. Fox (5 twin Matchless-Jap)	44⅖	50.35
3.	C. R. Collier (3½ twin Matchless)	45	49.68

CLASS 9.—T.T. motor cycles up to 350 c.c.

1.	F. S. Whitworth (2¾ twin Douglas)	48	46.57
2.	F. G. Edmond (2¾ twin Humber)	48⅕	46.37
3.	V. Busby (2¾ Sunbeam)	51⅖	43.49

CLASS 15.—For standard touring passenger machines up to 600 c.c.

1.	Hugh Gibson (3½ Bradbury) ...	57⅘	38.67
2.	V. E. Horsman (3½ Singer) ...	61⅘	36.43
3.	M. Rimmer (3½ Zenith)	66⅗	33.69

CLASS 8.—For racing motor cycles up to 1,000 c.c.

1.	J. J. Cookson (8 twin Matchless-Jap)	38⅕	58.52
2.	{A. J. Brewin (8 Zenith) ... ... {H. Marsden (8 Matchless) ...	39⅗	56.45
4.	H. Reed (8 Dot-Jap)	41	54.52

CLASS 2.—Standard touring motor cycles up to 600 c.c.

1.	J. Cocker (3½ Singer)	46	48.60
2.	H. Gibson (3½ Bradbury) ...	47⅖	47.16
3.	V. Horsman (3½ Singer)	48	46.57

CLASS 3.—Standard touring machines up to 775 c.c.

		secs.	m.p.h.
1.	J. Cocker (3½ Singer)	44⅖	50.35
2.	V. Horsman (3½ Singer)	48⅖	46.19
3.	A. J. Dixon (3½ Singer)	49⅗	45.07

CLASS 16.—Standard touring passenger machines up to 1,100 c.c.

1.	F. C. Topham (8 twin Dot-Jap sc.)	57⅕	39.08
2.	E. Longden (8 twin Dot-Jap sc.)	58⅕	38.41
3.	G. de Planta (10 4-cyl. Singer c.c.)	64⅖	34.84

CLASS 17.—Racing passenger machines up to 750 c.c.

1.	Hugh Gibson (3½ Bradbury) ...	59	37.88
2.	V. E. Horsman (3½ Singer) ...	64⅕	34.95

Flying Half-mile.

CLASS 11.—Racing motor cycles up to 350 c.c.

1.	F. G. Edmond (2¾ twin Humber)	30	60
2.	G. E. Stanley (2¾ Singer)	30⅗	58.82
3.	F. S. Whitworth (2¾ twin Douglas)	32⅖	54.87

CLASS 12.—Flying half-mile up to 500 c.c.

1.	G. E. Stanley (3½ Singer)	26⅖	68.18
2.	C. R. Collier (3½ twin Matchless)	27⅘	64.75
3.	D. C. Bolton (3½ Rudge-A.S.L.)	28⅘	62.50

CLASS 13.—Flying half-mile up to 750 c.c.

1.	G. E. Stanley (3½ Singer) ...	26⅗	67.67
2.	C. R. Collier (3½ twin Matchless)	27⅗	65.21
3.	J. H. Fox (5 twin Matchless) ...	28⅕	63.83

CLASS 14.—Up to 1,000 c.c.

1.	J. J. Cookson (8 Matchless-Jap) ...	23⅗	
2.	H. Reed (8 Dot-Jap)	23⅘	
3.	{H. Marsden (8 Matchless) ... ... {A. J. Brewin (8 Zenith)	24⅗	

The Handicap Events.

CLASS 19.—Standing kilo., open only to residents of twelve months or more within a five-mile radius of Colwyn Bay.

1.	R. E. Grice (2¾ Sunbeam)	51⅕s.
2.	N. J. Hall (3½ Ixion)	57⅖s.
3.	H. Lancaster (2¾ Douglas)	72⅗s.

CLASS 20.—Standing kilo. for the championship of North Wales. Open only to residents of twelve months or more in North Wales.

1.	J. H. Fox (Matchless)	42⅕s.
2.	R. E. Grice (Sunbeam)	53⅖s.
3.	R. F. James (N.S.U.)	52⅗s.

The winner of the Reliance Cup for the best aggregate performance is awarded to G. E. Stanley.

Observations.

It is now the custom in speed events to inspect carefully tyres and the type adopted—wired on or beaded edge. The popularity of each type could be fairly said to be divided, and we were particularly pleased to notice that security bolts were almost general in the case of beaded edge tyres. The fear of the cover creeping when travelling at speed and ripping the valve out of the tube is now too well known. We got a useful tip from W. H. Wells which had been adopted by the Indian riders as well as C. R. Collier. Mr. Wells has a weakness for shellac, his T.T. Indians are always swathed in tape and shellac, his latest use for the commodity is to spread it on the rims and edges of the cover and so stick them on.

J. J. Cookson's 8 h.p. Matchless had a J.A.P. engine of 90 mm. bore by 77.5 mm. stroke, and we noticed that he had fitted his Amac carburetter with an inverted needle working inside the jet to give a variable opening. He used a gear of 3 to 1.

The results of the different classes were announced at 8 p.m. on Saturday to an impatient crowd who could see no reason for the delay in the absence of a formula. As a matter of fact some of the positions were amended later.

CUMBERLAND COUNTY M.C.C.

A twenty-seven hours' reliability trial was held on the 28th and 29th ult. The course was from Carlisle, *viâ* Preston, Warrington, Lichfield, to Birmingham, and the return journey *viâ* Derby, Sheffield, Doncaster, Barnard Castle, and Appleby. There were seventeen starters. The results were—Solos: 1, J. Robinson (2¾ N.U.T.); 2, W. B. Little (3½ Premier); 3, B. Jefferys (7-9 Zenith). Sidecars: 1, T. B. Westmorland (5-6 Machless); 2, T. Wilkinson (5-6 Clyno).

Second English-Dutch International Trial.

THE respective teams for the above trial, which starts from Oxford on August Bank Holiday Monday, have now been chosen, and we give their names hereunder :

Private Owners.

ENGLISH TEAM.	DUTCH TEAM.
350 c.c.	
Geoffrey Smith (2¾ Humber)	A. L. Versluys (2½ 1-cyl. Eysink)
W. Cooper (2¾ Humber)	J. H. Nieuwenhuys (2¼ 1-cyl. Vulkaan)
F. A. Hardy (2¾ Douglas)	J. van Frankenhuysen (2¾ 2-cyl. Douglas)
Reserve: Glyn Rowden (2¾ Douglas).	*First Reserve:* G. Hogenkamp (2¾ 2-cyl. Royal Enfield).
500 c.c.	
F. Dover (3½ Premier), capt.	Joh. Ferwerda (5-6 4-cyl. F.N.)
C. Lester (3½ P. and M.)	J. M. Bergmans (4 1-cyl. Simplex)
A. R. Abbott (3½ Rudge)	A. Citroen (3½ 1-cyl. Rudge-Multi), capt.
Reserve: W. B. Little (3½ Premier).	*First Reserve:* R. R. toe Laer (4 1-cyl. Simplex). *Second Reserve:* N. Ruyter (3½ 1-cyl N.S.U.).
1,000 c.c.	
R. G. Charlesworth (6 Zenith)	A. B. C. van Dongen (7 2-cyl. Indian)
C. W. Wilson (Morgan)	S. Eweg (7 2-cyl. Indian)
R. E. Guest (8 Matchless sc.)	J. A. v. c. Garde (5-6 2-cyl. Clyno sc.)
Reserve: C. W. Meredith (3½ Bradbury), P. Newbold (6 Zenith).	*First Reserve:* "Pseud, Eddy" (4 1-cyl. Simplex). *Second Reserve:* P. H. J. van Waveren (7 2-cyl. Indian).

Trade Riders.

350 c.c.	
S. Wright (2¾ Humber)	L. J. Knoops (2½ 1-cyl. Eysink)
Reg. Holloway (2½ Premier)	D. v. d. Mark (2¾ 1-cyl. F.N.)
W. B. Gibb (2¾ Douglas)	Jos. Kerstens (2½ 1-cyl. Vulkaan)
Reserve: J. S. Holroyd (2¾ Motosacoche).	*Reserve:* H. de Vos Middenweg (2½ 1-cyl. Puch)
500 c.c.	
W. Pratt (3½ P. and M.), capt.	J. C. Neurdenburg (3½ 1-cyl. Rudge-Multi)
W. F. Newsome (3½ Triumph)	A. Eysink (3 1-cyl. Eysink)
F. C. North (3½ Ariel)	P. N. Jelsma (3 1-cyl. Eysink)
Reserves: Rex G. Mundy (3½ Triumph); D. H. Noble (3½ Rover).	
1,000 c.c.	
C. R. Collier (6 Matchless)	C. Witteveen (557 c.c. 1-cyl. M. James)
F. W. Barnes (6 Zenith)	P. Nieman (5-6 2-cyl. Simplex)
F. Smith (5-6 Clyno sc.)	J. L. Geidt (6 2-cyl. Cyclonette, three-wheeled cyclecar)
Reserve: D. Arter (James sc.).	

Last year, in Holland, the Dutch team scored a surprise victory. Should they win again this year, the trophy presented by Messrs. Ferwerda and Citroen becomes their property, but in the event of a British success the final will be contested in Holland next year.

Mr. Nico Jannink is the new president of the Dutch M.C.C.

Official cars are being lent by Messrs. Humber, Ltd., and Rudge-Whitworth, Ltd.

BRADFORD-LONDON-BRADFORD RUN LAST SATURDAY. Scene in the hotel yard at Grantham.

A. E. Parnacott climbing South Harting on his cycle car. In the amended results, his was the best figure of merit.

IN September, 1911, we discussed the question of hill-climbing formulæ at some length, and after considering the advantages of several formulæ, decided to recommend to our readers as the best compromise between simplicity and accuracy that formula which has since become known as *The Motor Cycle* formula, viz., $\frac{C \times t^2}{W}$ or, as it can be written for those who have not *The Motor Cycle* cubic capacity table, $\frac{D^2 \times S \times N \times t^2}{W}$ in which C = cubic capacity in c.cm., D = bore, S = stroke, N = number of cylinders, t = time (in seconds), and W = weight of machine and rider.

Several correspondents wrote to us on the subject and suggested more complicated formulæ, but we were able to show that the differences in the results given were infinitesimal, and *The Motor Cycle* formula has proved very satisfactory for all the usual hill-climbs in which motor cycles take part, that is to say, in hill-climbs where the fastest time is anything from thirty seconds to one minute, or thereabouts. At the same time, we are quite willing to admit that, on a very long hill or for slower vehicles, the time, if squared, may become the determining factor, and too little importance may be given to weight and capacity. For this reason Dr. Low has worked out the following interesting formula specially for cycle car competitions: $\frac{W}{(C - K)^2 \times t^p}$. W, C, and t are the same as before, while K and p are constants depending upon the capacity of the machines entered and the length and gradient of the hill. For South Harting K = 200 and p = 1.75, and these are the usual values. For our purposes, however, the presence of constants varying for different competitions is undesirable, and in comparing the results at South Harting given by Dr. Low's formula and *The Motor Cycle* formula, which we do simply as a matter of interest and not as an argument for or against either formula, it must be remembered that the ascent of the hill would have been made by motor cycles in from fifty to seventy seconds, and thus the time figure would not have become so prominent.

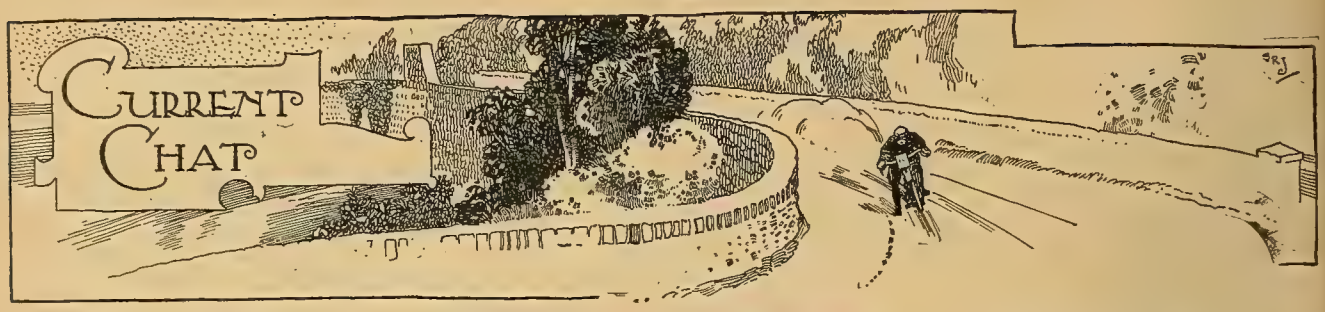
Corrected Results.

Immediately last week's issue had gone to press we discovered that the official results were inaccurate. It so happened that we obtained the official times and weights with the object of comparing results on *The Motor Cycle* formula, being so interested in this question, and in checking the "official" results discovered the errors, which we at once pointed out to the officials, and an amended list becomes necessary.

Machine and Class.	Weight. lbs.	Time. m. s.	Dr. Low.	*The Motor Cycle.*
Morgan (I.) ...	703 ...	1 35$\frac{2}{5}$ ...	.3206 ...	7855
Chota (III.) ...	1014 ...	2 29$\frac{2}{5}$ ...	.5274 ...	6083
Cycar (III.) ...	1060 ...	4 4$\frac{3}{5}$ ...	.7836 ...	3571
Zebra (III.) ...	1392 ...	5 26$\frac{2}{5}$ ...	.2817 ...	2026
Morgan (IV.) ...	956 ...	1 43 ...	.4647 ...	9143
Morgan (IV.) ...	970 ...	2 7$\frac{1}{5}$ ...	.2584 ...	5536
Morgan (IV.) ...	861 ...	2 6$\frac{1}{5}$ ...	.2310 ...	5606
Singer (V.) ...	1527 ...	2 14 ...	.3596 ...	7750
G.N. (V.) ...	962$\frac{1}{2}$ ...	1 50$\frac{4}{5}$ ...	.3247 ...	7220
G.W.K. (V.) ...	1372 ...	2 14$\frac{4}{5}$ ...	.3407 ...	7078

The figures given under Dr. Low's formula are official, with the exception of the Chota figure, which was obviously wrong; using the weight and time given officially, we make this figure .5274 instead of 2.096, thus Mr. Parnacott's Cycar becomes the winning machine and with a figure of .7834 (this, by the way, is calculated on a wrong capacity, the F.N. engine is not 499 c.c.).

We put this matter before Dr. Low, and since writing the above we have heard from him that the published times and weights are wrong, that his book contains weights, etc., quite different from those published, and that he has been told that "*the official weights cannot be found at the moment.*" This being the case, both Dr. Low and ourselves have been put to a great deal of unnecessary trouble, but the table given is still of some interest for purposes of comparison. We cannot, however, vouch for any of these figures in the unfortunate absence of reliable data.



TIME TO LIGHT LAMPS.

July	10th	... ...	9.14 p.m.
,,	12th	... ...	9.12 ,,
,,	14th	... ...	9.10 ,,
,,	16th	... ...	9.8 ,,

Kop Hill Open Climb Postponed.

Owing to the delay in sending out application forms, the Herts County A. and A.C. has postponed its hill-climb until August 9th. Entries will be received until the 26th inst.

Speed of the T.T. Winner.

We notice that a correspondent in our Scottish contemporary is questioning the official speed of 50.87 m.p.h. which, we believe, was published in all papers but *The Motor Cycle*. The correct figure being approximately 48¼ m.p.h., we have taken this matter up with the A.C.U. with a view to getting this mistake officially corrected, and it has, in turn, been referred to the official time-keepers.

A.A. and M.U. Notes.

SPECIAL ROAD NOTICE.—The Association has been asked to lend its assistance towards inducing motorists to moderate their speed when passing Dringhouses (1½ miles from York, on the York to Tadcaster Road). The local authorities are now prosecuting for driving to the danger of the public, and the resulting fines are invariably heavy. To make matters worse, the residents are irritated against motorists, who have killed valuable dogs and driven on without stopping.

CENTRAL TRAMWAY STANDARDS.—In view of the danger and inconvenience caused by obstructions of this type, the A.A. and M.U. has been in communication with the Board of Trade urging that the Board should oppose the erection of central standards and other permanent obstructions on the carriage way.

Warnings.

We are informed that the Glamorganshire police are busy in the following districts: Dynas Powis, Eastbrook, Cogan, Llandouch, Seckwith, and Wenvoe, through from Cardiff to Barry.

We hear that, in consequence of complaints of excessive speed through the village of Radcliffe-on-Trent, it is likely that a number of police traps will be put into operation. We urge our readers to ride with more care and circumspection in this district—in fact, in all districts. In many parts of the country the police are not hostile to motor traffic unless compelled to be so by the rashness of the drivers themselves. Riders of a certain class—about 1% of the whole, we imagine—do more to prejudice the interests of motorists than the remaining 99%.

FUTURE EVENTS.

July 13.—GRAND PRIX RACE. Motor Cycles, Sidecars, and Cycle Cars.
,, 14.—M.C.U.I. Irish End to End Open Trial.
,, 19.—Herts M.C.C. Open Half-Day Trial
,, 21-26.—Scottish Six Days' Trials.
,, 26.—B.M.C.R.C. Race Meeting.
Aug 2-3.—International Cup Race in France.
,, 2.—Hertfordshire M.C.C. Open Half-Day Trial.
,, 2-4.—M.C.C. Devon Trial
,, 4.—English-Dutch International Trial.
,, 4.—B.A.R.C. Meeting at Brooklands.
,, 9.—B.M.C.R.C. Race Meeting.
,, 18-23.—A.C.U. Six Days' Trials.
,, 30.—Herts M.C.C. Open Half-Day Trial
Sept. 6.—Coventry and Warwickshire M.C. Annual Open Hill Climb.
,, 13.—B.M.C.R.C. Race Meeting.

International Cup Race.

This trial, to take place on the 2nd and 3rd of August, is of considerable importance, and consists of two parts. There are 200 kilometres to be covered under touring conditions, and then a speed contest follows, in which 400 kilometres have to be covered. The course for the speed trial will be guarded by 1,200 men, and will be enclosed and provided with foot bridges.

SPECIAL FEATURES:

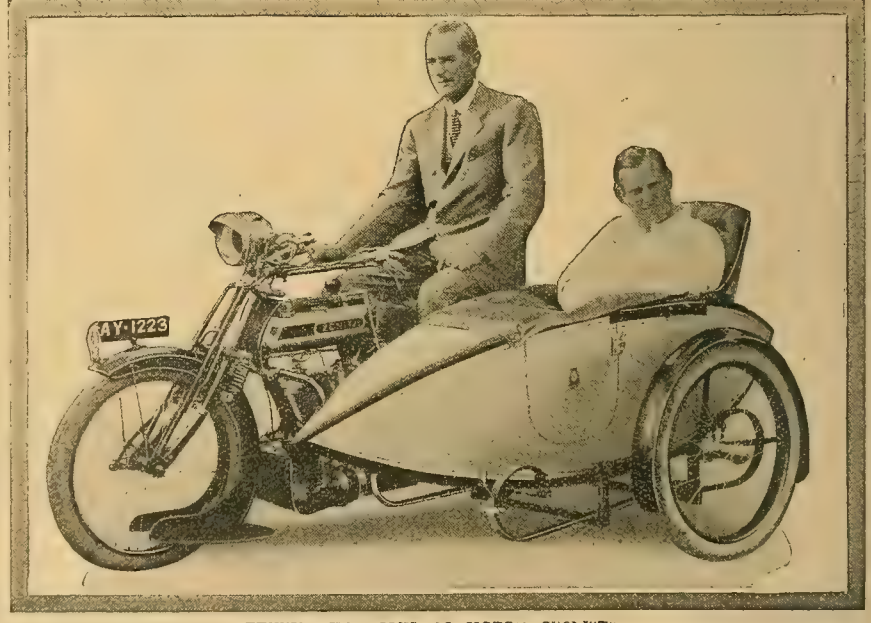
HILL-CLIMBING FORMULA.
NEW HILLS FOR THE SIX DAYS' TRIALS.
GRAND PRIX NEWS.

Official Figures at South Harting.

As we took the precaution of obtaining so far as possible the times, weights, and other figures of the competing cycle cars, we are able to draw attention to discrepancies in the official figures, but we cannot at present furnish reliable results. A. W. Lambert writes to say that his Morgan (two-seater) had an engine of 85×85 mm., 964 c.c. This will alter his figure to .3104 under Dr. Low's formula and 5606 according to *The Motor Cycle* formula, which gives him second place in Class IV.

Rear Lights.

Whilst a motor cyclist, accompanied by a lady in a pannier seat, was riding in the neighbourhood of Paris recently he was run into by a motor car from the rear. In the subsequent court proceedings, the judge remarked that the motor cyclist ought to have had a rear light, and gave a verdict for the motor car driver. On appeal, the plaintiff was awarded £24 damages.



TENNIS CHAMPIONS AS MOTOR CYCLISTS.

A. F. Wilding last week retained his title as the All England tennis champion by defeating M. McLoughlin. He is seated in G. W. Hillyard's Zenith-Gradua sidecar, the special features of which, including the Millford sidecar, have already been referred to in these columns. The engine is a special cycle car J.A.P. of 90 mm. bore by 85 mm. stroke, 10·8 h.p.

The Grand Prix.

Members of our staff are now in France in connection with the Motor Cycle and Cycle Car Grand Prix Races on Sunday. A descriptive report, with many illustrations, will appear in next Thursday's issue.

A Warning.

At the Kingston-on-Thames County Police Court on Thursday last week the Chairman (Lieut.-Colonel F. C. Turner) announced that, owing to the many complaints received as to excessive speed the fines imposed on motor cyclists would in future be the same as for motorists.

£5 Reward for Stolen Triumph.

Mr. Smith Whiting, 13, Carlton Road, Southampton, has had the misfortune to have had his 1913 three-speed Triumph stolen from the Stoneham Golf Club, Southampton, on July 4th. The machine number is 212,366, engine number 23,786, and it was lavishly equipped with accessories. Mr. Smith Whiting informs us that he is prepared to pay a reward of £5 for the recovery of the machine.

No Twin Rudge.

The other day we were assured by an acquaintance that he had seen a twin-cylinder Rudge motor bicycle on the road. It must have been an optical illusion, for we now have before us a letter from Rudge-Whitworth, Ltd., stating that the firm is not experimenting with, or even considering, any twin or other multi-cylinder motor cycle. The manufacture of the Rudge cycle car has not been continued owing to the extreme pressure in the works.

Motor Cyclists and the Army.

The Secretary of the War Office announces that any persons wishing to join the Motor Cyclist Section of the Royal Engineers (Special Reserve) should apply to the member of the Motor Cyclist Reserve Committee in the neighbourhood of their places of residence. All information regarding enlistment, etc., is contained in Army Orders, dated June 1st, 1913, which can be purchased through any bookseller

A Twin-cylinder Bradbury.

Hugh Gibson told us at Colwyn last week-end that he hopes to be mounted on the new 750 c.c. twin-cylinder chain-driven Bradbury with sidecar attachment in the English Six Days' Trials. The advent of this machine is eagerly looked forward to. Messrs. Bradbury and Co., Ltd., have had it in hand for some months, and it is sure to be an attractive mount from a firm with such a unique experience in the manufacture of motor cycles

Racing at Cambridge.

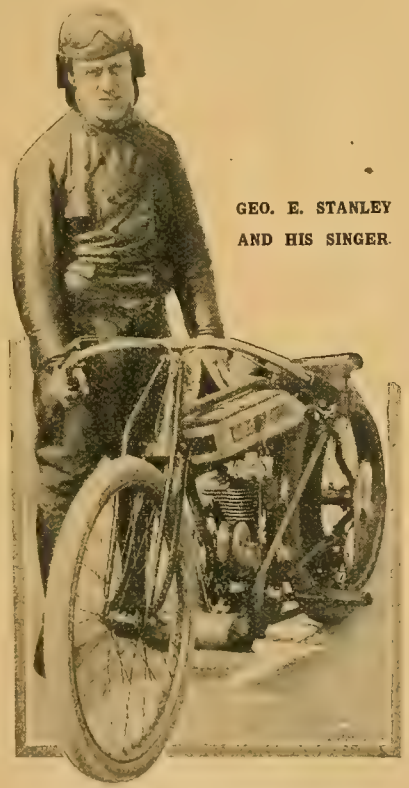
On July 3rd some successful motor cycle races were incorporated among the events at the charity sports on the Amalgamation Cricket Ground at Cambridge. Some well-known riders took part, including the redoubtable Harry Martin. Considering that the grass track was unbanked, the speeds were fairly high. In the three miles scratch race the result was: 1, Martin; 2, Barker. So keen was the struggle that the pair continued for several laps after the race was decided!

An Impossible (?) Hill.

Last week we referred to a hill near Llangollen which is described by "Bibendum" as an "impossible hill for motors." We now hear from a reader that he climbed this hill on the 22nd ult., riding a 1910 F.E. Triumph geared 6⅝ to 1.

Fatal Accident at Portmarnock.

The race meeting at Portmarnock was abandoned owing to a sad accident which occurred during the practise before the races. Two riders, J. Barrett and F. W. Parker, both of Dublin, came into collision, practically end on, when travelling at high speed, with the result that the former was killed on the spot and the latter so seriously injured that his recovery is doubtful. This is the first serious accident that has occurred at Portmarnock.



GEO. E. STANLEY AND HIS SINGER.

G. E. Stanley, the well known Singer exponent who gained five firsts at the Colwyn Bay Speed Trials last Saturday. Stanley is left handed and always mounts by the right footrest of his machine.

A Proposed Scottish T.T.

After the recent very successful race meeting promoted by the East of Fife M.C.C. on the sands at St. Andrews, some discussion arose as to the prospect of holding an open meeting over a distance of, say, twenty miles on the seashore. Several of the more prominent Edinburgh, East of Fife, and Glasgow racing men have expressed themselves as entirely favourable to the idea, and there can be little doubt that the event will materialise. There are, of course, objections to such a meeting, such as the large number of turns on the course, and the possibility of a wet day, which would render the event null and void, but, given a fair day, there is no reason why the event should not be a success.

The Six Days' Reliability Trials.

A fortnight ago we published photographs of the Scottish Trials course. This week we publish the first photographs of hills to be included in the English Six Days' Trials next August.

Irish End-to-end Trial.

Next Monday the annual Irish End-to-end Trial starts from Goleén immediately after the stroke of twelve on Sunday. The Palmer Trophy is the chief award.

A.C.U. SIX DAYS' TRIALS.

THE Six Days' Trials this year will, we are confident, eclipse those of last year in point of severity, as not only will the course be more strenuous, but, as will have been seen by the summary of the regulations published in our last week's issue, the conditions will be far more stringent.

Mr. Loughborough, the A.C.U. secretary, has just returned after nearly a fortnight's absence at Carlisle, where he has gone into the smallest details with the local authorities and the Cumberland County M.C.C. The official hotel will be The Central, where competitors will be lodged at 7s. 6d. a day, while the twelve senior officials of the trial will stay at the Crown and Mitre. Other hotels are the County and Red Lion, while there are numerous hotels and boarding houses about the town. Intending competitors are advised to book their rooms early.

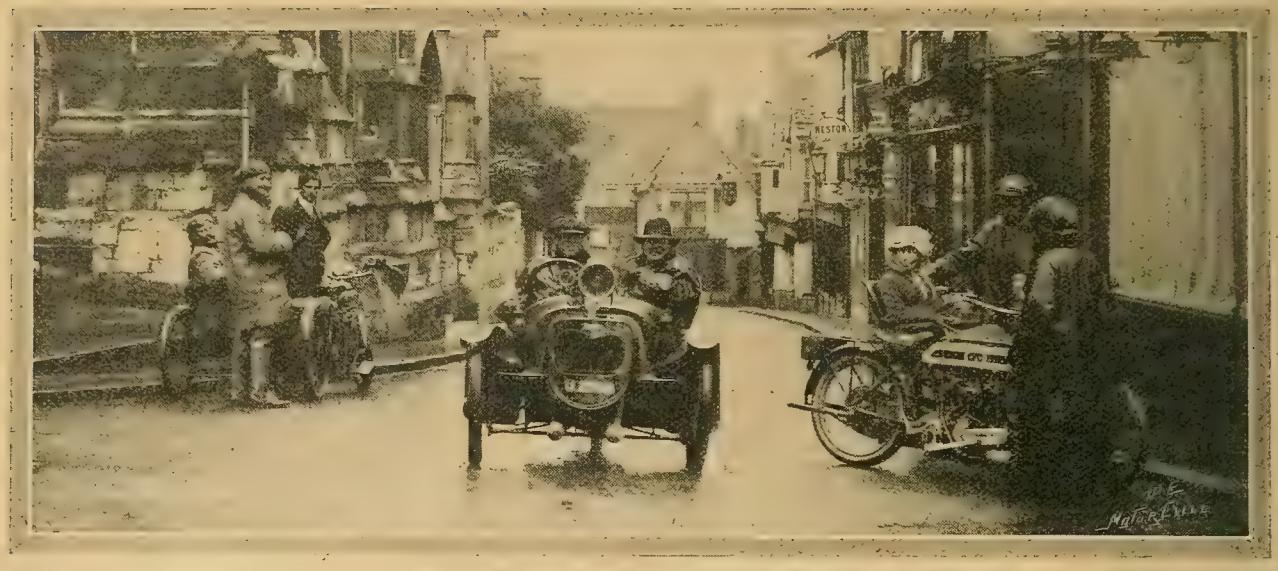
Durham in the Six Days' Trials.

The routes will be published early in August, probably just after the entries close on August 6th. Mr. Loughborough recommends the Competitions Committee to adopt a series of routes, which comprise three days in Lakeland, one in North Yorkshire, and one in Durham. He considers the day's route in Durham will prove the most severe of the lot. In the course of the trial the highest public house in England, on the summit of Tan Hill, will be passed. It is really the highest inn, as it stands 1,727 feet above sea level. It is interesting to note also that Alston, the highest town in England, will also be traversed during the trials. Mr. Loughborough, who was accompanied by Mr. Greenhill, chairman of the Competitions Committee, received the greatest assistance from Mr. G. P. Abraham, the well-known mountaineer and *The Motor Cycle* correspondent in the North-west of England. Mr. Abraham has a wonderful model of the country round the Lakes which occupies a whole room, and affords an interesting study for those who have the opportunity of seeing it.

The speed trials will probably be held in Lowther Park, the seat of Lord Lonsdale, near Penrith.

It is interesting to have to record that the Chief Constable of Carlisle is a motor cyclist.

Mr. Loughborough is very well pleased with the result of his visit, and received plenty of encouragement from the local residents. Local motor cyclists and those staying in the Lake District who would care to help the A.C.U. are requested to communicate with the secretary at 89, Pall Mall, S.W.



Bradford M.C.C. inter-team trial to London and back. Through rain and narrow streets in Stamford Town.

BRADFORD-LONDON AND BACK.

The long distance reliability trial for the Dyson trophy was held by the Bradford M.C.C. last week-end. Invitations were extended to different clubs to send teams to compete, and the start was on Friday evening. Rain was experienced on and off throughout the trip, and the competition proved much more severe as a result. Owing to the rain, the club decided to finish the ride some five miles away from the intended place. The results are not available for this issue.

WINNER OF A DUTCH MILITARY CROSS-COUNTRY RIDE.

H. Meyer, Editor of a Dutch motor cycle paper, on his 2¾ h.p. twin Humber. He won the Vermeil medal offered by the Territorials in a 50 miles cross-country ride for military motor cyclists last month. There were 46 competitors. Queen Welhelmina and the Prince Consort witnessed part of the contest.

A.C.U. SILENCER TRIALS.

JUDGES' SUPPLEMENTARY REPORT.

A supplementary report has been issued by the judges on the recent A.C.U. silencer trials. In this it is stated that the standard silencer being taken as a basis, the markings were given as follows: (*a*) Degree of noisiness as compared with standard; (*b*) weight; (*c*) volume; (*d*) general practicability.

Various criticisms of the first report have appeared in *The Motor Cycle*, especially on account of the non-publication of back pressure figures. The judges, however, point out that these were withheld on account of the misunderstandings which they were likely to cause. It must be remembered that a silencer which is particularly good in some respects may fail lamentably in others, thus the marking was rendered particularly difficult.

The tabulated results published herewith will show the results obtained, the marking having been agreed to by the committee. It is claimed that nothing could be gained by publishing further data.

MARKINGS.

BACK PRESSURE OF STANDARD SILENCER, .53 AND .8 LB. TO THE SQUARE INCH.
ENGINE REVOLUTIONS WITH STANDARD SILENCER, 1,815 AND 965.

Name of silencer.	Slow engine speed, bench test.	Fast engine speed, bench test.	Back pressure, lb. per square inch.		Marks for noisiness.	Total of all marks allotted.	+ is noise less than standard? — is noise worse than standard?
	r.p.m.	r.p.m.					
Warby	960	1,830	.15	.58	5.5	21.5	—
A.B.C.	950	1,830	.25	.54	6.1	26.2	—
Lyell	970	1,840	.35	.73	5.4	19.9	—
Lyell	950	1,840	.27	.68	9.2	26.4	Equal
Davis	960	1,840	.35	.73	7.5	24.5	Equal
Hutton	960	1,810	.41	.96	9.6	30.7	+
Hutton	970	1,810	.60	1.10	8.1	26.7	—
Dawson	950	1,780	.73	1.44	9.9	29.8	—
Sharpe	920	1,720	8.0	8.0	7.3	21.6	—
Sharpe	930	1,750	7.5	10.0	3.0	13.0	—
Ryder	970	1,870	4.5	4.5	4.3	14.6	—
Chase	970	1,870	.33	.56	9.6	33.2	Equal
Dunlop	970	1,800	.64	1.14	7.0	24.0	Equal
Rover	950	1,860	.31	.77	10.4	33.3	+
Rudge	990	1,900	.19	.25	4.1	25.2	—
Rudge	990	1,840	.49	1.0	6.7	25.4	—
Lyell	990	1,900	.37	.73	6.6	21.2	—

From the results obtained the following conclusions may be drawn: (1.) The gases should have a free entrance to a large expansion chamber. (2.) If a large chamber is not possible, deflecting blades are desirable. (3.) When reduced in pressure and temperature, the gases should be passed through a pipe or other device to damp out pressure variations. (4.) Silencers should be built solidly.

SPEEDS IN THE GRAND PRIX.

As it may be interesting for spectators to be able to read off the speed of the competitors in miles per hour from the lap times, we give a table showing the speed when the lap (17½ km.) is completed in any time (varying by half-minutes) from ten minutes to twenty minutes per lap :

mins. per lap.	m.p.h.	mins. per lap.	m.p.h.
10	65.22	15½	42.12
10½	62.14	16	40.82
11	59.33	16½	39.52
11½	56.78	17	38.36
12	54.45	17½	37.27
12½	52.27	18	36.25
13	50.16	18½	35.28
13½	48.31	19	34.35
14	46.60	19½	33.45
14½	45.00	20	32.61
15	43.52		

IRISH END-TO-END TRIAL.

The Irish End-to-end Run on the 14th inst. promises to be quite a big affair this year. Entries did not close until yesterday (Wednesday) morning, but those received up till Tuesday night ensured a successful event. It is the only Irish trial recognised by the Manufacturers' Union, and consequently the trade has supported the event very liberally, the English trade being well represented. The trial will be run from south to north as usual, and will start from Goleen one minute after midnight next Sunday. The route is much the same as in former years, as also are the regulations. The riders will follow the main road to Cork and Dublin, where new arrangements as to checking will be made to obviate the possibility of those who are behind time travelling too fast through the city. The northern end of the course has been altered to take in some severe hills near the finish. These will be observed and special marks awarded for clean ascents. In this way it is hoped to divide the survivors. Last year the winner of the Palmer trophy had but a few seconds less variation from standard time than the runner up; the new arrangements will make the awards less of a lottery than in the past.

SOME LATE CLUB RESULTS.

Cambusslang M.C.C.

A petrol consumption test took place recently. Results. 1, T. E. Roberts (2¾ Humber), figure of merit, 12.1; 2, O. Sproul (3½ Triumph), 11.4; 3, A. Doig (2¾ Douglas), 10.2.

Southampton and District M.C.C.

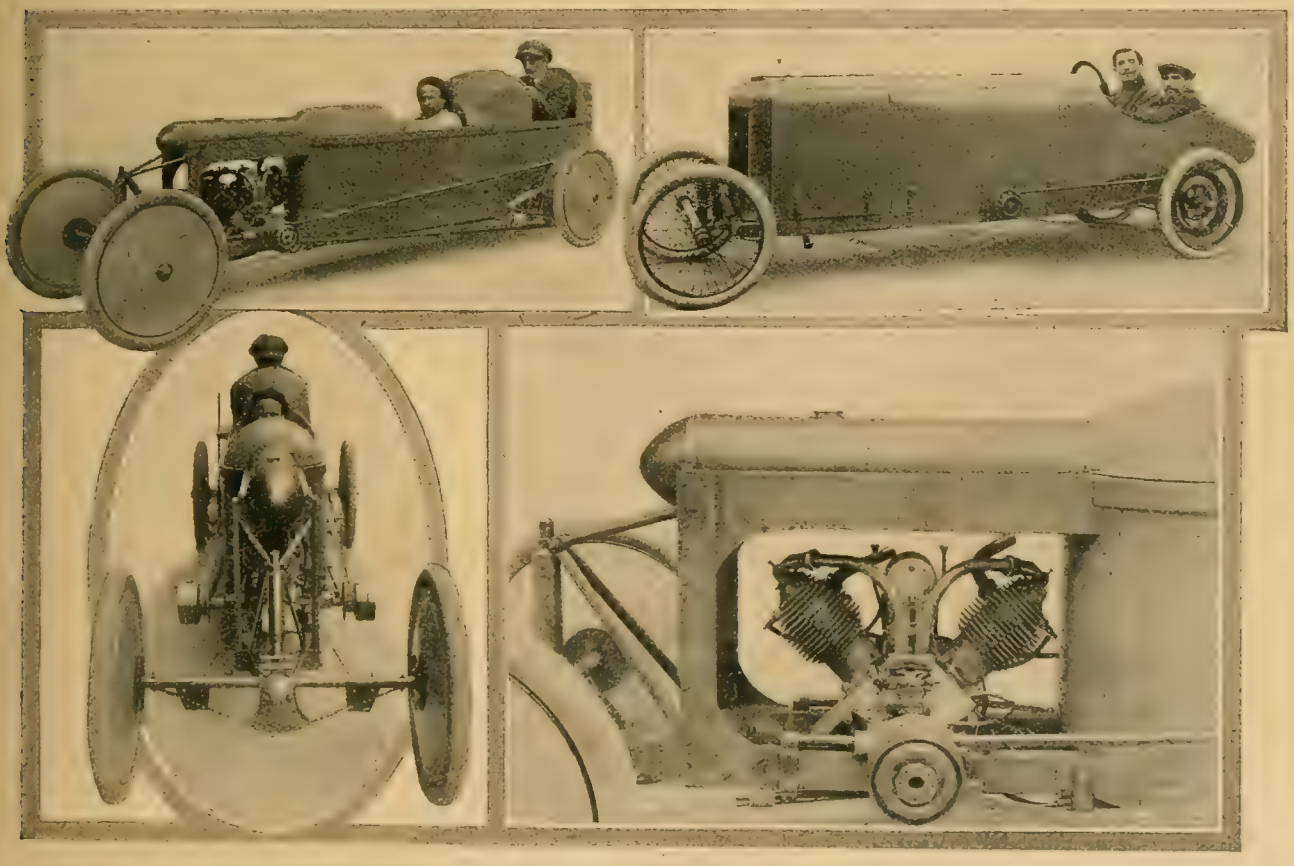
The annual hill-climb took place on the 2nd inst. at Dean Hill, near Salisbury. The hill is over half a mile in length and fairly steep. Results: Solo class. 1, W. H. Winckworth (4¼ Sun-Precision), 51s.; 2, F. Tappenden (3½ Premier); 61s. Passenger class. 1, F. Tuffin (3½ New Hudson sc.); 2, J. W. Silvey (3¾ Sun-Precision sc.). Miss B. Sims experienced hard luck, her belt breaking when half way up.

Helensburgh M.C.C.

The results of the petrol consumption test over a distance of twenty miles are as follows, the formula used being $\frac{W \times X}{P}$ W = weight of rider and machine, P = petrol in ounces, and

$$X = \frac{\text{capacity} - 200}{1{,}600} + 1.$$

	Fig. of Merit.
1. J. H. Murray (2¾ A.J.S.)	21.15
2. H. W. Ballardie (5 Hazlewood) ...	14.85
3. D. F. Macnab (3½ Quadrant) ...	13.25

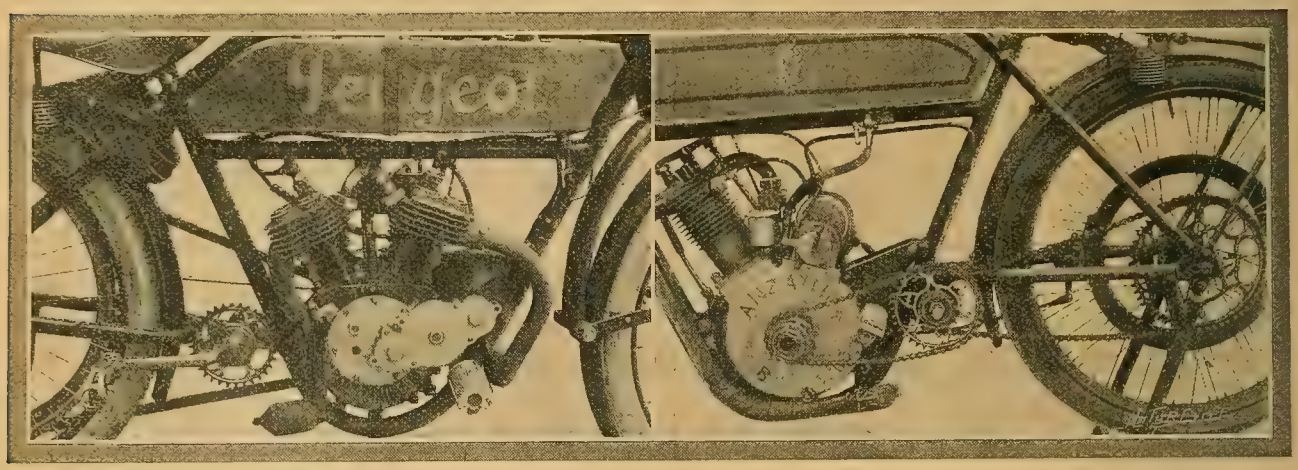


CYCLE CARS IN THE GRAND PRIX RACE.

(1) The Grand Prix Bedelia.
(2) The long racy looking Automobilette, propelled by a four-cylinder engine.
(3) Front view of the wind cutting Bedelia.
(4) The Bedelia twin-cylinder power unit. Observe the short exhaust pipes.

THE GRAND PRIX.

English Lack of Knowledge of the Course. The Competing Machines.



Latest twin Peugeot engine which has side by side mechanically operated valves. New Anzani engine on the Alcyon Grand Prix machine.

Some French Speed Ideas.

A study of many of the competing machines hailing from the other side of the Channel, both cycle and motor cycle, shows an interesting combination of past and possibly future ideas.

At last, after years of faithful adherence to the atmospheric valve, the Peugeot firm have fitted their motor cycle engines with mechanically operated valves of the side by side pattern, but they still doubt the excellence of the rubber belt. The Truffault spring forks are fitted. An enormous car type carburetter is used, the float chamber apparently holding about a pint of petrol! Our illustrations give an admirably clear view of the details of both this and several other machines. It is interesting to note that the French machines have at least one English fitting—the Brooks saddles.

The Anzani engine fitted to the racing Alcyon is an interesting production. Its general design is exceptionally neat, but the inlet valve is automatic, and apparently it is necessary to remove the cylinder to replace the valve.

One of the most interesting power plants is found in the Clément. This is the M.A.G. motor, and is precisely similar to the engine used in the T.T., when we fully described it. An Enfield two-speed gear and chain drive are fitted, and it is confidently expected that it will give a very good account of itself.

The Astonishing Cycle Cars.

For real *outré* ideas one must study the Bedelia. Here we have a belt-driven machine, the belt of which measures about 20ft., the drive being direct from the engine to the road wheels. In order to reduce or raise the gear, pulleys, apparently working on the Philipson principle, are employed, and the engine is shifted backwards and forwards on a bed by means of a worm gear worked by the driver to slacken and tighten the belt.

The Automobilette is interesting because it is a remarkable mixture of true car and true motor cycle practice. A water-cooled four-cylinder motor is employed, and the belt pulleys are driven by a shaft from the engine clutch to the gear box placed in the middle of the chassis. The front suspension is *à la* Bedelia.

The Super is the only tandem-seated machine in which the driver sits in front of his passenger, and thus has a clear view of the road ahead.

L. Messervy, who was to have driven one of the Grand Prix Duos, collided with a taxicab and injured his arm so badly that he will be unable to drive.

Excursions to the Race.

The South-Eastern and Chatham Railway will run the following excursions to Amiens on July 10th, 11th, and 12th, available by the 10 a.m. and 2.5 p.m. service from Charing Cross, *via* Boulogne, and the 9.30 p.m. *via* Calais, and returning from Amiens at 9.20 a.m. and 4.55 p.m. *via* Boulogne and 11 p.m. *via* Calais. These tickets will be available for fifteen days at the following fares: First class, 42s. 6d.; second class, 30s. 6d.

The List of Competitors.

Below is a complete list of entries given in the order of starting. It will be seen that the British motor cycle industry is well represented by B.S.A., Clyno, Douglas, Premier, Regal-Green, Rudge, Triumph, and Zenith, and British cycle cars by G.N.'s, Duo, Morgan, Marlborough, and Bolton-Precision, though we hear the last-named is not sufficiently advanced to come to the starting line.

MOTOR BICYCLES.

Class 1.—350 c.c.

1.	Clément.	9.	Alcyon.
2.	Gladiator.	10.	Alcyon.
3.	Peugeot.	11.	Douglas.
4.	Peugeot.	12.	Douglas.
5.	Terrot.	13.	Douglas.
6.	Terrot.	14.	Motosacoche.
7.	Alcyon.	15.	Motosacoche.
8.	Alcyon.		

Class 2.—500 c.c.

1.	B.S.A.	7	Peugeot.
2.	B.S.A.	8.	Terrot.
3.	B.S.A.	9.	Terrot.
4.	Clément.	10.	Triumph.
5.	Gladiator.	11.	Triumph.
6.	Peugeot	12.	Triumph.

Class 2.—500 c.c. *(Continued).*

13.	Motosacoche.	22.	Premier.
14.	Motosacoche.	23.	Premier.
15.	Automoto.	24.	Rudge.
16.	Réné-Gillet.	25.	Rudge.
17.	Réné-Gillet.	26.	Rudge.
18.	Zenith.	27.	N.S.U.
19.	Zenith.	28.	N.S.U.
20.	Zenith.	29.	Premier.
21.	Zenith.	30.	Dot.

SIDECARS AND THREE-WHEELED RUNABOUTS.

Class 1.—500 c.c.

1.	B.S.A.	2.	Regal-Green.

Class 2.—750 c.c.

1.	Clyno.		

Class 3.—1,000 c.c.

1.	Morgan.	4.	Morgan.
2.	Morgan.	5.	Réné-Gillet.
3.	Morgan.	6.	N.S.U.

CYCLE CARS.

Class 2.—1,100 c.c.

1.	Bedelia.	13.	La Roulette.
2.	Bedelia.	14.	Bolton-Precision.
3.	Bedelia.	15.	G.N.
4.	Violet-Bogey.	16.	G.N.
5.	Violet-Bogey.	17.	Duo.
6.	Mathis.	18.	Duo.
7.	Ronteix.	19.	La Roulette.
8.	L. Noel.	20.	Globe.
9.	Du Guesclin.	21.	Automobilette.
10.	Automobilette.	22.	Marlborough.
11.	Super.	23.	Ronteix.
12.	Violet-Bogey.		

Practising Notes.

Matters have been very dull for the spectators who turned out during the limited practising hours, for, singularly, few of the competitors have been able to take the opportunity of acquiring a knowledge of the course. Of the cycle cars, the only ones to put in an appearance during the very limited period provided for practising have been the French makes. None of the English machines have been seen on the course at all, nor has anything been heard of the Mathis from Strasbourg. The Mathis is probably more feared by the French than any other foreigner in the race, and for that reason everyone has been looking forward to seeing it put through its paces round the course. But Strasbourg is a long way

The Triumph team in the Grand Prix race next Sunday : A. Clayton, W. F. Newsome, and E. W. Cheshire.

from Amiens, and it is absurd to expect makers to travel an immense distance for what amounted to four and a half hours' practising nearly a fortnight before the race, and then when the course was closed to go home and come again to Amiens for the contest.

English Unpreparedness.

The case is much the same with our own competitors, for although it is quite a simple and inexpensive matter to run over to Amiens from London, it is impossible to do so at a moment's notice, and this is what would have been necessary, for the authorities gave no notice of the time allowed for practice, and, owing to the obstinacy of the local authorities, it was found that a meagre one and a half hours early in the mornings of July 1st, 2nd, and 3rd was all that could be arranged for. No effort seems to have been made by the racing authorities to communicate with any competitors except the Frenchmen, a proceeding very unfair to all foreigners, and great indignation is felt in many quarters.

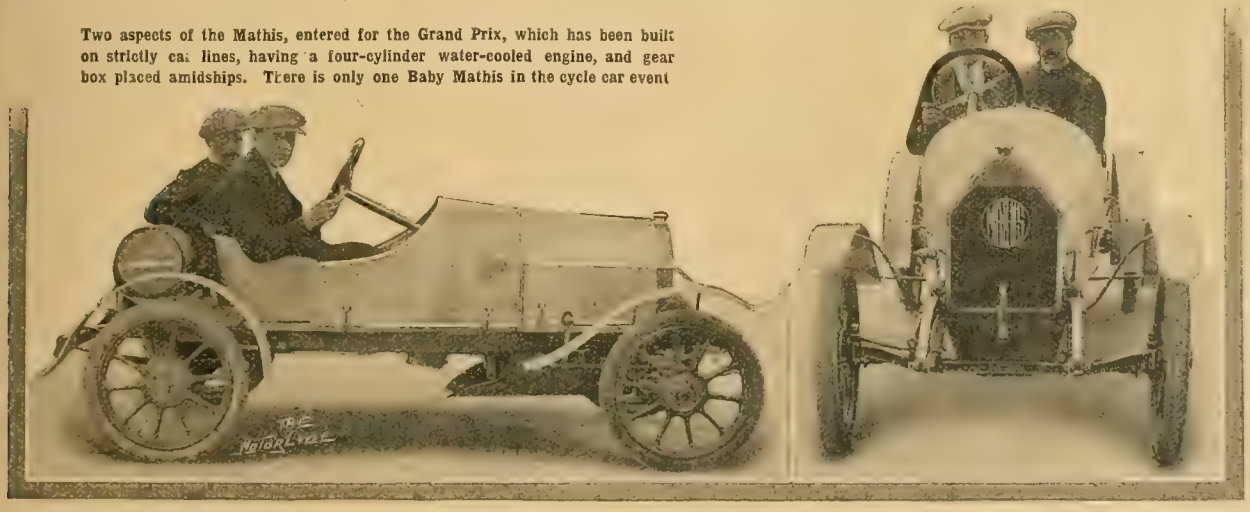
It is all very well to argue that we have Brooklands on which to tune up the competing machines. No place is finer for the purpose, we admit, but what is wanted to win a race is a road driver as well as a road machine, and quick corner work, not to be learned at Brooklands, will play an important part in securing a win in France.

The French, of course, have availed themselves of the restricted period for practising, and two each of the Ronteix, Violet-Bogey, Bedelia, and Sphinx among the cycle cars have been hard at work on the course. The last-named is the French edition of the English Globe. The Violet has covered a lap at a speed of nearly 63 m.p.h. This is bound to tell its tale in the race, for there will be no further opportunity of acquiring a knowledge of the course before the race itself, unless the regulations are relaxed, which appears unlikely. With regard to the motor cycles our position is not so serious, as most of our riders have had more experience on the road in the Isle of Man than the French have had, and probably the English machines are faster—though it would not be well to pin too much faith on this surmise, as the René-Gillet, Peugeot, and Terrot machines are reported to be very fast. By the way, H. Lamb, one of the firm's testers, will ride a Premier in place of Reg. Holloway, who has not yet sufficiently recovered from his recent accident.

Arrangements for the Race.

Depots are being established in the neighbourhood of the course by various firms, and we learn that Messrs. Rudge-Whitworth have secured quarters at the Café du Commerce, Boves, about five miles from Amiens and practically abutting on the course. The first machine in the 350 c.c. class will be sent away at 6 a.m. on the 13th inst., but owing to the considerable number of the entries and the shortness of the circuit, 17½ km., it is quite likely that the riders will be started in rows of three or four at a time. The 500 c.c. class will start next, while the sidecars and cycle cars will decide their struggle on the afternoon of the same day. One of the most interesting vehicles is the little Mathis cycle car, or baby car would be a better term, for it is a perfectly proportioned car in miniature, and has nothing of the cycle about it except that it comes under the A.C.U. definition for cycle cars. It is fitted with a four-cylinder water-cooled engine of 58 bore×100 stroke, and is driven through a three-speed and reverse gear box by a cardan-shaft and live axle. 650×65 mm. tyres are fitted to wood detachable wheels. Its weight is approximately 6 cwt. 3 qrs. It will be interesting to see how this car type of cycle car will fare under racing conditions opposed to the belt-driven type. The speedy Morgans are relegated to the sidecar class owing to their being three-wheelers, but as they are competing at the same time as the cycle cars, we shall get interesting evidence as to the speed and reliability of the car type, the belt-driven type, and the three-wheeler type as opposed to the sidecar and motor cycles.

Two aspects of the Mathis, entered for the Grand Prix, which has been built on strictly car lines, having a four-cylinder water-cooled engine, and gear box placed amidships. There is only one Baby Mathis in the cycle car event



M.C.C. Fifth Annual Race Meeting at Brooklands.

A LARGE AND SUCCESSFUL PROGRAMME.

THE Motor Cycling Club's annual Brooklands meeting is always a bright and interesting event, and this year's programme proved no exception. A large number of well-known riders took part in the various races, and, though the onlookers were not numerous, this could hardly be expected, as there were many other week-end open events to act as counter-attractions.

The weather was kind, and though the sky was clouded throughout the meeting only a light rain fell, and this was not sufficient to spoil the racing. All the events started and finished at the fork, and it was here that the spectators gathered to watch the proceedings.

Event I.

Racing started at 1-45 p.m. with a two-lap handicap event for machines with engines up to 350 c.c. Of the fourteen entrants, all started, the Douglas machines getting away quickest almost without exception; in fact, several riders of this make paddled off, and were soon going at a good pace. At the end of the first lap, Percival (Douglas) was leading, followed by Sir R. K. Arbuthnot, Purchase (Douglas), A. V. Sumner (2¾ Zenith), Le Grand and Jacobs (Singers), Wilberforce (Douglas), and Seed (Douglas). On the next lap, Jacobs and Le Grand picked up in fine form, the former winning by about 25 yards, with Sir R. K. Arbuthnot second, and Le Grand third. The last-mentioned would probably have run into second place, but was considerably slowed by a flat front tyre. The next to finish were Percival, Sam Wright, and Seed, whose stand was trailing. Wilberforce finished with a flat back tyre. W. Cooper (2¾ Humber) caused some amusement by riding with his shoes protected from oil by rag. Results:

		s.	m.	s.	m.p.h.
W. A. Jacobs (1-cyl. Singer) ...	69×93	8	5	51	=55.72
Rear Admiral Sir R. K. Arbuthnot (2 Douglas)	61×60	30			
J. P. Le Grand (1 Singer)	69×93	8			

Event II.

The second event was another two-lap handicap race for machines with engines exceeding 350 c.c., but not exceeding 560 c.c. C. W. Meredith (Bradbury), who is better known in long-distance trials than on the track, unfortunately got up a wobble and fell, but was not seriously hurt. Shaw (P. and M.) got away very well, and appeared very fast, and O. C. Godfrey went away better than anyone; he was riding the single-cylinder Indian which he used in the T.T. and the Grand Prix de Fontainebleau, but it seemed rather low-geared for track work. De Lissa's Motosacoche was fitted with his patent exhaust valve, but this machine also was geared too low. At the end of the first lap, Newsome (Rover) had worked his way to the front, and was riding magnificently. He was followed by Shaw, Meredith, Noble (Rover), R. E. Guest (Matchless), H. A. Collier, and S. F. Garrett (Regal-Green), who had lost some time by a slow start. Colliver, on a single-cylinder Indian, was suffering from float chamber trouble, but was fast when going properly. Collier was going grandly, and soon picked up the field, winning comfortably, with Guest in the second place, and Shaw lying third. Newsome came fourth, having dropped back owing to plug trouble, which dogged him throughout the day. Results:

		s.	m.	s.	m.p.h.
H. A. Collier (2-cyl. Matchless)	64×77	8	5	11	=62.87
R. E. Guest (1 Matchless) ...	90×77.5	14			
P. Shaw (1 P. and M.)	85×88.9	42			

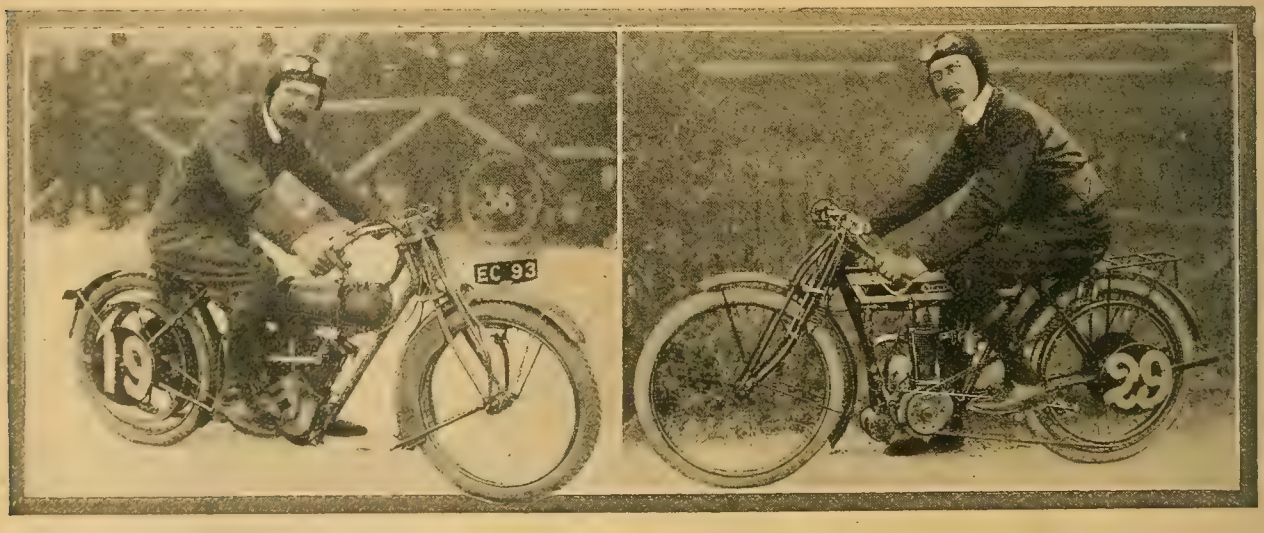
Event III.

Scratch race of three laps, up to 350 c.c. As usual, the Douglases were first away, but they were overhauled by Jacobs, Le Grand, and Sam Wright, who stuck together throughout the first lap. Sir R. K. Arbuthnot came next, but it was obvious that, except for accidents, one of the three leaders must win. Jacobs was still in front at the end of the second lap, but Wright was pressing him hard less than a length behind. The Admiral had run into third place, as Le Grand had had his belt come off. He passed sixth, gaining ground quickly, but shortly afterwards the same thing happened again, effectually putting him out of the race. This left Jacobs and Wright to fight for first place, and the former succeeded in pulling off the race by a small margin. In each scratch race the first five to finish were eligible to start for the club championship for the Harry Smith gold challenge cup, which event took place last of all. Results:

		m.	s.	m.p.h.
W. A. Jacobs (1-cyl. Singer) ...	69 ×93	8	46	=55.72
S. Wright (2 Humber)	60.7×60			
Sir R. K. Arbuthnot (2 Douglas)	61 ×60			
V. Wilberforce (2 Douglas) ...	60.5×60			
J. P. Le Grand (1 Singer) ...	69 ×93			

Event IV.

Three-lap scratch race for machines above 350 c.c. and up to 560 c.c. There was a good entry for this event, but unfortunately six were non-starters. Nearly everyone got away well with the exception of N. O. Soresby, who had quite a struggle. Collier assumed the lead at once, followed by Newsome, Guest, Pullin, and Godfrey. This order was unchanged at the end of the first lap.



H. A. Collier (3½ h.p. Matchless), who has returned to form and won three races on Saturday at Brooklands.

W. A. Jacobs (2¾ h.p. Singer) winner of two events.

M.C.C. Fifth Annual Race Meeting—

During the second lap Collier increased his lead, and Guest was running second followed by Rowlandson, whose Rudge was missing slightly owing to plug trouble, and Pullin. Newsome's Rover was obviously slowing up, and Soresby suffered both belt and plug trouble. Collier romped home an easy winner, with Pullin second and Rowlandson third. Results:

		m. s.	m.p.h.
H. A. Collier (2-cyl. Matchless)	64×77 ...	7 58⅘	=61.50
C. J. Pullin (1 Rudge)	85×88		
S. A. Rowlandson (1 Rudge) ..	85×88		
R. E. Guest (1 Matchless)			
D. H. Noble (1 Rover) ...	85×88		

Event V.

A three-lap scratch race for machines over 750 c.c. and up to 1,000 c.c. This race drew only three entries. Mariani (Indian) got away well, but Collier was slow off the mark. Sumner (Zenith) led at the end of the first lap with Collier pressing him and shortly afterwards passing him and finishing an easy winner. Sumner's machine was rather new and apt to dry up. Mariani was suffering from missing, apparently due to over lubrication. Results:

H. A. Collier (2-cyl. Matchless)	90 ×77½ ...	7 15	=67.33
A. V. Sumner (2 Zenith) ...	90 ×77½		
A. Mariani (2 Indian)	82½×95		

Event VI.

Two-lap scratch race for motor cycles not exceeding 650 c.c. to run on benzole. First prize presented by Mrs. Jarrott. Rain started to fall just before this race, but fortunately it was not heavy enough to spoil the proceedings. Collier again proved an easy winner. At the end of the first lap he was followed by Pullin, Newsome, Rowlandson, Soresby, and Garrett. Newsome, however, picked up and ran into second place, being chased home by Rowlandson and Pullin. Results:

H. A. Collier (2-cyl. Matchless)	64×77 ...	5 23⅘	=60.46
C. T. Newsome (1 Rover) ...	85×88		
S. A. Rowlandson (1 Rudge) ...	85×88		

The benzole used in this race was provided by the A.A. and M.U.

Event VII.

This race was a handicap for any type of car, distance three laps. Two cycle cars competed, a Chater-Lea driven by W. Chater-Lea and a four-cylinder Wilton driven by C. F. Halsall, the latter proved the winner at a speed of 52.10 m.p.h. The Wilton came in for a lot of favourable comment. Its engine has a most healthy buzz.

Event VIII.

A two-lap handicap sidecar race for single-cylinder machines. Harold Karslake (Rover sc.) was started off the limit mark and got away very well; he came in for a good deal of good natured chaff over the pink sweater he was wearing. Newsome also got away in fine style, but Garrett's passenger, who assisted in pushing off, caused some amusement by his method of getting into the sidecar. Karslake still led at the end of the first lap, but Newsome passed him before they were out of sight, his combination going in particularly good form. Garrett also was going very well and rapidly overhauling Watson (Swift). A. V. Sumner (Zenith-Green) travelled well, but was not quite fast enough to pick up his handicap. Newsome appeared to be an easy winner on the last lap, but his engine suddenly slowed once again, and just before the finish Garrett shot past and won by about forty yards. Results:

S. F. Garrett (1 Regal-Green sc.)	scr.	85×88	7 48	= 47.96
C. T. Newsome (1 Rover sc.) ...	16s.	85×88		
H. Karslake (1 Rover sc.) ...	60s.	85×88		

Event IX.

Two-lap handicap for twins and sidecars. Only three entries were received, de Lissa (3½ Motosacoche sc.) and Bell (F.N. sc.) receiving 1m. 38s. start from Sumner (8 Zenith sc). This handicap did not prove sufficient, for Sumner soon took the lead, and won with great ease. de Lissa was second, having run very steadily and fast for the size of his engine. Bell caused some amusement by slowing up as he passed and enquiring if there was any chance of the others breaking down. Results:

A. V. Sumner (2-cyl. Zenith) ...	90×77½	scr.	6 17	= 52.0
O. L. de Lissa (2 Motosacoche) ...	64×77½	1 38		

Event X.

This was a ten-lap handicap for cars for the Albert Brown Challenge Trophy. Once again Halsall drove his little Wilton to victory at an average speed of 54.31 m.p.h. The machine ran with the utmost regularity, and made a very fine performance.

Event XI.

Club Championship for the Harry Smith Gold Challenge Cup. Distance, ten laps handicap. Starters: Scratch, A. V. Sumner; 1m. 10s., H. A. Collier, C. G. Pullin, S. A. Rowlandson and D. H. Noble; 4m. 50s., W. A. Jacobs, S. Wright, V. Wilberforce, and J. P. Le Grand. This race was looked upon as the most important of the day. Everyone got away fairly well, but Sumner was particularly smart. The smaller machines completed well over a lap before the scratch man started. Jacobs, Le Grand, and Wright being all in a bunch. Pullin dropped out of the race in the fourth lap, the order at the end of the fifth lap being Jacobs, Wright, Le Grand, Collier, Rowlandson, and Sumner. Collier was rapidly picking up, and looked like a winner. In the 7th lap Sam Wright was dropping back. He appeared to be suffering from belt slip, and to be using his foot as a jockey pulley. In the eighth lap Collier took the lead, and Sumner, who was making a game fight, picked up two more places. Jacobs was lying second, and Le Grand third. This order was maintained till the last lap, though Collier gradually increased his lead. In the last lap Jacobs and Le Grand changed places, after riding most consistently throughout. Their little Singers and Wright's Humber were easily the fastest lightweights of the day, and had matters their own way. Results:

	mm.	H'cap.	Time.	m.p.h.
H. A. Collier (2-cyl. Matchless)	64×77	1 10	25.0	=65.22
J. P. Le Grand (1 Singer) ...	69×93	4 50		
W. A. Jacobs (1 Singer) ...	69×93	4 50		

Sumner came in fourth, and Rowlandson fifth.

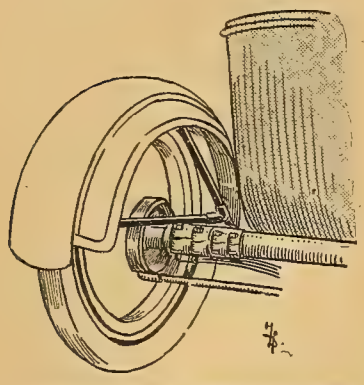
Thus ended a very enjoyable day's sport. The organisation was excellent throughout, and there were no delays except for a short wait while one competitor attached a sidecar to his machine. H. A. Collier's riding was probably the feature of the day, for he won every race in which he entered—five in all.

S. F. Garrett (3½ h.p. Regal-Green) winner of the single-cylinder sidecar event.

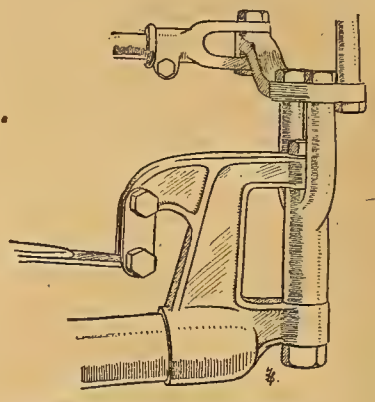
A NOVEL CYCLE CAR.

THE 8 h.p. NORTON WITH TWO SIDECAR BODIES.

ONE of the most ingenious light four-wheelers we have ever seen appeared in the Midlands last week and attracted a considerable amount of attention. On enquiries it turned out to be an experimental model constructed by Mr. Tom Norton, of Llandrindod Wells. On the model we inspected, the power unit consisted of an 8 h.p. twin Precision, transmitting power through a Roc two-speed (giving a 40% reduction) and reverse gear box enclosed in an aluminium box, thence through a propeller-shaft to the differential on a live rear axle. The whole was mounted on a strong tubular frame and carried by a single cross spring in front and a pair of quarter eliptic springs behind. The steering is Ackerman type and effected by a wheel geared down to the main column in a similar manner to that employed on the Ford. From the foot of the column the steering is direct. All four wheels are fitted with wooden rims, and the passengers are protected from mud by wide guards fitted with sensible side wings. The front guards are so mounted as to swivel with the wheels on turning corners. The body is extremely curious, and consists of two coach built sidecar bodies mounted side by side. Between them lie a side brake lever, which is of the usual motor cycle V rim type, and a lubricating tank. The petrol is carried in a tank under the front of the passengers' seat and supplies the fuel by gravity. Behind the body is mounted a large box which contains a generator, accumulators (for tail light), and provides ample accommodation for tools and spares, while the outside serves as a number-plate. Further details are as follows: Amac carburetter (two lever), wheelbase 6ft. 6in., track 3ft. 10½in., full length 9ft., full width 4ft. 6in., weight 6 cwt. all on and filled up with petrol and oil, tyres 650×65 mm., capacity of tank 4½ gallons. When the arrangements are complete a large number of these cars will be manufactured.

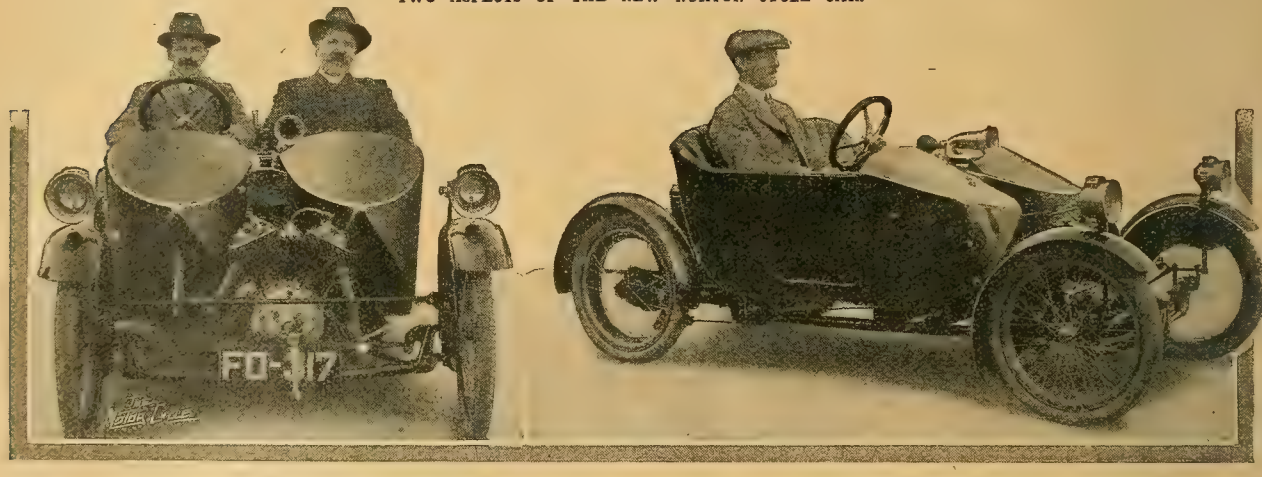


Specially wide dome mudguards and wooden rims.



Steering head and spring attachment on the Norton cycle car.

TWO ASPECTS OF THE NEW NORTON CYCLE CAR.



Front view showing engine and the two sidecar bodies.

Broadside view.

T.T. EFFECT ON TOURING OUTLINE.

The influence of racing is seen in many ways beyond the question of engine design being affected. One of the most notable departures from long accepted ideas is to be seen in the gradual disappearance of the old-fashioned up-swept and back-swept handle-bars, giving "an easy and graceful riding position," as the catalogues used to put it so nicely. As a matter of fact, they did give neither, and it was very noticeable last year in the Six Days' Trials to see the large numbers of riders, both private and trade, whose machines were fitted with handle-bars of a wide and almost flat pattern.

The hardened tourist and long distance rider will know that this is the most useful and comfortable design, and there is more than mere speed in the T.T. models listed by so many makers that is attractive. There is also a deal of comfort for long distance work. The exact width and height of such bars is a matter for the rider, but, generally speaking, about 24in. wide and the grips an inch or two higher than the peak of the saddle is a good average position.

RESULTS OF SCOTTISH EVENTS.

Glasgow M.C.C. Open Twelve Hours' Trial.

The results of the reliability trial are as follows: Rudge-Whitworth cup for best performance on solo machines, W. Hood (3½ Rudge-multi); 2, D. S. Baddeley (3½ P. and M.); Indian medal for the best performance of a passenger machine, Geo. Thomson (6 A.J.S. sc.); Gow cup, trade rider putting up the best performance, W. Deans (5-6 Hazlewood).

South Ayrshire M.C.C.

A reliability trial of 300 miles was held last week, the route being as follows: Maybole, Girvan, Stranraer, Creetown, Castle Douglas, and home *viâ* Dumfries. Five competitors completed the course to schedule, securing gold medals. They were A. Reeve (3½ Triumph), Richard Kennedy (3½ Bradbury), J. Riddel (3½ Zenith), J. Tweedie (3½ P. and M.), and T. Hunter (3½ Triumph).

N.E.A.A. Hill-climb at Legs Cross.

The motor cycle section of the N.E.A.A. held a hill-climb on Saturday at Legs Cross, a section of the Great North Road between Piercebridge and West Auckland. This hill, which is three-quarters of a mile long, has an exceptionally good surface and an average gradient of about 1 in 7 to 8, and being absolutely straight, is well adapted for a venue for climbs.

The event had been advertised as an open one, but owing to the counter attractions on Saturday such a poor outside entry had been obtained that the open classes were abandoned, and an event open only to the ten clubs contained in the association held. This made the number of the entrants sixty-five, and is a record for an association event. The proceedings were most successful, there being a good number of spectators and no accidents. There were no long waits, and the results were available shortly after the events were run off, which reflects great credit on the various officials concerned.

Class 1 was won by Norman Toovey, riding Hugh Mason's 2¾ Nut-Jap, R. Scoon on a similar machine being second. In Class 2 F. Turvey, jun. (3½ B.S.A.) made the best figure of merit during the afternoon, and the fastest time was put up by C. W. Smith (5-6 Bat), who also won the class for passenger machines. The following is a complete list of results :

A. N. Toovey (winner of Class 1) starting. He rode the 2¾ h.p. Nut-Jap on which Hugh Mason won the Junior T.T. Race.

CLASS 1.—Up to 350 c.c.

		Fig. of merit.
1.	A. N. Toovey (2¾ Nut-Jap)	174
2.	R. Scoon (2¾ Nut-Jap)	202
3.	A. E. Townsend (2¾ Douglas)	223

CLASS 2.—Singles over 350 c.c.

1.	F. Turvey, jun. (3½ B.S.A.)	170
2.	F. C. Wake (3½ Rudge)	191
3.	C. Bone (3½ Smith-Precision)	206

CLASS 3.—Twins.

1. R. J. Spencer (3½ Matchless-Jap).
2. A. N. Toovey (2¾ Nut-Jap).
3. R. Scoon (2¾ Nut-Jap).

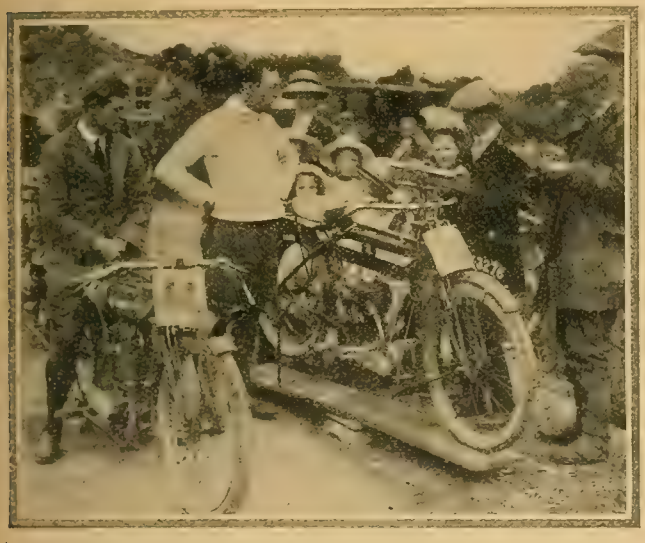
CLASS 4.—Any machine, time only.

1.	C. W. Smith (5-6 Bat)	38 3/5s.*
2.	F. Dixon (7 Indian)	39 2/5s.
3.	H. N. Hull (8 Matchless)	40 2/5s.

*Fastest time of day.

CLASS 5.—Passenger machines.

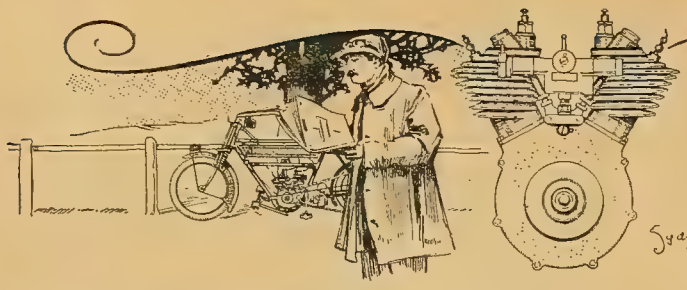
C. W. Smith (5-6 Bat-Jap).
Z. P. Forster (5-6 Bat-Jap).



NORTH-EASTERN A.A. HILL-CLIMB.

F. Turvey (B.S.A.) and Rowley (Rex-Jap) weighing-in after the finish. Turvey won Class 2.

AT THE FINISHING POINT. F. C. Topham (8 h.p. Dot-Jap sidecar), winner of the class for standard touring passenger machines.



SCOTTISH SIX DAYS' TRIAL.

LIST OF ENTRIES AND OFFICIAL NUMBERS.

The following are the entries received for the Scottish Six Days' Trials, July 21st to 26th :

1. C. W. Meredith (3½ Bradbury)
2. W. Westwood (3½ Triumph)
3. Hal Harrison (3½ Swift)
4. N. W. Downie (3½ Lea-Francis)
5. J. E. Chisholm (3½ Ariel)
6. S. J. K. Thomson (7-8 Bat sc.)
7. R. S. Morrison (5-6 Bat)
8. J. Chater-Lea, jun. (8 Chater-Lea sc.)
9. A. F. Downie (6 A.J.S. sc.)
10. G. L. Fletcher (2¾ Douglas)
11. S. T. Tessier (5-6 Bat)
12. C. H. Ingall (3½ Lea-Francis)
14. D. H. Noble (3½ Rover)
15. Hugh Gibson (3½ Bradbury sc.)
16. A. U. R. Downie (2¾ A.J.S.)
17. J. F. Morrison (2¾ Douglas)
18. G. Featherstonhaugh (3½ Rover)
19. J. H. Begg (3½ Rudge)
20. E. A. Colliver (7 Indian)
21. E. B. Keiller (3½ Rudge)
22. C. M. Keiller (9.2 G.W.K. c.c.)
23. Victor Wilberforce (9.2. G.W.K. c.c.)
24. C. T. Newsome (3½ Rover)
25. Mrs. Baxter (6 Rex)
26. J. T. Wood (9.2. G.W.K. c.c.)
27. A. W. Brittain (3½ Bradbury)
28. W. Pratt (3½ P. and M.)
29. T. A. McCreadie (2¾ Sunbeam)
30. E. F. Baxter (6 Rex)
31. K. A. MacDonald (3½ Singer)
32. G. E. Cuffe (3½ Premier)
33. W. B. Gibb (2¾ Douglas)
34. C. D. Wright (3½ Humber)
35. G. I. Francis (3½ Lea-Francis)
36. Rev. R. M. Bankes-Jones (3½ P. and M.)
37. R. Holloway (7 Premier sc.)
38. H. W. Hands (8 Williamson sc.)
39. G. C. Proctor (8 New Imperial sc.)
40. A. B Wade (8 New Imperial sc.)
41. L. E. Cass (6 Trump-Jap)
42. E. H Littledale (3½ Ariel)
43. R. M Stallebrass (6½ N.S.U sc.)
44. R. S. Macrae (3½ L.M.C.)
45. R. Pearson (5-6 Clyno sc.)
46. C. Freeman (5-6 Clyno sc.)
47. F. L. Bassett (2¾ Sun Villiers)
48. G. Brough (6 Brough)
49. — Boddington
50. J. Cocker (3½ Singer)
51. G. A. Gregson (5-6 Bat)
52. A. W. Walden (3½ Premier)
53. J. G. Beveridge (3½ Rudge)
54. Humber, Ltd. (3½ Humber)
55. F. C. North (3½ Ariel)
56. T. T. Laker (3¾ Elswick
57. V. Bushy (3½ Ariel)
58. H. Thompson (3½ Kynoch)
59. G. Nott (5-6 Clyno sc.)
60. W. Cramb (3¾ Elswick)
61. D. Bell (6 A.J.S. sc.)
62. J. B. Robertson (2¾ Douglas)
63. B. A. Hill (7 Indian)
64. A. D. Scott (3½ Triumph)
65. Mrs. Hardee (3½ P and M.)
66. J. R. Blackburn (8 Morgan c.c.)
67. N. A. Ayres (2¾ Sun Villiers)
68. Gordon Armstrong (Gordon c.c.)
69. A. G. Fenn (3½ B.S.A.)
70. D. Alexander (8 Williamson sc.)
71. G. T. Gray (5 Rudge)
72. W. J. K. Gulland (3½ B.S.A.)
73. J. Donaldson
74. J. Oliphant (3½ Premier)
75. J. R. Alexander (7 Indian)
76. A. G. Cocks (2½ Connaught)
77. C. Q. Roberts (6 Zenith)
78. J. A. Hoult (3½ Matchless)
79. A. J. Dixon (3½ Singer)
80. L. Sealey (3½ B.S.A.)
81. E. M. Oliver (5-6 Hazlewood)
82. T. Pollock (3½ James sc.)
83. F. G. Edmond (2¾ Humber)
84. H. M. Jameson (3 Royal Enfield)
85. G. Taylor (3½ Rudge)
86. J. F. Selous Jones (2¾ Douglas)
87. G. Wray (5-6 Clyno sc.)
88. T. Finlay (3½ James sc.)
89. R. G. Mundy (——)
90. W. C. Brandauer (7-9 Indian)
91. P. D. Walker (10 Summers and Harding c.c.)
92. F. Smith (5-6 Clyno sc.)
93. S. Tubb (3½ Humber)
94. L. Newey (3½ Ariel)
95. J. Steel (3½ B.S.A.)
96. Miss R. Hammett (2¾ Douglas)
97. R. E. Guest (7-8 Matchless sc.)
98. Miss Reid (3½ Brough)
99. S. Wright (8 Humberette c.c.)
100. C. R. Collier (7-8 Matchless sc.)
101. T. Knowles (2¾ Humber)
102. T. Silver (3½ Quadrant)
103. R. G. MacGibbon (3½ Edmund)

A few late entries have been received since the ballot for numbers took place.

Nottingham and District M.C.C. reliability trial. Scene at the start from Trent side on Saturday.

Club News

South Birmingham M.C.C.

The results of the paperchase held on the 5th inst. are as follows: 1, J. Huntington (3½ Triumph); 2, J. Percox (3½ Alldays); 3, J. J. Woodgate (3½ Singer). The hares were given an hour's start, and laid a trail of forty miles. The winner reached the finishing point twenty-five minutes after the arrival of the hares.

Cork and District M.C.C.

An afternoon trial over a secret course was held on the 2nd inst. Result:

Solo Class.—1, J. Atkinson (Rudge); 2, R. Atkinson (Triumph); 3, M. English (2¾ Humber) and E. B. Russell (Triumph) tied.

Passenger Class.—1, H. C. Johnson (Indian); 2, John Healy (Enfield); 3, Wm. Sheely (Bradbury).

Essex M.C.

The gymkhana organised by this club jointly with the Walthamstow M.C. was held on the 5th inst. A new event was a hockey race. Each competitor was provided with a hockey stick, and had to drive his ball from the starting line to the goal posts over a course of about 150 yards. Competitors were allowed to turn about as they pleased, so long as their feet did not touch the ground. As the course was only about thirty feet wide, this turning was productive of many hairbreadth escapes.

The meeting was held at High Beech, near Loughton.

Belfast v. Dublin.

The results of the inter-city reliability trial between the Southern and Ulster Centres of the Motor Cycle Union of Ireland, which was held on the 28th ult., were announced last week. The contest was decided on the best six scores on each side, and as the Dublin men were found to have eight men with maximum marks (100) they secured an easy victory. The markings were as follows: G. Roche (3½ Rover), 100 marks; T. D. Weir (7 Indian), 100; R. McDonnell (2¾ Douglas), 100; T. E. Greene (3½ Rudge), 100; P. H. Hurse (3½ Calthorpe), 100; J. Browne (2¾ Douglas), 100; J. Doleman (2¾ Douglas), 100; W. J. Henderson (3½ Rudge), 100.

The best markings in the Belfast team were: W. J. Chambers (3½ B.S.A.), 100 marks; A. Cann (3½ Ariel), 99; J. Lavery (3½ Ariel), 99; J. Stewart (2¾ Douglas), 99; S. P. Corry (3½ B.S.A.), 98.

Portadown and District M.C.C.

An open hill-climb in conjunction with a couple of confined events was held on the 3rd inst. at Rathfriland, Co. Down. The local people put up a trophy for the open event, known as the Rathfriland Cup, which was won by J. Jones (3½ B.S.A.) It has to be won twice before becoming the property of the winner. Results:

Sidecar Class.—1, Hewitt (6 Enfield), 3s.; 2, Paul (6 Enfield) 3s.; 3, Kearney (5-6 Rudge), scratch.

Club Class.—1, Boyd (3½ B.S.A.), 7s.; 2, Wilson (3½ Triumph) 8s.; 3, Stevenson (6 Rex), 6s.

Open Class.—1, James (3½ B.S.A.), 4s.; 2, Boyd (3½ B.S.A.), 8s.; 3, Parker (3½ Rudge), 1s.

Doncaster A.C. (Motor Cycle Section).

The second competition in the President's Cup trials took the form of a reliability run to Nottingham and back. There was a good turn out. Result: 1, Goult, sec. (Rudge) and Ablett (Rudge) losing no marks. Dunston (Rudge) and Smith (Bradbury) also tied with a loss of one point each.

Malvern and District M.C.C.

A speed trial was held on the 28th ult. at Madresfield Court (by kind permission of Lord Beauchamp) on the private drive. The distance was half a mile with quarter of a mile for flying start and three-quarters of a mile to finish in. All the classes were well filled with the exception of the 350 c.c. class. H. F. S. Morgan was driving his Grand Prix model, and there were some good times put up.

Class I.—Up to 350 c.c. on time, distance half a mile.

1. E. C. Heis (2¾ Douglas) 34
2. J. H. Marsden (2¾ Douglas) 39

Class II.—500 c.c on time, T.T. machines.

1. R. E. Surman (3½ Alldays) 28
2. W. Walker (3½ Triumph) 28 2/5
   F. W. Giles (3½ Triumph) 28 2/5

Class III.—Touring machines up to 500 c.c. on time.

1. H. W. Wynn (3½ Rudge) 31 2/5
2. R. Ravenhill (3½ Rover) 32
   B. Bladder (3½ Rudge-multi) 32

Class IV.—Up to 1,000 c.c. on formula.

		Time.	Fig. of merit.
1.	T. B. G. Vale (3½ Rover) ...	27 ...	895
2.	W. R. Jones (3½ Ixion) ...	27 1/5 ...	980
3.	R. E. Surman (3½ Alldays) ...	28 1/5 ...	1,043

Class IV.—Fastest time.

1. *H. J. L. Greatwick (6 Wright-Blumfield) ... 26
2. T. B. G. Vale (3½ Rover) 27
3. J. Pennington (5 Bat) 27

*Fastest time of the day.

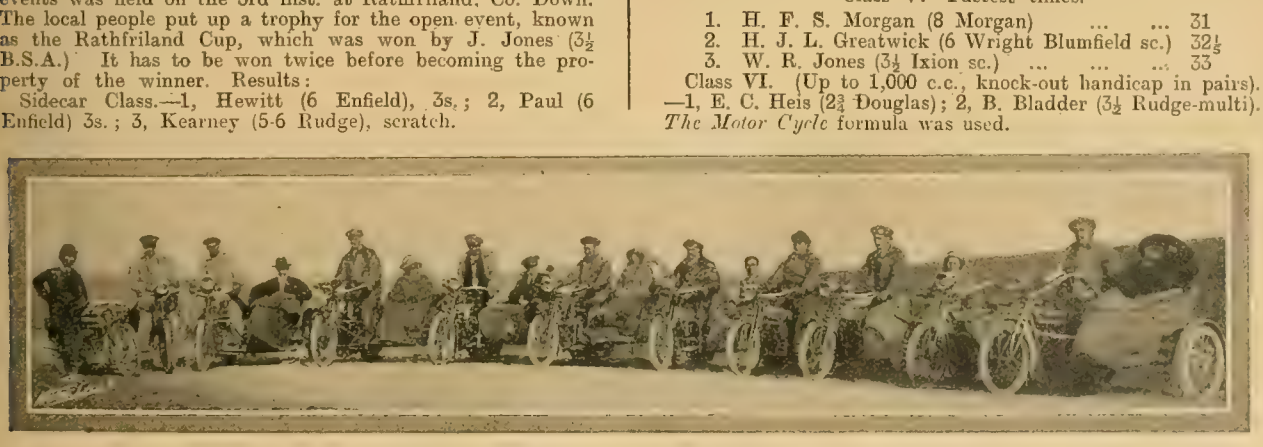
Class V.—Sidecars and cycle cars up to 1,100 c.c. on formula.

1. W. R. Jones (3½ Ixion sc.) ... 33 ... 958
2. H. F. S. Morgan (8 Morgan) 31 ... 977
3. F. Leeke (6 Enfield sc.) ... 33 ... 1,101

Class V.—Fastest times.

1. H. F. S. Morgan (8 Morgan) 31
2. H. J. L. Greatwick (6 Wright Blumfield sc.) 32 1/5
3. W. R. Jones (3½ Ixion sc.) 33

Class VI. (Up to 1,000 c.c., knock-out handicap in pairs).—1, E. C. Heis (2¾ Douglas); 2, B. Bladder (3½ Rudge-multi). *The Motor Cycle* formula was used.



Group of competitors in the Plymouth and District M.C.C. Hill-climb at Moorshap Hill, Tavistock.

Club News.—

Wolverhampton M.C.C.

The Stevens cup trial to Barmouth took place at the end of last month. Result: 1, W. H. Bishop (3½ T.T. Rudge), cup and medal; 2, S. F. Murrell (6 Bat sc.); 3, E. T. Hart (2¾ h.p. A.J.S.). Amateur prize other than prize winners, R. Tonks (2¾ A.J.S.).

Westmorland M.C.C.

A petrol consumption trial took place on the 26th ult. over a fairly stiff course about thirty miles long. Results: 1, H. L. Mason (3½ Bradbury), 38.5; 2, N. Abbat (3½ Rover), 36.2; 3, J. Braithwaite (3½ Braithwaite), 36.1. R. M. Chaplow on a lightweight Humber consumed the least petrol and averaged nearly 200 miles per gallon.

North Birmingham A.C.

A club hill-climb was held at Hipton Hill, near Evesham, on the 28th ult. Results:

	Rider and machine.	Time.	Formula.
1.	N. Fairley (2½ Ivy-Precision) ...	26⅖s.	5,366
2.	H. Newey (2¾ Levis)	19⅖s.	5,689
3.	H. J. Moseley (2¼ Levis) ..	31⅘s.	6,305
4.	W. Britton (3½ T.T. Triumph) ..	20⅕s.	6,312
5.	R. Lovegrove (3½ T.T. Singer) ...	20s.	6,336
6.	H. Fairley (3½ T.T. Rover)	19⅕s.	6,517

There will be a flexibility hill-climb on the 12th inst.

Essex M.C.

The hill-climb for members only was held at Lippitt's Hill, near High Beech, on the 21st ult. Results:

Class I. (any single-cylinder solo machine).—1, L. G. Brown (Corah-Jap); 2, J. A. Campbell (Regal-Green).

Class II. (any multi-cylinder solo machine).—1, G. L. Fletcher (Douglas); 2, Miss Hammett (Douglas).

Class III. (solo machines up to 350 c.c.).—1, G. L. Fletcher (Douglas).

Class IV. (passenger machines).—1, Ray Abbott (Bradbury sc.); 2, G. Griffith (Zenith sc.).

Fastest time of the day.—G. Griffith (Zenith).

Streatham and District M.C.C.

The committee have awarded silver medals to the following members who made non-stops in the recent M.C.C. Inter-team Trials: R. G. Mundy, S. T. Tessier, F. L. Bassett, J. C. Bateson, and C. F. Halsall.

The next members' competition is a night trial on the 12th inst., the premier award being a cup presented by Messrs. Dobson. The course of 120 miles consists chiefly of main roads with six observed hills, and an average of twenty miles an hour must be maintained over each of the two observed sections from 9.30 p.m. to 12.30 a.m., and from 2 a.m. to 5 a.m. Watches and speedometers are barred.

The club's annual open hill-climb will be held on 30th August.

Hertfordshire M.C.C.

In Division A, Class III., of the speed trials recently held in Luton Hoo Park, the second man should be G. W. Miller (3½ Grandex).

Taunton and District M.C.C.

A non-stop run was held from Williton to the top of Porlock Hill on the 21st ult. The medal was won by C. Forrest (2¾ Douglas).

The Motor Cycling Club.

A slow and fast hill-climb, together with a restarting test incorporated in the one ascent, will be held on July 19th. This event will be run on the principle of one rider one machine, as such an event gives the ordinary private owner a fair chance. An endeavour has been made to arrange for the use of a hill within twenty miles of London.

Public Schools M.C.

Owing to the absence of so many members in the Isle of Man for the Tourist Trophy Races, the general meeting and first annual dinner, arranged for May 30th, was postponed, and will now take place at the Grand Hotel, Birmingham, at 7.30 p.m. on the 12th inst. Those wishing to attend at the dinner are requested to advise the hon. sec. (Mr. A. M. C. Scott) Public Schools Motor Club, Grand Hotel, Birmingham, not later than the 9th inst.

Barton-on-Humber and District M.C.C.

A hill-climb was held at West Halton on the 21st ult. Results:

Class I.—Lightweights, on formula.

1.	John H. Furniss (2½ Elswick)	45.2
2.	O. Atkinson (2¾ Elswick)	57.03
3.	G. W. Drury (2¾ Elswick)	64.82

Class II.—Touring machines, on formula.

1.	T. T. Laker (3¾ Elswick)	30.0
2.	F. Hopper, jun. (3½ Torpedo)	34.08
3.	A. Smith (3½ Triumph)	44.93

Class III.—Passenger machines, on formula.

1.	F. Hopper, jun. (3½ Torpedo)	29.94
2.	W. E. Slack (3¾ Elswick)	39.55
3.	W. G. Cordock (6 Clyno)	44.87

Class IV.—T.T. machines, on time.

1.	Frank G. Howard (3½ B.S.A.)	24s.
2.	O. Spavin (3½ B.S.A.)	25s.
3.	F. Hopper, junr. (3½ Torpedo)	25⅕s.

Class V.—Unlimited, on time.

1.	F. Hopper, junr. (3½ Torpedo)	24⅕s.
2.	O. Spavin (3½ B.S.A.)	25s.
3.	Frank G. Howard (3½ B.S.A.)	25⅕s.

Fastest time of day, made by Frank G. Howard (3½ B.S.A.), 24s.

Some of the competitors in the North-East Derbyshire M.C.C. Hill-climb at Amber Hill, near Matlock Bank.

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Gold Medal, Mersey M.C. 24 Hours' Trial, Scottish Open 12 Hours' Trial, and FIRSTS in Herts M.C.C. Speed Trials, Airdrie and Coatbridge M.C.C. Flexibility Hill Climb (1st and 2nd), Hamilton and District M.C.C. Speed Tests, Armstrong College M.C.C. Hill Climb, and Newcastle and District M.C.C. Hill Climb (2).

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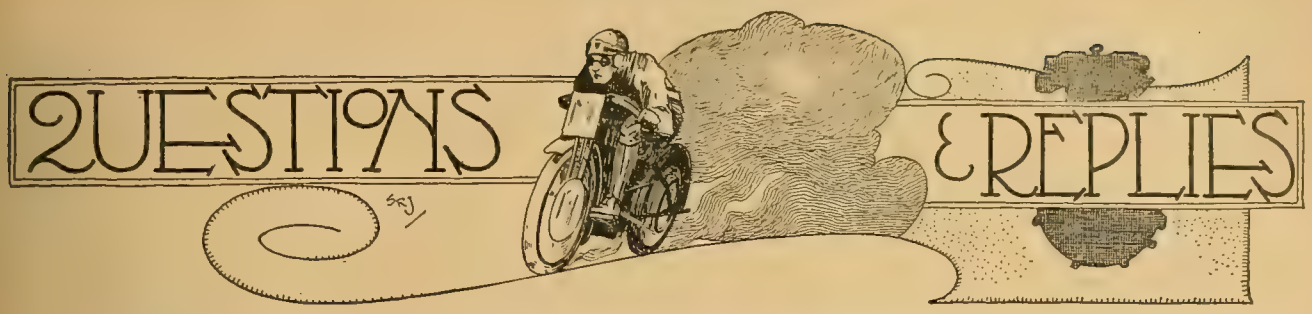


A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Swindon to Norwich.

Will you please tell me the best route between Swindon (Wilts.) and Norwich?—F.M.

Your best route would be as follows: Swindon, Faringdon, Oxford, Bicester, Buckingham, Newport Pagnell, Bedford, Cambridge, Newmarket, Thetford, Attleborough, Wymondham, to Norwich.

Removing Pulley; Clutch Slip.

My machine is a 2¾ h.p Humber with Armstrong three-speed gear. (1.) On taking down my engine, I found it quite impossible to remove the pulley off the shaft, though I tried soaking it with paraffin and forcing it off with three wooden wedges. What would you suggest as the best means of removing the pulley? (2.) What is the best remedy for a slipping clutch? It suddenly started slipping the other day; in fact, so badly that it would not turn the engine round with the exhaust valves raised. What would you suggest as the cause?—C.P.M.

(1.) We should advise you to use a special pulley extractor. This will remove the pulley without any risk of damaging the shaft. (2.) Possibly the clutch requires to be cleaned out. You might wash it out with paraffin and then inject thin clutch oil. If no improvement an adjustment is obviously required.

Power without Speed.

I have a 1912 2¾ h.p. Enfield machine, fitted with Amac carburetter with 24 jet. On the level I cannot obtain a speed of more than 30 m.p.h., yet it will take me up quite considerable inclines at this pace on top gear. Compression is good, and, as far as I can see, there is nothing wrong, as I have thoroughly overhauled the engine, ground in valves, removed carbon deposit, etc. (1.) To what do you attribute this failure to attain speed? (2.) Would a smaller jet be better?—M.V.L.

(1.) There cannot be much the matter with your machine if it will take quite considerable inclines at thirty miles an hour. To obtain more speed on the level we should advise you to time the spark a little faster. (2.) A smaller jet will not give greater speed, but a larger one with an increased air supply might do so. The 24 jet you are using is about right for ordinary riding.

The Power of Water-cooled Engines.

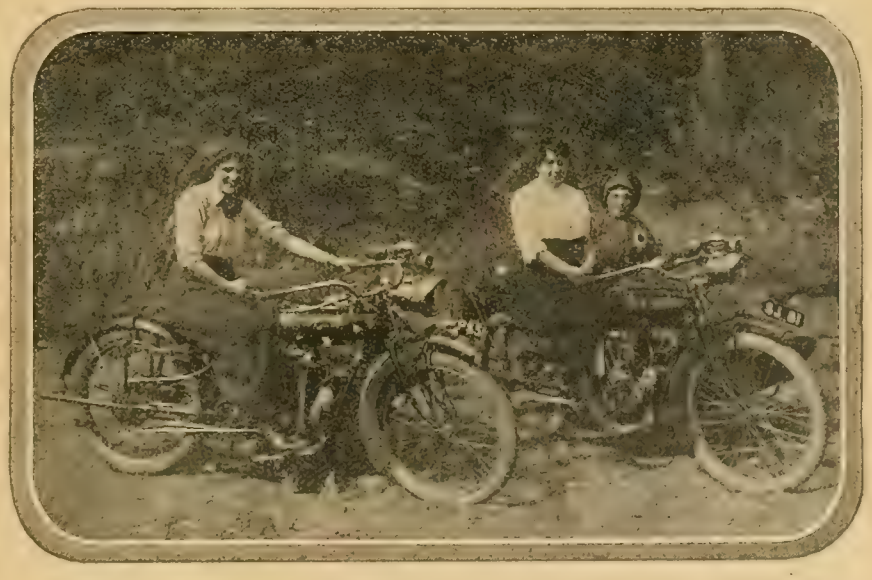
Will you kindly tell me—(1.) Whether I might expect to obtain much more power from a 3½ h.p. Zenith-Green than from a 3½ h.p. Zenith-Jap for solo riding? (2.) The advantages and disadvantages of overhead valves as compared with side by side valves? (3.) Whether a Zenith-Green would be likely to be more expensive to run? (4.) Whether any Zenith-Greens have performed in big reliability and speed trials and hill-climbs, and, if so, with what results? (5.) Does the water-cooled engine with overhead valves require much more attention and care, and is it less trouble to keep clean?—C.R.F.

(1.) You should obtain slightly more power from a water-cooled engine, especially on long runs. (2.) Overhead valves are thought to be slightly more efficient, but they render the engine less compact, and if the valve head breaks off and falls into the cylinder it may cause serious damage. This, however, is a fairly rare occurrence. (3.) The Zenith-Green should not be more expensive to run than an air-cooled engine. (4.) The Zenith-Greens have performed well, and at present hold the hour and other records for sidecars. (5.) There is certainly a little more to look after, but, on the other hand, it is not so frequently necessary to take off the cylinder to clean out the carbon. Altogether it is a matter of personal choice.

Wear of Exhaust Cam.

(1.) I ride a 3½ h.p. two-speed machine. I have removed the carbon deposit from the piston and cylinder, and yet I find that the engine overheats after running five or six miles. I use a .031 jet in a B. and B. carburetter. (2.) Please tell me how to clean and dress a Whittle belt.—A.S.

(1.) It is quite possible that the exhaust valve cam is worn, and this prevents the valve from lifting properly. Also see that the valve spring is sufficiently strong. Either a weak spring or a valve which did not lift properly would cause overheating. (2.) With regard to your belt, you have to scrape each link separately with a knife and dress it with one of the well-known belt dressings, obtainable from any motor cycle dealer.



LADIES AND THE MOTOR CYCLE.

Miss Lottie Berend, who has now become a rider of a 7 h.p. Indian sidecar. Mrs. W. H. Wells is the lady seated on the 3½ h.p. sidecar machine of the same make.

Stiff Engine.

I bought some time ago a second-hand (nearly unused) N.S.U., 5½ h.p., 1911, m.o.i.v., one lever controlled carburetter. When riding with sidecar (I never ride solo) the engine often sticks, and the front cylinder seems to overheat very much. I cleaned the piston and cylinder, examined the timing of both inlet and exhaust, set the magneto, and tried the sliding of the piston into the cylinder; the cylinder wall is bright and polished, the rings are perfect, compression fairly good cold and warm, valve springs are new —all seems in good order. I must say also that when the engine sticks the belt slips over the motor pulley, but the engine revolves again immediately. Sometimes that sticking occurs three or four times in succession, and then during five kilometres it runs perfectly. I supposed it was pre-ignition due to carbon deposit, but after cleaning it is the same. I tried different kinds of oil and petrol, always with the same result. Where is the fault?—A.S. (Brussels).

It is very difficult indeed to diagnose your trouble without a personal examination of the engine, but we should be inclined to think that there is a tightness somewhere, most probably in the piston or piston rings. When you next remove the cylinder, we should advise you to examine the rings and piston very carefully, to see if there is any bright part at any point which shows undue friction. This bright portion should then be slightly reduced by emery-clothing it down. It is also possible that you may not give the engine sufficient oil, and we should certainly advise you whenever you feel it sticking in the way you suggest, to inject an extra supply.

Anchor Plates for Hub Gears.

I purchased this year a new 3½ h.p. motor cycle fitted with Armstrong Mark VI. gear, which has given considerable trouble through the axle revolving. Eventually the ends fitted by the builders of the cycle broke away at the lugs under the strain. I have had new and heavier ends fitted in which the spindle, although not revolving, moves backwards and forwards, probably to the extent of one-twelfth of an inch, and sufficiently to dislocate the gear and clutch. I am at a loss to know what to do. The nuts are properly secured. (1.) Is there any danger through riding the machine under the circumstances? (2.) How can I get the axle securely fixed? (3.) Is there any pattern of fork-ends made specially for these gears? (4.) Will the axle eventually wear its way round, seeing that it has forced a certain amount of play?—G.E.G.

(1.) The danger is that the fork-ends will open and allow the spindle to turn, when, of course, the gear is rendered useless on the lower speeds, or on any but the direct drive. (3.) You can only get the axle securely fixed by employing fork-ends of very substantial proportions with securing washers and nuts, on the lines of the New Hudson motor bicycle. (3.) Fork-ends such as you require can be obtained from Messrs. Chater-Lea, Ltd., Golden Lane, London, E.C. (4.) Yes, the axle, owing to severe strain, will eventually wear its way round and out at the fork-end. In other words, it will force the jaw open, unless the latter is sufficiently strong to resist. Another method of locking the axle, which you might try, is to have a stay made on the lines of those fitted to coaster brake hubs. This fits over a square on the axle, and is attached to the main stay of the motor cycle, some 6in. away from the fork-end. The Armstrong Three-speed Gear Co., Icknield Street, Birmingham, can supply these. They are called anchor plates.

Benzole.

Can you tell me how I could use benzole in my machine, a 2¾ h.p. Minerva with Minerva carburetter? I tried benzole a few days back without success. I then warmed the engine up on petrol; this time it fired fairly well, but knocked like a riveting machine and would not climb over a shadow on the road.—ENQUIRER.

There is no reason why you should not use benzole, as your machine does not differ from others in its construction. We should be inclined to think that you are obtaining a rather poor quality of benzole, as most readers seem to get good results from it. Probably you will find that the float will want weighting a little, and the extra air inlet may possibly require to be enlarged. Beyond that, there is nothing else you can do to make the machine more suitable for benzole.

EXPERIENCES WANTED.

"F.W.C." (Sydenham).—A.C. Sociable; reliability, consumption, hill-climbing, gear, starting, and tyre wear.

"W.E.K." (Broughton).—Wall tri-carriage.

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"F.F.L." (London).—Folding or collapsible sidecars.

"C.W.T.L." (North China).—4 h.p. Norton, 4-5 h.p. Excelsior, and 2¾ h.p. Douglas. With and without sidecars.

"J.M." (Ealing).—2¼ h.p. F.N., shaft drive, two-speed. Average speed, hill-climbing, consumption, general comfort.

A few o. the competitors in the Enfield Reliability Trial in Yorkshire at the Aysgarth control. (See page 886.)

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as opposed to "sprint" records, can only be accomplished by a machine in which every part has been carefully designed and constructed to stand maximum stresses for long periods. The **still unbeaten record** standing to the credit of the

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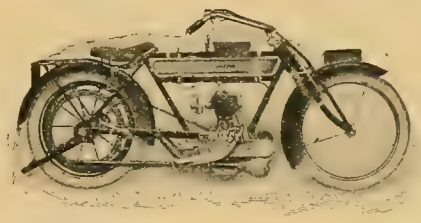

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It was a **3½** h.p. Twin Machine (with Chain Drive and 2 speeds. 496 c.c. M.A.G. engine).
It won by 20 minutes ! Comment is needless.

THIS MAGNIFICENT VICTORY
proving for ALL TIME the superiority and irreproachable regularity of the Motosacoche with M.A.G. Engine.

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That Tool-box is incomplete

IT JUST LACKS Kudos TRADE MARK

the lightning grease solvent, the liquid soap which will clean your hands so easily and quickly.

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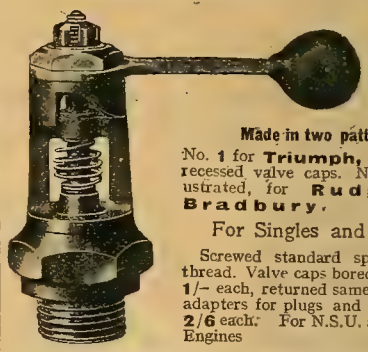
(GUEST'S PATENT.)

A supplied by us to Messrs. Triumph Co., Ltd. Bradbury Co., Ltd. Chater Lea, Ltd, Rudge-Whitworth, Ltd. Alldays & Onions, Ltd. New Imperial C.C. Humber, Ltd. East London R. Co. Kynochs Ltd. Norton Mfg. Co. S. A. Newman. New Hudson Co. Etc., etc.



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WRITE FOR LIST giving particulars of our Decompressors Sidecars, and Motor Cycles.

The Endrick 3½ h.p. Touring Model, Fafnir Engine, with Decompressor, **£38 15 0**

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ORIGINAL

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LADY'S OPEN FRAME MOTOR CYCLE.

The machine with a name for RELIABILITY—

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Morgan, with "Selfridge" de Luxe Body; Hood Screen, special non-skid Tyre on back wheel, Lukin Carburetter, and Best and Lloyd Lubricator.
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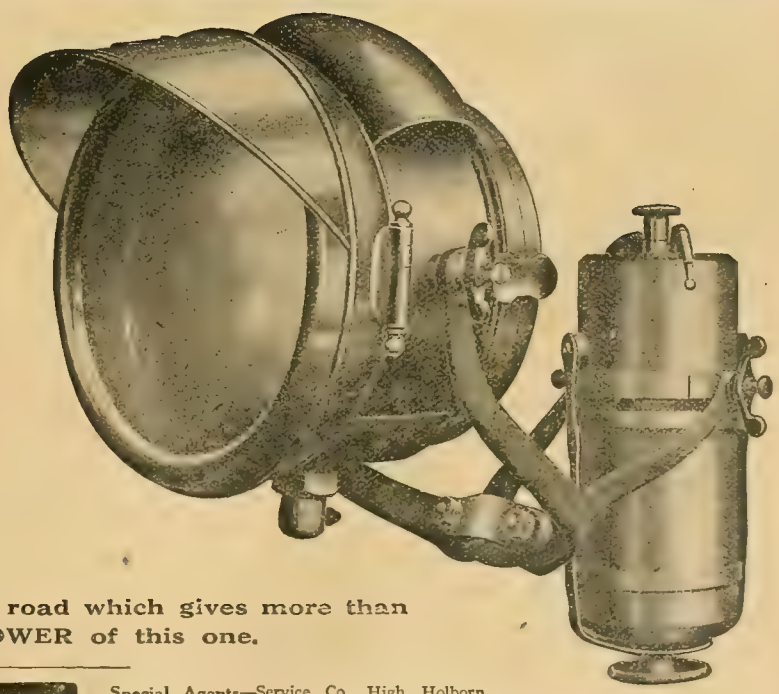

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6 hour Generator.

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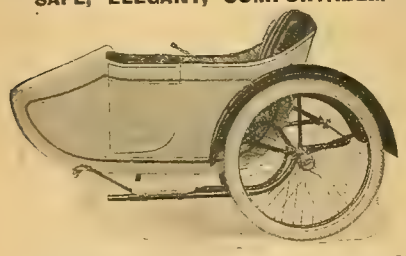

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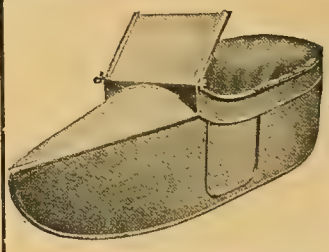

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WATER-COOLED
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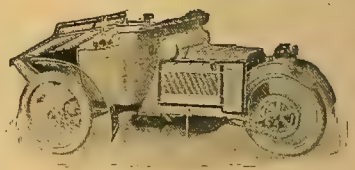

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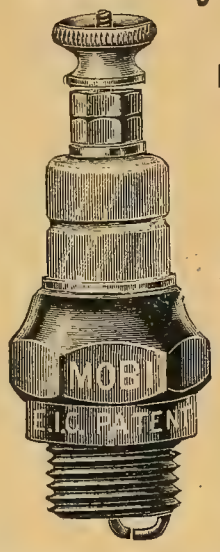

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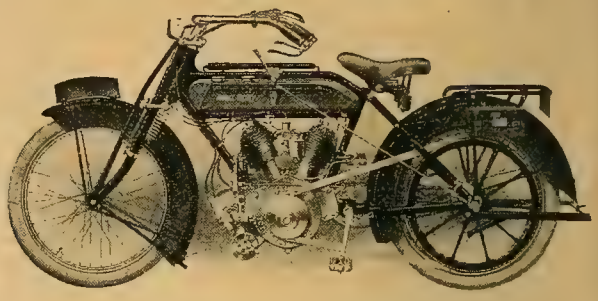

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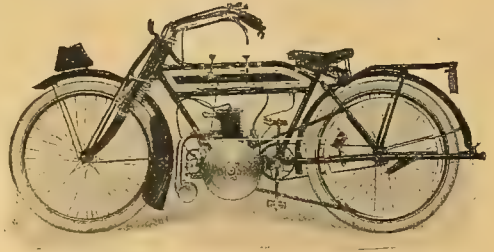

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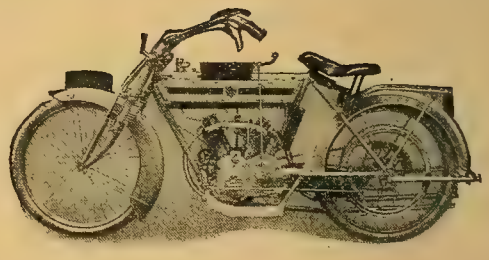

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Average Speed 52.5 m.p.h.

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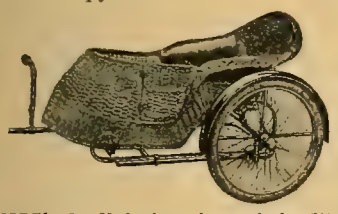

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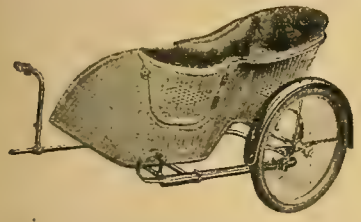

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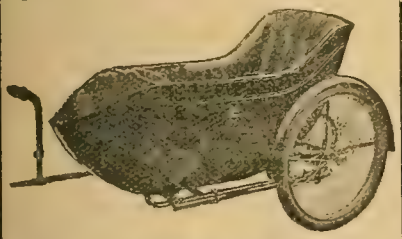

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1912 Motosacoche, 2¼h.p., Palmer tyres, lamp, horn, as new; £28.—27, Ashton Grove, Leeds. [8748

1911 Enfield, £18; 1912 2-speed Indian, 33gns.; 1909 P. and M., £26.—95, The Moor, Sheffield. [1833

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Subject to being unsold, we guarantee to supply a brand new standard machine as turned out by makers, of the highest possible quality, as shown at Olympia, and listed at £52 10s., for **£35 10s.** Why pay more for a risky second-hand machine?

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Standard machine, as turned out by makers, fitted with 3¾ h.p. Precision engine, M.O.V., Best and Lloyd lubricator, Hutchinson rubber-studded tyres, Bosch weather-proof magneto, handle-bar control, spring forks, stand, carrier, toolbag, and number-plates. Listed £52 10s. **Our Price, £35 10s.**
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3½ h.p. **HUMBER**, 1913, 3-speed model, done about 200 miles, complete with sidecar	£46 0
8 h.p. **G.W.K.**, 1912 model, not much used	£110 0
4 h.p. **N.S.U.**, 1910½, big single-cylinder model, 2-speed gear, complete with sidecar	£30 0
2¼ h.p. **WOLF** Lightweight, 1911, magneto	£13 10
2¾ h.p. **GRANDEX-PRECISION**, 1912	£19 10
3¾ h.p. **A.S.L.**, brand new, 1913 model	£35 10
3½ h.p. **PREMIER**, 1913 model, 3 speeds, only run 500 miles	£46 10
6 h.p. **BAT**, 1913, chain drive, like new	£58 10
3½ h.p. **N.S.U.**, free engine, splendid order	£23 10
3¼ h.p. **QUADRANT**, 1908, magneto	£15 10
3¾ h.p. **REX**, 1908, spring forks, magneto	£16 10
3¾ h.p. **B.S.A.**, 1912, 2-speed model	£37 10
2 h.p. **MOTOSACOCHE**, 1910, magneto	£15 0
3½ h.p. **TRIUMPH**, 1910, free engine	£27 10
SCOTT, 1909, 2 speeds, nice condition	£23 10
MORGAN Runabout, 1912, screen, hood, side tool boxes, new 3in. tyre	69 Gns.
3 h.p. **N.S.U.**, magneto, splendid order	£12 10
2¾ h.p. **EXCELSIOR**	£4 15
3½ h.p. **QUADRANT**, magneto, spring forks	£11 10
3¼ h.p. **REX**	£4 15

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We are Special Agents for these High-class Engines, and keep a large stock. We are prepared to take your present engine in exchange, and give prompt delivery. We are also in the position to supply THE TRADE.

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Let us take your carburetter in exchange for a Binks, and increase your power, run more miles to the gallon, and enable your engine to run slower in traffic.

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New Bosch D.A.V. Twin Magnetos, any angle or rotation	£2 19 6
1912 Armstrong 3-speed Gear, new	£4 15 0
3½ h.p. Torriceli Engine, M.O.V.	£3 0 0
8 h.p. Darracq, water-cooled	£8 10 0
Darracq 3-speed and reverse Gear Box	37/6
Fitall 2-speed Gear, fit 1907 twin Rex	40/-
4 h.p. Roc Engine, M.O.V.	£5 10 0
Sidecar, cane body, side doors; cost £8 8s.	£3 15 0
Bosch D.A.V. Twin Magneto	£2 0 0
New 4 h.p. J.A.P. Engine, with magneto	£14 10 0
New Amac Carburetter, ¾ h.p. or lightweight	17/6
New Coachbuilt Sidecar Body, side door	£4 5
26 × 2¼ New Rubber-studded Cover, best make; usually £2	23/6
Brand New Simms 1913 Twin Magneto	£3 11 6
Good Wicker Sidecar Body	10/6
Nearly new rigid Sidecar	£3 17 6
Millford 712 Spring Wheel Sidecar	£3 15 0
New Sidecar Body side door	£1 12 6
Splendid rigid Sidecar	£2 7 6
Practically new Pillion £6 Car	£2 17 6
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Strong Handle-bars, well plated, fin.	5 0
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Longuemare Carburetter	2 11

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REX SIDETTES.

6 h.p., 2 speeds, handle start, cantilever seat, cane de luxe type Sidecar. The best value in the market in sidecar combinations.

£75 : 0 : 0 ALL ON.

Ready for riding away.

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80 Guineas.

Coach-built sidecar

82 Guineas. All on.

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3¾ h.p., 2-cylinder, 2-stroke, 2 speeds, kick start, chain drive. Remember T.T. results.

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The machine with the perfect gear. The 3½ h.p. Multi T.T. model is "1T" for results. Specially recommended.

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3½ h.p. model with the Gradua gear; 6 h.p. model with the Gradua gear.

Prices £55 : 13 : 0 and £70 : 7 : 0 all on.

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Also **DOUGLAS, ENFIELD, CLYNO, TRIUMPH, B.S.A.'s, NEW HUDSONS, MATCHLESS, N.S.U.'s,** etc., etc.

P.S.—Wherever possible we supply on deferred terms at 2% extra, but in some isolated cases the makers fix a gradual payment price, in which case we have to charge this amount.

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CLYNO Superb Sidecars, in several models, from £15; fits the machine 4-point unbreakable attachments.

1913 Clyno, 3 speeds, used solo only by myself as sample machine, run 1,000 the outside, as new in every respect; £62, cash only.

POTTER has also Morgan Runabouts, sporting and standard models, from 85 gns.; delivery at call. [X1641

MATCHLESS, April, 1913, 3¼h.p. twin, 3-speed, cost £63, all accessories; take £53, or nearest.—Selkirk, 489, Rice Lane, Liverpool. [8640

1913 3¾h.p. T.T. Ivy-Precision, 8 weeks old, and unused, owing to illness; must sell, doctor's orders.—18 and 20, Thomas St., Manchester. [8537

5-6h.p. Chater-Lea Twin, 1910, free engine, Bosch, Brown and Barlow, guaranteed, £28; 2¾h.p. Minerva, £7.—A. Pulleyn, Wigginton, York. [8677

NORTON Twin, P. and M. 2-speed, Binks, new tyres, accessories, sidecar, spares, climb anything; £35, or near offer.—Wood, Beckett St., Batley. [X1779

BRADBURY, 1912½, not done 1,200 miles, perfect condition, accessories; genuine bargain, £35.—Gillman, Polefield, Blackley, Manchester. [8713

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TRIUMPH, clutch, late 1910, perfect, low mileage, new Kempshall rear, £29; nearly new light sidecar, £3/15.—Rodgers, 14, Broomfield Grove, Rotherham. [X1595

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LINCOLN-ELK Motor Cycles offer real value.—4¼ h.p., 2-speed, passenger models, £46; easy payments, immediate delivery.—Sole agents, Cooke's, Longsight. [8073

TRIUMPH, free engine, 1911; Rover, free engine, 1912; Triumph, standard, 1910; Triumph, free engine, 1909; all in excellent running order.—Stockdale, Lytham. [X8797

MOTO-REVE 2¾h.p. Twin, mechanical valves, Armstrong gear, low frame; full particulars and photo.; no faults; £20, for quick sale.—W., Oakworth Manor, Keighley. [8768

WE are in a position to supply, on good trade terms, Scott motor cycles to Scott agents, and into districts where not already represented.—Hitchens, Ltd., Morecambe. [8458

1912 Scott, perfect running order, with Canoelet sidecar, lamp, horn, apron, spares, new tyre; £55; trial given; getting new one.—Webb, jeweller, Stocksbridge, Sheffield. [X1545

1911½ Scott, 2-speed, little used, 1912 improvements, guaranteed absolutely as new, any trial, £38, or near offer; canoe cane spring wheel sidecar, £9.—105, Milnrow Rd., Rochdale. [8538

1912 7h.p. Indian, perfect, kick starter, free engine, done 3,000; £45, or exchange 3½h.p. single, 2 or 3 speeds gear and clutch, cash adjustment.—Broadbank, decorator, Harrogate. [X1689

BETTER than second-hand is a new unridden Bradbury £36; 2-speed £42; 3½h.p. Zenith, £43; Douglas, £34; 6h.p. Matchless £45.—W.F. and Co., 5, Cheltenham Parade, Harrogate. [X1688

A.J.S. Lightweight, 46 gns.; A.J.S. combination, extra apron, etc., £94; immediate delivery. Write for cash or deferred terms any make motor cycle or cycle car.—Hitchens, Ltd., Morecambe. [8492

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1909 Triumph, in fine order, good tyres, belt and general condition; prepared sell for £22 cash.—Hitchens, Ltd., Morecambe. [8504

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1912	**BAT,** 6 h.p., spring frame, J.A.P. engine, excellent order	£40
1913	**REX,** 6 h.p., combination, Jones' speedometer, F.R.S. lamp, 3" rear tyre, ready for road	£54
1913	**REX,** 6 h.p., special model, very fast, complete with 13 guinea sidecar	£65
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1912	**MATCHLESS,** 6 h.p., 2 speeds, head lamp, and horn, cane sidecar, excellent combination	£58
1912	**REX,** 6 h.p., combination, Portland £11 11s. sidecar, spring forks, 2 speeds, head lamp, Cowey, and horn; special value	£56
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1910	**PREMIER,** 3½ h.p., spring forks, magneto, free-engine clutch	*£25
1910	**PREMIER,** 3½ h.p., twin B. and B. carburetter, spring forks, magneto	*£22
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1906	**REX,** 6 h.p., twin, spring forks, cantilever seat, good tyres, take sidecar	£10

Deferred payments 5% extra.

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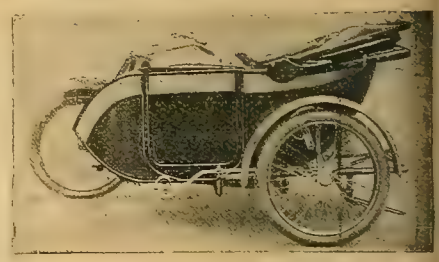

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Whatever the SPEED

—whatever the road conditions, whatever the strain imposed—"The DRUID" never fails to *successfully* perform that special service for which it is made.

—Here's striking testimony to the STRENGTH and EFFICIENCY of this famous Spring Fork—note it now:—

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The winning machine

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—indisputable proof of the "DRUIDS" supremacy!

—See that *your* mount is 'DRUID-equipped' —*this* Fork eliminates all vibration, bouncing and road shock.

Write for "DRUID" Booklet describing.

A DREW & Co., Coventure Street, BIRMINGHAM

Supreme for Solo and Sidecar machines.

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COLMORE Depots, 31, Colmore Row, Birmingham; 49, John Bright St., Birmingham; and 62, High St., Leicester.

NEW and 2nd-hand at the leading depots for the Midlands; agents for Douglas, Scott, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, Birmingham and Leicester. [X6047

1911 Free Engine Triumph; £28; grand value.

1912 Rex Sidette, 6h.p., 2-speed, free engine; £42, complete.

1911 Douglas; very great bargain, £23.

1912 Humber, 2¾h.p., 3-speed; £33; only wants seeing.

1911 Singer, bought August, 1912; £32.

1912 Macbeth, 3½h.p., 3-speed; £37; competition winner.

1912 Rudge, free engine; £39; perfect.

1912 6h.p. Zenith, fitted with £15/15 sidecar, and accessories; £64.

1911 Standard B.S.A.; £32.

1912 Free Engine B.S.A.; £37.

1913 2-speed Kick Start Douglas, only ridden 200 miles; £45.

1913 Cartwright-Precision, Sturmey-Archer 3-speed, 3½h.p., £34.

1912 6h.p. Matchless, 2-speed, free engine; £48.

1912 Model K Douglas, had very little wear; £36.

COLMORE Depot, 62, High St., Leicester. [8573

REX-J.A.P., T.T., 1912, 6h.p. model enamel, plating, belt and tyres like new; £35.—Below.

ENFIELD 6h.p. Combination, in excellent condition, owner too nervous to ride; £75.—Below.

B.S.A., 1913, 2-speed, chain drive, kick starter, machine as new; £50.—Below.

ZENITH, 1912, 3½h.p., Gradua gear, just overhauled, good tyres; £34.—Below.

ZENITH, 1912, 3½h.p., Gradua gear, brand new, shop-soiled only; £45.—Below.

HUMBER, 1912 2h.p., brand new, carries makers' guarantee; £28.—Below.

TRIUMPH, 1913, 3-speed, spares, ridden few miles only, excellent order; £52.—Below.

ENFIELD 6h.p. 1912 Combination, coach sidecar, grand condition; £55.—Below.

HUMBER, 1912, 2 speeds and coach sidecar, just overhauled, condition excellent; £42.—Below.

BAT-J.A.P., 1913, 3½h.p., 3-speed and free engine, like new; £45.—P. J. Evans, John Bright St., Birmingham. [X1733

TRIUMPH, free engine, 1913 model, only run 50 miles; £50.—Robbins' Garage, Rugby. [8634

PREMIER, 3-speed, 1913 model, not yet run 100 miles; £50.—Robbins' Garage, Rugby. [8635

SCOTT, latest 1913 model in stock; no waiting—The Premier Motor Co., Aston Rd., Birmingham. [0315

REX, brand new, 1912, 6h.p. De Luxe model; list price £62/10, bargain, £48.—The Premier Motor Co., Aston Rd., Birmingham. [0310

TRIUMPHS.—Rare 1913 models in stock for immediate delivery: 3-speed T.T. Roadster £59.15, free engine T.T. Roadster £55/10, also standard 3-speed and free engine models.—The Premier Motor Co., Aston Rd., Birmingham. [0303

1913 Ariel, 3½h.p., 3-speed model, kick starter, hardly soiled, luxurious machine; £42.—Below

1912 Singer, 3½h.p., 3-speed model, very powerful, grand condition; £36.—Below.

1911 Premier, 3½h.p., clutch model, complete with lamp, horn, etc.; £25/10.—Below.

1910 Humber, 3½h.p., 2-speed, free engine model, Bosch, Druid, etc.; £22.—Below.

ALL above overhauled and ready for the road.—A. Holland, Clarendon St., Coventry. [X1592

1913 3½h.p. Rover, clutch model, only ridden 50 miles; £47.—Box 3,646, *The Motor Cycle* Offices, Coventry. [X1821

DOUGLAS, Motosacoche, and Excelsiors; immediate delivery.—Midland Cycle Depot, 15, Hales St., Coventry. [X508

3½h.p. 1912 Premier, free engine, plate clutch, in new condition; £30.—9, Highland Rd., Earlsdon, Coventry. [X1819

NEW P. and M., ready at works, unable to take delivery; accept £59.—Soulter, 54, Russell Terrace, Leamington. [X1672

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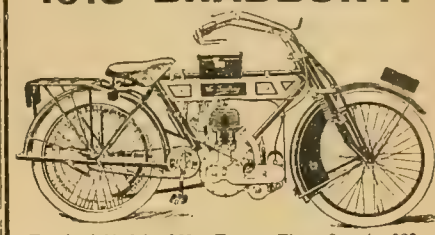
and make us a cash offer with your old out-of-date for a new

1913 BRADBURY.



Tourists' Models, **£48**; Two or Three Speeds, **£60**. Easy Payments at £10 deposit.

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1912 **RUDGE** Multi and Sidecar	£47 10
1911 Coachbuilt Twin **REX** Sidette	£47 10
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5½ h.p. 2-speed **REX** de Luxe and sidecar	£28 10
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Make your old machine up-to-date by fitting a

£5 10 1912 **ARMSTRONG** 3-speed Gear Brand New, and complete with belt rim and controls.

Mark II., **£5 10 0.**

Mark III., for passenger work, **£6 2 6.** Usual price **10** gns. & **12** gns.

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SECOND-HAND.	Every one guaranteed.
£32 10 1912 4 **Rex**	2¾ Mag. **Minerva £14 0**
£16 10 2½ Mag. **Rex**	3½ Mag. **Minerva £15 10**
£12 10 3½ **Rex**	'12 3-s.p. **Bradbury 47 10**
£29 10 6 **Bat-Jap**	1911 **Motosacoche £21 0**
£27 10 5½ 2-speed **N.S.U.**	1911 6 F.E. **J.A.P.** £34 10
£19 10 3½ **N.S.U.**	5½ **Rex** **£15 10**
£27 10 3½ **Triumph**, 1908	2½ **Princeps** **£8 0**
£14 10 1¾ **F.N.** Magneto.	Twin **Moto-Reve** **£13 10**
£32 10 3½ **Precision**	3½ **Minerva** **£12 10**
£38 10 '12 F.E. **Quadrant**	4½ Twin **Minerva** **£15 10**
£8 10 3 **Humber**	2½ **Minerva** **£8 10**
£15 10 4-cylinder **F.N.**	1912 **Rudge** Multi **£45 0**
£54 10 1913 2-sp. **B.S.A.**	'12 F.E. **Triumph** **£46 10**

Easy Payments from one-quarter deposit and Twelve Monthly Payments.

TWINS.

1912 Twin **CLYNO**	£52 10
6 h.p. M.C.V. **J.A.P.**, free engine	£34 10
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6 h.p. Twin **BAT-J.A.P.**, spring frame	£29 10
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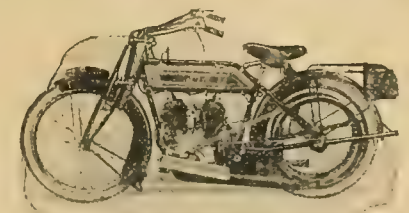
1913 REX or REX-JAP



1913 6 h.p. 2-speed **REX**	£62 10
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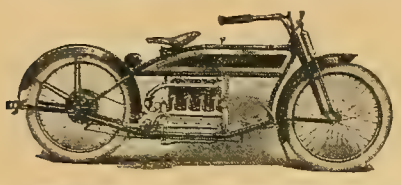

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1912¾ B.S.A., free engine, done about 800 miles; sacrifice £39, cost £56/10 last Sept.; any trial.—Dyson, Docks, Boston. [X1523

MOTOSACOCHE, 2½h.p., 1911, £5 worth of extras, £16, genuine bargain.—Caretaker, George St. West School, Birmingham. [X1652

SUNBEAM, 2¾h.p., not run 800, with accessories; £58; can be seen by appointment.—Donald Dingley, 330, Hagley Rd., Birmingham. [X1476

P. and M., 1911, 3½h.p., 2-speed, Kempshall tyres, all accessories, spares, splendid condition; £33—25, Rothesay Av., Nottingham. [X1668

3½h.p. Rex, accumulator ignition, spare belt and head light, good condition, recently overhauled; £10.—T. T. Raithley, Burgh, R.S.O., Lincs. [X1068

1913 F.E. Rover, done 400 miles, perfect condition, Lucas lamp, horn, spares: bargain, 42 gns.—Haith, pawnbroker, Victor St., Grimsby. [X1758

ROVER, 3½h.p., Armstrong 3-speed, late 1912 with 1913 improvements, perfect order, Lucas horn, lamp; £45.—95, Willes Rd., Leamington. [X1832

1910 Minerva, in perfect running order, 2¾h.p., 1913 B. and B. carburetter; approval, deposit, willingly; £9 cash.—Hunter, Amber Hill, Boston. [8474

TRIUMPH, 1911, excellent condition; £28; guaranteed in thorough good order.—Winchurch Bros., Edgbaston Garage, Sandon Rd., Birmingham. [X1637

TRIUMPH, 1910, standard, excellent condition, lamp, horn, mirror, watch, spare valve, plug, and watch; £28.—W. A. Smith, Queen St., Market Rasen. [X1636

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JULY 17TH, 1913.

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FIVE HUNDRED AND THIRTY-EIGHTH CONSECUTIVE ISSUE.

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Competitions in Beauty Spots.

IN this issue we publish a correspondent's letter resenting the holding of the A.C.U. Six Days' Trials in the Lake District this year. The writer bases his complaint solely on the grounds that the Lake District is one of exceptional beauty, and that the presence of so many motor cycles will tend to disfigure the landscape and to upset the hitherto hallowed calm of Wordsworth's country.

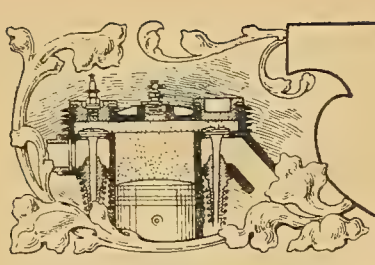
On the question of a motor cycle as an æsthetic object we decline to be drawn, we prefer to leave such a theme to other minds; but we do not think any unbiased person can truthfully call the modern machine ugly or offensive to the eye. Our correspondent evidently thinks a great rattle and smoke will be created, but as regards the former he would be well advised to keep up to date, as he says he is a motor cyclist himself, and recall the fact that efficient silencers are now compulsory by law, and the local police have power to stop any rider who, in their opinion, is not complying with the law. Smoky exhausts are only momentary on a motor cycle; if continued the sparking plug would soon cease to function properly.

While on the subject of appearance we would remind our correspondent that the A.C.U. has this year forbidden what may be termed "freak" dresses for the riders, or dresses which savour of advertisement of themselves or any goods. Furthermore, not more than three days out of the week will be spent among the Lakes, and as the passage of the competitors cannot cause inconvenience to any person for more than an hour or so at most, and as all the competitors return to Carlisle, which is not in the Lake District, every night, we think that alarm of even the most fastidious person that his peace will be disturbed is entirely unfounded.

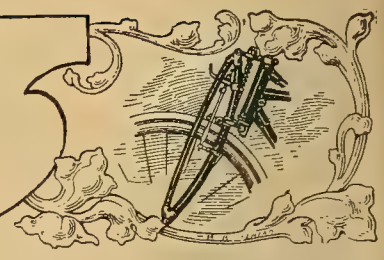
Our correspondent has also apparently fallen into the common error of imagining that a reliability trial is a race. Can we, once and for all, scotch this idea? A maximum speed of 20 m.p.h. is fixed by law and rigidly enforced by the A.C.U., and there is absolutely no need for excessive speed. It is a curious fact that many persons always imagine a race is in progress if they see a number of motor cyclists congregated together. One might as well argue that a regiment of soldiers marching through a village betokens that we are at war.

Twin-cylinder Engines.

THE modern tendency towards twin-cylinder engines gives rise to several interesting questions. Undoubtedly the small twin is more comfortable than a single cylinder of equal capacity, especially if the twin be of the horizontally opposed type. Against this must be set the slight extra complications and the small moving parts. As regards power and pace, there is little to choose between the two types. Until recently the greatest trouble with V twin-cylinder engines has been in connection with the big end bearings and valve gear. The first problem can be easily cured by better lubrication, but the second requires more thought. It can, however, be arranged satisfactorily, and on some few machines has been well carried out. Lubrication of the front cylinder has proved a stumbling block to many, but the trouble is easily solved by forced oil circulation. In the matter of lubrication there is still much to be learned, though twin-cylinder engines are not the only offenders in this respect. Besides the extra comfort, the multi-cylinder engine scores in acceleration, and consequently it is often more convenient in traffic. There seems to be a general impression that twins will not run slowly, and though this may be the case with a few under-flywheeled machines, it is quite a fallacy to imagine that slow running cannot be obtained, as we have seen two-cylinder engines running as slowly as any single. The increase in twins and multi-cylinder engines is a move in the right direction, for it will give us smoother running, greater flexibility, and greater silence, but lubrication must be attended to and noisy valve gear eliminated before the single can be ousted, while the inaccessibility of certain nuts should receive the attention of designers, for there is no need that the twin should be more inaccessible than the single, though it must, of course, be rather more trouble to dismantle. If there be a drawback to the horizontal type of engine, it lies in the direction of dismantling cylinders. The design of the engine necessitates a special type of frame, and it is a difficult matter to design it so that sufficient space is left for taking off the cylinders without removing the engine. Doubtless even this objection will be eliminated in the near future, for more than one designer is at work on engines of this type for motor cycle use, and when a multiplicity of designs of one type are on the market improvement is always very rapid.



SIMPLE TIPS FOR AMATEURS.



BY UBIQUE.

Taking Down an Engine.

THE hints given in the accompanying notes may be useful to such riders who are not accustomed to handling the inside of a motor cycle engine, and for that reason have qualms about stripping their engine for inspection or cleaning purposes.

The Importance of Method.

It is hoped that they may prove useful in saving time and preventing damage. The most important factor in saving time in doing work of this kind is to start methodically. The following order is that in which the writer almost invariably proceeds. A box, or boxes, should be at hand, into which all parts, nuts, bolts, etc., should be put directly they are removed from their places, and it is important to see that the boxes are empty in the first instance. There is in the writer's mind an instance of a novice who, after re-erecting his engine, found he had a few nuts and washers over. He promptly took his engine down again, and, with much difficulty, succeeded in making use of the remaining items, though they did not belong to the engine, and had been placed in the box by a jocular friend.

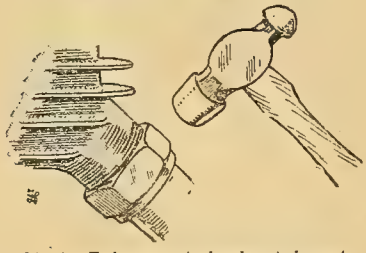


Fig. 1.—To loosen a stuck exhaust pipe nut.

First of all, detach the high-tension wire and sparking plug, then remove the petrol pipe, carburetter, and exhaust pipe. If the exhaust pipe nut will not turn it has probably rusted on, and the quickest method of removing it is to apply a mixture of petrol and lubricating oil to the thread and give the faces of the nut a few sharp taps with a hammer. Care must be taken to hit the face of the nut fairly so as to prevent damage, and the blows must not be heavy for fear the casting should be cracked. This treatment almost invariably succeeds after a very short time, though it is sometimes easier if the engine is still hot.

A Valve-removing Tip.

The next process is to remove the valves, as this operation is generally easier with the cylinder in position.

Should no special valve-removing tool be handy, the following tips will prove useful. Remove the valve cap and insert over the valve a wooden plug or piece of cycle tube cut to such a length that the cap may be replaced, and, through the plug, prevent the valve from rising. The spring collar may now be levered up and the cotter removed. A forked lever should be kept for this purpose, but a useful substitute is afforded by placing a nut or piece of wood on the timing case. Failing this, the spring may usually be raised with a screw-driver. If the cotter should be "burred," a most difficult and unpleasant job is necessary, for the spring must be raised and the cotter filed down till it can be withdrawn.

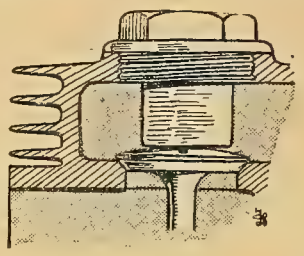


Fig. 2.—A method of holding down valve with wood block while removing a stubborn valve cotter.

Awkwardly-placed Nuts.

After both valves have been removed the holding down bolts of the cylinder may be taken off. These are often inaccessible, and, on many engines, only a very small movement of the spanner is possible, so that before replacing these nuts a few alterations should be made. Where there is no space between the cylinder and the nut, the nut should be filed down or smaller nuts obtained with a similar thread. A short box spanner should be made, or obtained, to suit these nuts, and with these slight alterations the work will be considerably simplified for future occasions. Sometimes the corners of the nuts catch the radius on the bottom of the cylinder, and in such cases a shaped washer should be used (as shown in sketch). It must not be imagined that all engines suffer from the above defects, but in many cases inaccessibility is an all-too-common feature.

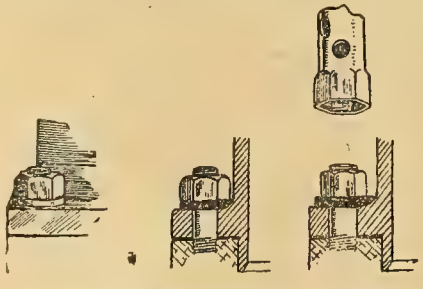


Fig. 3.—Cylinder holding down bolts. Showing use of shaped washer and special nut to permit of the use of a box spanner.

Removing the Cylinder.

When the nuts have all been removed the cylinder may be lifted off. It may be stuck to the crank case, in which event a blow with the palm of the hand will usually loosen it. As soon as the cylinder is slightly raised, the pulley should be turned till the piston is almost at the bottom of its stroke. The cylinder may then be tilted over and completely withdrawn.

As soon as the cylinder has been removed, the inside of the piston should be filled with clean rag, in such a way as to prevent it from being damaged by the connecting rod; also the top of the crank case should be covered to stop dirt or nuts from dropping inside.

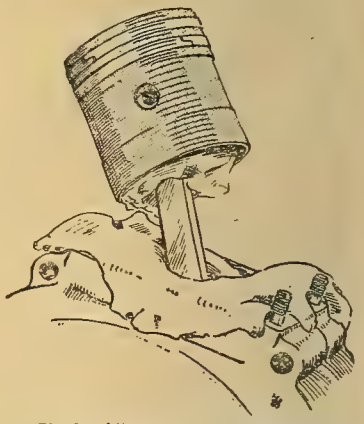


Fig. 4.—After removing cylinder fill the piston with rag to prevent damage, and cover the top of the crank case in order to exclude dust or dirt.

Cleaning.

The piston head may now be carefully scraped and cleaned, the surface of the head being polished as much as possible. If the piston rings do not move freely they must be removed and the carbon scraped from the grooves; if they are free and in good condition, they are best left alone, for they are easily broken.

Should it be necessary to remove the rings, a good method is to insert a single piece of stiff wire (a fine knitting needle suits the purpose admirably) behind the ring, and gradually to work it round. At the same time, the end first lifted should be kept slightly above the groove. This method is very simple, and if

Simple Tips for Amateurs.—carefully carried out will never cause breakage. Next the cylinder heads and valve ports should be carefully cleaned, and for this purpose a piece of ⅜in. bar, shaped like a chisel, is very useful. It should be of sufficient length to reach the bottom of the cylinder and still provide a comfortable grip. Care must

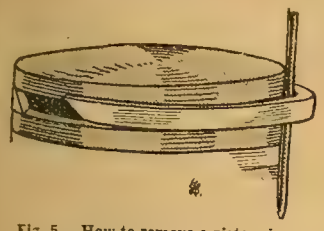


Fig. 5.—How to remove a piston ring with single wire.

be taken to remove the ring of carbon which sometimes forms on the cylinder walls just above the piston travel, as this is a common source of knocks.

Valve Grinding Hints.

After thoroughly scraping the cylinder head the valves may be ground in. This operation is simple, and too well known to require description, but the following tips may be found useful as time-savers.

Before grinding the exhaust valve use emery cloth to loosen the scale. For grinding purposes, use the best fine

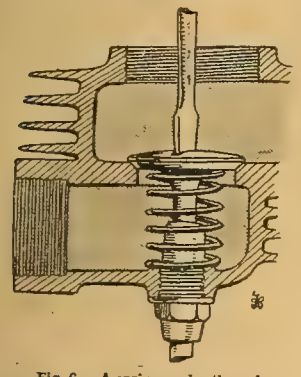


Fig. 6.—A spring under the valve head greatly facilitates valve grinding.

carborundum powder, and finish with flower of emery, or knife polish. Keep plenty of paraffin on the faces, and before starting to grind place a light spring under the valve head (see sketch), as after every two or three turns of the screwdriver this will automatically raise the valve and prevent ringing. A final polish can be given with knife powder and oil. One well-known rider even uses Globe polish.

If there are ridges formed on either valve face or seating, these should be machined off by the nearest person who knows how to use a lathe. Now thoroughly wash the cylinder with petrol or paraffin, and wipe out very carefully with clean soft rag. Next wash out crank case with paraffin.

Cleaning the Crank Case.

To do this, first drain out any used oil through the plug provided at the bottom of the crank case, replace plug, and pour about a teacupful of paraffin into the crank case, and revolve the engine gently, taking care not to damage the piston on the connecting rod or crank case studs. After this, the crank case may be drained and a fresh supply of oil injected.

Cutting Paper Washers.

Carefully clean the face of the crank case and cylinder, and see if the paper joint is intact; if not, another must be made. To do this, get a sheet of stout brown paper and hold it over the mouth of the cylinder, gently tapping it round the edge of the mouth with a light riveting hammer till a complete circle is cut out. Now smear the face of the cylinder with boiled linseed oil or seccotine, and press the paper into position. The remainder of the paper may now be cut off in a similar manner, and the holes for the studs cut out. The other side of the

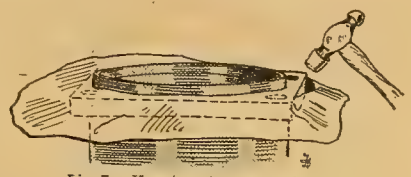


Fig. 7.—How to cut paper washers.

paper is then oiled or glued, and the cylinder is then ready for replacement. Before going further, however, see that the slots in the piston rings are not in line, and rub some oil round the sides of the piston. The writer uses Vasol for this purpose.

The cylinder may now be slid on, care being taken that the rings enter properly.

Bolt down the cylinder fairly, tightening the nuts at opposite corners evenly.

Replacing Studs.

It is possible that one or more of the studs may have come out of the crank case in the process of dismantling. If this is the case, they must be replaced before putting on the cylinder. The best method of doing this is to free the nut on the thread and then place two nuts on it. Now screw the stud back in the crank case, screwing down by the top nut only. When the stud is right home, unlock the two nuts with a second spanner, and the stud will remain in place.

Fig. 8.—How to replace a loose stud.

To replace the valves, follow the instructions for removing in the reverse order.

Before replacing the valve caps, see that the faces are quite clean and smooth.

Air Leaks.

The replacement of the remaining parts is simple, but care must be taken to prevent air leaks in the inlet pipe, especially on twin or multi-cylinder machines. The writer lags the inlet pipe of his twin with asbestos string and insulating tape.

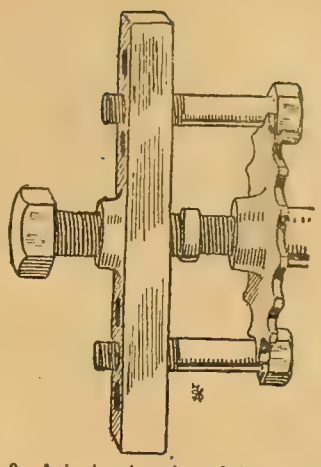


Fig. 9.—A simple universal sprocket withdrawing tool.

On some engines no tappet adjustments are employed, and there is no room for such fitments. In such cases a simple device on the lines of sketch can often be fitted. The end of the valve stem is screwed with a fine thread for about ¾in., the spring cap is then put on, next a lock nut, and lastly a deep nut into the base of which a fibre plug is pressed. Both nut and lock nut should fit rather loosely on the stem. A small hole in the valve stem, into which a spoke can be inserted, will prevent the valve from turning during adjustments.

A sketch is shown of a simple sprocket withdrawer, for use when special tools are not available. The heads of the two long bolts usually have to be cut down somewhat, as many sprockets are in awkward positions.

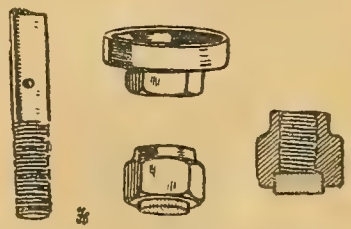


Fig. 10.—A simple substitute for a tappet adjustment.

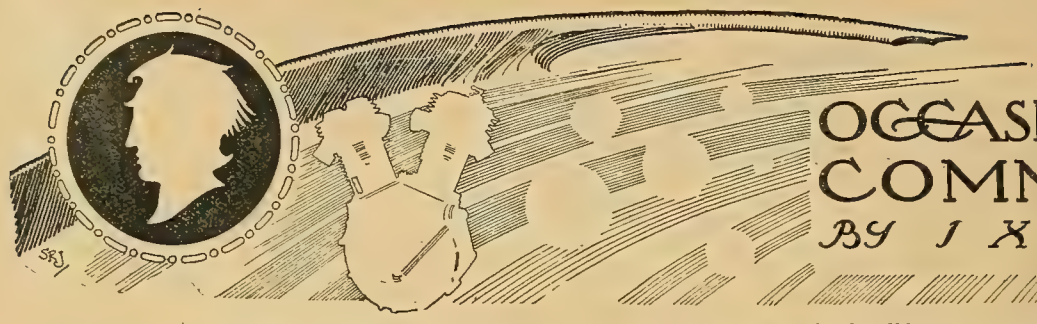
To remove a refractory engine pulley, a special fool is advisable, though even this should be manipulated gently, as the flanges are usually cast iron and easily broken.

A Detachable Hook Fastener.

The accompanying sketch shows the Challenge detachable hook belt fastener made by the Challenge Manufacturing Co., 19, Sand Street, Birmingham. A

The Challenge detachable hook fastener.

slightly different pattern is also sold provided with hooks of different sizes. These fasteners are exceedingly moderate in price.



OCCASIONAL COMMENTS

BY IXION

Sidecar Brakes.

The last show contained one or two sidecar outfits with formidable brakes on the side wheel; yet one of the latest trade catalogues denounces these brakes in unmeasured terms. Isn't it about time some authoritative experiences were coming to hand? There are plenty of insufficiently-braked sidecar outfits on the road, aye, and cycle cars too. If the sidecar brake can be made safe and effective, why should we not all have the benefit of it? At present there are many cases per week where the tremendous lock and powerful helm of a sidecar have to atone for a certain inadequacy in its brakes. It is not a bad plan to adjust the front wheel brake of a motor bicycle for excessive power when a sidecar is attached; as everybody knows, makers frequently arrange these brakes to be mildly ineffective, in case a novice should apply them violently on corners.

Lost Filler Caps.

My log tells me that in the last two years I have lost five petrol filler caps, a record which shows that I occasionally indulge in a soulless "blind," and that there is a faulty detail on my machine. Some machines have either hinged or chained caps. I do not propose to sell my machine because of this very minor—though irritating—failing; in fact, I think I see a cure. Within both filler caps there lies a tubular gauze strainer, and I propose to anchor the filler cap to the strainer by a few inches of the chain sold with toy watches. I question whether, even when my nose is at its lowest elevation, I could miss the spectacle of a filler cap, chain and gauze strainer flying through the air *en route* to the nearest clump of nettles. But here we have identified a congenital defect of the British manufacturer. The spares sale list and the running shed's requisitions must annually include a ridiculous number of filler-cap replacements; yet many firms contentedly fit the ordinary type of cap.

Another Detail.

How many front brakes have ¼in. nuts (or thereabouts) by which the brake shoes are locked to the spindles? I will not ask how many machines are annually minus a front brake shoe at the conclusion of a six day trial, but rather how many competitors may be seen furtively receiving small packages with a Midland postmark at the *poste restante* during the six days of the great and anxious week. In my resignation and folly I used to fancy that all front brakes embodied these tiny nuts, and shed their shoes at the rate of three or four a season; but last week I saw a machine—and it didn't hail from the Midlands—which had no small or rickety notions embodied in its front brake. It was three years old, and had never shed a brake shoe in its life; moreover, when I wanted to dislodge its shoes in order to change a front cover, I had to use quite a strong spanner and quite a medium mallet. *Si sic omnes;* which is Sanskrit for "all makers please copy!"

Exhaust Whistles.

Chequered are the experiences of the motor cyclist who buys an exhaust whistle of the ordinary brands. For the first 500 miles he is in raptures; he can waken and shift the usual surly, sleepy carter at a range of a mile or so. After 500 miles the horn is resuscitated from its disgrace, and remounted in a place of honour on the handle-bar, for the whistle has commenced to jam with carbon, and is giving trouble. During the next 500 miles the erstwhile gleeful owner wears a haggard but determined expression, for he is striving to perfect the very imperfect accessory for which he paid much good coin of the realm. If he follows my own history, he notices that the control valve of the whistle continues to open when he operates the lever or pedal, but that it won't shut, because its slide or spindle is foul with deposits of burnt oil. Perhaps he notices—like myself—that a coiled spring is provided to close the slide, and bid the exhaust cease its cheery and insistent yodelling; further, that the spring is about strong enough to return an electric bell-push. So—just as I have done, for great minds think alike—he fits an enormous spring—one of Terry's most terrific productions; and for a time he can wake the landscape or startle a hemisphere, secure in the consciousness that the ear-splitting din will cease when his forefinger quits the trigger. Then—for a good hundred miles—there is peace, the haggard lines smooth out,

A secret check at Rossington in the Doncaster and District M.C.C. Trial. The driver of the Rudge sidecar was dead on time, but the other too early.

Occasional Comments.—

and all seems well. Finally the strain on the whistle, compounded of the sturdy pull of its lever, the return pull of the giant spring, and the binding carbon, causes its numerous tiny screws and weeny threads to disintegrate, and it is scrapped *sine die*. I know one big firm in Coventry who planned to supply a ready-fitted exhaust whistle as part of their standard specification for 1912. In 1911 they got samples of every whistle on the market, and made several of their own design. Now they only sell and recommend hooters. I dare not say that my criticisms apply to every whistle on the market by any means; but they are true of all I have tried; so I would recommend purchasers to see that any whistle they think of buying has a substantial return spring to its control valve, and that it is not assembled with microscopic threads and petty screwlets. There is not the least reason why a sound substantial article should not be made and sold at a moderate price; but the market contains plenty of rubbish at present. The only consolation is that many motor car whistles are quite as bad, and they cost more!

A Punctured Float.

I have waited well over ten years—if memory serves aright—for my first punctured float. I took out a new trade machine, which refused to run decently and showed no liking for its extra air. Presently I discovered that the float chamber was leaking freely through its flood hole, and examination of the needle discovered no derangement. Out came the float, and a gentle shake showed that it was full of petrol. I rode on to the next village, and dived into a watchmaker's, where I soon learnt that the cure of this trouble is less simple than the books imply. We warmed the float and expected a hiss of escaping gas to tell us where the invisible puncture was. We heard no hiss, and the watchmaker's magnifying lens failed to tell us where the orifice lay. All we could trace was an almost imperceptible dampness round the top edge, covering perhaps an area ¼in. square. A far more powerful lens than the shop contained would have been necessary to find the microscopic hole through which the penetrating spirit was entering. I covered the whole damp area with a thin skin of solder and polished it off again, hoping a wee grain of solder would abide in the hole. No luck. I put the float back in its chamber, and turned on the petrol; when the float had filled it again, once more I expelled the fluid by heat. The same spot was indicated, and again I filmed it with solder, and polished it off. This time a grain lodged in the hole, for the float ceased to leak, though the lens was too weak to show where the place was.

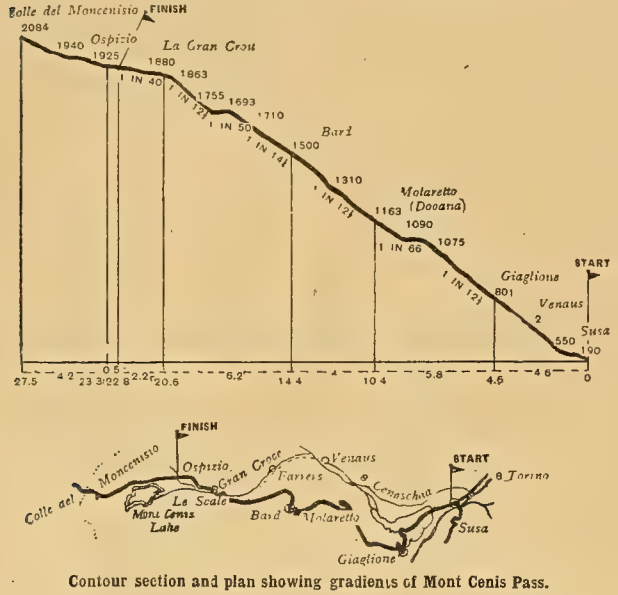
A Partitioned Toolbag.

I have just encountered one of those tiny refinements which add so disproportionately to our comfort. There are such a lot of small flat objects to be housed in the left-hand pannier bag (I take it for granted that most people carry their heavy tools in the right-hand bag—for some unknown reason). There are belt punches, and sparking plugs, and tyre repair kits, and spare fasteners. We mostly keep in the same bag a huge roll of rag, in which are ensconced a couple of spare valves, maybe; and when we pull out the roll, all the little flat things tumble out on the road. But I have struck a pannier bag—and standard, too, at that—which has the rippingest little shelf about an inch from the top; and the tyre repair kit, cased sparking plug, cased fastener, and belt punch, fit on to the shelf beautifully, and do not fall out.

Group of competitors outside the headquarters at the start of the Doncaster and District M.C.C. Reliability Run.

Something Like a Hill-climb.

NO one who is unacquainted with Alpine roads can form any idea of such a hill-climb as that which will be held on August 3rd on the Mont Cenis Pass by the *Società Sportiva di Torino* Via Cuneo 3, Turin. The event starts from a point just outside Susa, on the main road over the Mont Cenis Pass into France at 9 a.m., and the course winds over



Contour section and plan showing gradients of Mont Cenis Pass.

the mountain for rather more than 14 miles (22 km. 800 metres), rising in that distance 4,708 feet (1,435 metres). For the first 6 km. the gradient is 1 in 12½, then follows 1 km. of only 1 in 66, then follow 5 km. of 1 in 12½, 3 of 1 in 14¼, 1 of 1 in 50, and 2 of 1 in 12½, the latter being the zigzag known as *Le Scale*—the stairs. The final stage is only 1 in 40, and the finish at the Hospice on level ground. According to the survey there is nothing more than 1 in 12½, but we believe that the maximum gradient is 1 in 10, and, of course, owing to its great length the hill is very trying. The worst turns occur at Giaglione, Molaretto (Italian Customs), Bard, and Le Scale, where there are five hairpins.

The classes will be as follows: A up to 350 c.c., B up to 500 c.c., C private owners up to 500 c.c. Machines must conform to the usual A.C.U. regulations. Entries close at ordinary fees on the 24th inst., and at double fees up to the 31st inst. The entry fees are as follows: Classes A and B 40 francs one machine, 75 francs two machines, 100 francs three machines, and 20 francs for every successive machine. Class C 10 francs (8s. about) per machine.

A special gold medal has been offered by Queen Margherita, which will be awarded to trade entrants. Both the 350 and 500 c.c. machines are eligible for this prize. Other prizes will be as follows: The winners in each class of trade riders, a silver shield; to the manufacturers of the team of three machines which gain the best total time in the first class, a silver challenge cup, given by the "Stampa Sportiva." There is also a silver cup for the senior class called the "Coppa Moncenisio."

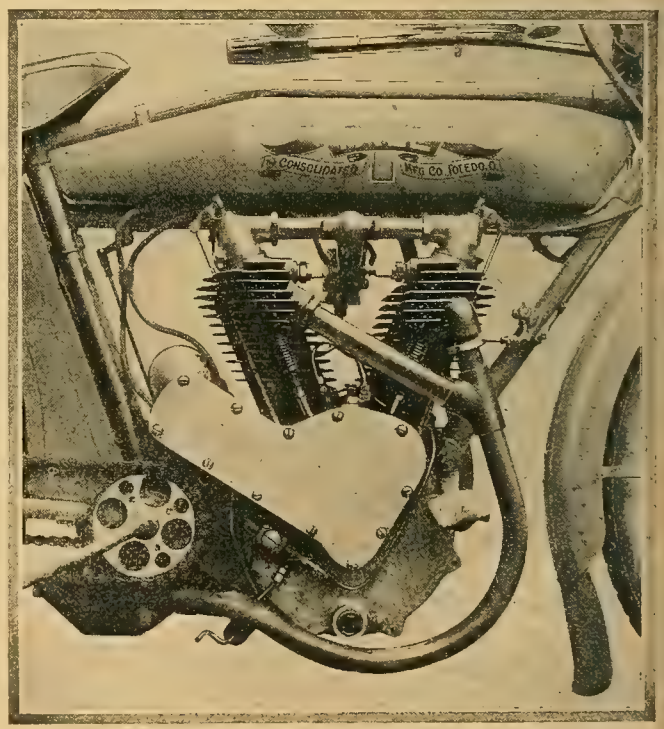
The Susa Mont Cenis hill-climb has been held for ten successive years, and an English machine has never yet won. The journey would be a delightful one, and full of interest, consisting of a fast run across France and beautiful scenery among the French and Italian Alps. The cost need not be excessive. The Auto Cycle Union would be glad to help intending competitors as regards the route and formalities, and as the writer will be spending his holidays in the district, he will gladly assist intending competitors, to the best of his ability. The regulations are not stringent, and practising is allowed up till 8 a.m. on the day of the contest. Intending entrants should send in their names to the *Società Sportiva di Torino*, and also to *The Motor Cycle* at an early date.

THE YALE MOTOR CYCLE.

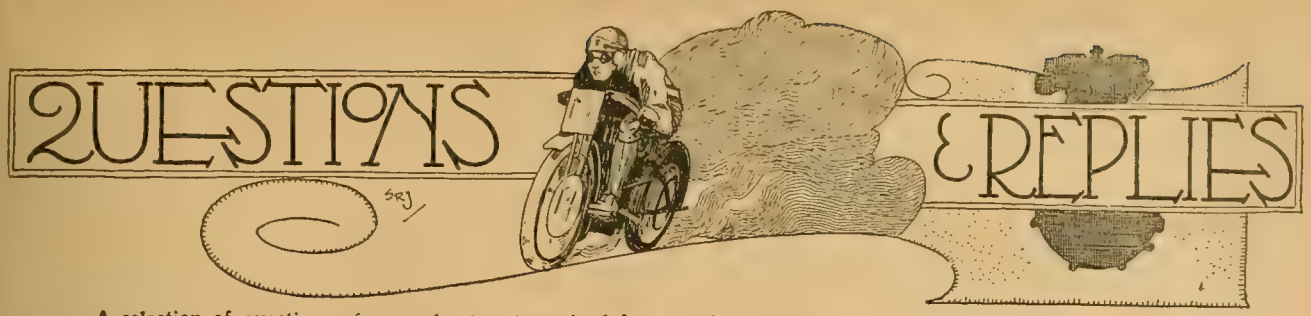
ONE of the features of the Yale, a leading American machine, is its comfort and wonderfully light steering, which are brought about by the design of the spring forks and the weight distribution.

The engine is of very interesting design, and has very large bearing surfaces and ten-inch flywheels. Helical gearing is employed in the cam gear and magneto drive, and a worm-driven plunger pump supplies oil to the front cylinder and cam gear.

Considered through English spectacles, the engine, with its horizontal radiating fins, is very well thought out, but the design of the exhaust pipes would hardly find favour, not only on account of the possibility of the front cylinder getting hotter than necessary, but also as the rear pipe renders the front exhaust valve and spring very inaccessible.



The twin-cylinder engine of the 8 h.p. Yale showing the valve arrangement.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Rubber Belts.

I should be obliged if you could give me your opinion of the enclosed section of rubber belt. The core seems to me to be too much on one side—O.R.

The canvas core of any belt should be in the centre of the rubber, and not to one side. We therefore consider that the sample section is faulty in this respect.

Leeds to Exmouth.

Will you be so kind as to give me the best route from Leeds to Exmouth (Devonshire) and approximate mileage?—H.W.

Your best route would be as follows: Leeds, Pontefract, Doncaster, Worksop, Nottingham, Castle Donnington, Hinckley, Coventry, Kenilworth, Warwick, Stow-on-the-Wold, Cirencester, Tetbury, Didmarton, Bath, Chewton Mendip, Wells, Glastonbury, Taunton, Wellington, Collumpton, Exeter, Exmouth. The distance is approximately 300 miles.

Difficulty in Starting.

I have great trouble in starting up. The engine is a 5 h.p. water-cooled M.M.C., and started with starting handle; B. and B. carburetter with 32 jet, Lodge three or four-point plugs with points set to gauge supplied, accumulator ignition, make and break contact, spark is very good at points when plug is laid on top of cylinder; compression very good, and spark takes place about nine-tenths up the compression stroke; if I advance further it backfires. I have tried injecting petrol, but it only seems to fire about three or four times. There is plenty of petrol at jet.—W.J.

As originally made the engine you describe has an atmospheric valve, and this is probably the cause of the trouble. If the seat is oily the valve may be sticking, and fail to come off the seating at such low speeds as those attained by hand starting. The platinum points should be flat and clean and the accumulator well charged, as otherwise only a weak spark will occur under compression, even though it appear good when the plug is exposed. The fact that the engine fires a few times after petrol injection points to inlet valve or carburetter trouble. Possibly the inlet pipe is a very long one. This sometimes affects starting.

Decompressors and Easy Starting.

What is your opinion of decompressors? I had an Amac on a 2½ h.p. lightweight, but with it I could not get the engine to fire more than two or three times, and then very feebly. I have a 3½ h.p. Hobart with free engine, Binks carburetter, jets 3 and 6, and find it difficult to start with back wheel on ground, as one kick on pedals rarely starts engine, although on stand it is much easier. Would a decompressor improve matters?—W.M.P.

On a lightweight machine we do not think a decompressor necessary, but in the case of a 3½ h.p. engine a decompressor would probably be exceedingly useful. In fact, if a suitable instrument be fitted, the machine should start at a walking pace, and quite easily with a stroke of the pedals. The reason your engine starts more easily on the stand is because you can pedal the engine round at a higher rate of revolutions than is the case when using one crank and pedal as a kick starter.

Touring Advice.

I am contemplating a three or four days' tour in August with a sidecar, and shall be very pleased if you can tell me of a good route. I wish to go north, and to keep in the country and avoid main roads as much as possible. I should also be glad of information as to firms hiring out tents, etc., and picnic appliances.—H.A.D.

If you want a tour mapped out for you it is best to join the Auto Cycle Union, 89, Pall Mall, S.W., as a touring member (5s.), or the Automobile Association and Motor Union, Fanum House, Whitcombe Street, W., and apply to their Touring Department and get this done for you. The "Motor Cycle Route Book," post free 1s. 9d., Iliffe and Sons, Ltd., 20, Tudor Street, E.C., will also prove very useful. Particulars of camping outfits were given in our issue of April 17th, pages 484-485. The secretary of the Cyclists' Camping Association, Mr. A. P. Moeller, 6, Duke Street, Adelphi, W.C., may also assist you.

A feature of a run along the Great North Road is the number of level crossings which are encountered. Our photograph shows a group of motor cyclists held up at Sutton Crossing, near Retford.

From Water-cooling to Air-cooling.

I possess an Ormonde tricar of uncertain age, of which the cylinder is cracked. The cylinder is water-cooled, and I wish to fit a new air-cooled cylinder. The particulars are as follows: Bore 85 mm., stroke 85 mm., both valves (mechanical) are on one side. Do you know of any maker from whom I could purchase an air-cooled cylinder of above size that could be adapted to my engine? I think it possible that one of the well-known makers may have cylinders of this size.—T.F.B.

There is just a possibility that you may be able to obtain what you require from the Crypto Motor Co., 14, Mortimer Street, W., or from the Service Co., Ltd., 292-293, High Holborn, W.C.

Valve Grinding and Cylinder Cleaning.

I should be extremely obliged if you will advise me as to the use of the Cylclean process of removing the carbon deposits from motor cycle cylinders. I may say I am quite a novice, and know very little of mechanics. I have a 1913 Sunbeam, and had the cylinder down after 1,300 miles, and found it rather a job to get the deposit out, especially round the valves; in fact, I finished up by getting someone to finish it off for me. Is it necessary to grind in the valves each time the cylinder is taken down?—E.L.B.

The Cylclean process is entirely satisfactory, but it seems to work better when the engine is really dirty than when there is only a slight deposit. It is very quickly done, and does no harm at all to any part of the engine. It is not necessary to grind in the valves every time the cylinder is taken off, but only when the surfaces become pitted and the compression in consequence becomes weak. Still, it is a good plan, because it is so much easier to grind the valves when you have the cylinder on the bench. Do not, however, grind them more than is necessary at any time.

Mysterious Loss of Compression.

I shall be glad of your advice *re* the loss of compression in my engine when climbing after having run ten or twenty miles. It runs splendidly on the level, and climbs well when cool, but when hot, the compressed charge escapes past the piston rings and comes out of the crank case release and out of the tappet guides, and after that it climbs very badly. Sometimes during a long climb the compression will suddenly come back for a few hundred yards, but usually does not last. The cylinder has been reground and new piston fitted. The original piston had about eight half-inch holes drilled through it, but the new piston was solid; so thinking the fault might be caused by lack of lubrication, I had the piston drilled and holes drilled in the baffle-plates of the crank case, but the trouble still continues. Can it be due to unequal expansion of the cylinders, or would the piston rings being too tight a fit in the slots cause it, by binding when hot?—R.S.

We should imagine that the trouble is far more likely to be due to a lengthened exhaust valve stem, unless, of course, the piston rings get in line, but this is very rare. If the clearance is too small between the tappet and the bottom of the exhaust valve stem, the heat causes the stem to expand and the valve does not close properly, and there is no compression.

Somerset to Cumberland.

Can you oblige me by giving a route with approximate mileage from Castle Cary to Wigton, Cumberland? Please give the best direct route, also an alternative one, including Hebden Bridge (near Halifax). My machine is a 1911 3½ Bradbury with two-speed gear. I would also like to know of a few journeys from Wigton into the Lake District.—R.W.M.

Your best route would be as follows: Castle Cary, Bruton, Frome, Beckington, Bradford, Bath, Nailsworth, Stroud, Gloucester, Tewkesbury, Worcester, Kidderminster, Bridgnorth, Wellington, Hodnet, Whitchurch, Tarporley, Warrington, Wigan, Preston, Garstang, Lancaster, Kendal, Windermere, Ambleside, Keswick, Bothel, to Wigton. The distance is approximately 310 miles. This route takes you through the Lakes. We cannot give you a satisfactory route through Hebden Bridge. What we should recommend you to do if you want to go there is to go to Preston and take the train; otherwise it means going through an unpleasant and uninteresting manufacturing district thronged with big towns.

Tool for Re-cutting Valve Seatings.

Having read your book "Motor Cycles and How to Manage Them," I find in it that there is a special tool on the market for grinding valve seatings. I have a 1905 3 h.p. Triumph, which runs well, also pulls well when cool, but after climbing a long hill it gets very hot and starts knocking, and then suddenly stops. It has good compression, valves have been ground in, timing correct, carburetter in perfect order, and tappets correctly adjusted. I have also had cylinder ground and new piston fitted. So, after reading the book, I find that my exhaust valve seating is worn down quite ⅛in., and came to the conclusion that was my trouble. Could this grinding be done personally?—C.H.D.

The tool you mention can be obtained from Southern Automobiles, Ltd., Westcombe Park, S.E. There is also a similar one sold by the Service Co., Ltd., 292-293, High Holborn, W.C. You might try lubricating a little more frequently. Certainly the valve seating might be re-cut. The matter is one which may be carried out by an expert amateur, but it is not a job for a novice.

Bedford to the Lake District.

Will you kindly give me the best route to the Lake District from Bedford with an alternate return?—A.J.G.

Your best route would be as follows: Bedford, Eaton Socon, St. Neots, Stilton, Stamford, Grantham, Newark, Tuxford, Retford, Doncaster, Ferrybridge, Aberford, Boston Spa, Harewood, Otley, Skipton, Settle, Kirkby Lonsdale, Kendal, to Windermere. An alternative return route would be *viâ* Penrith, Bowes, Brough, Barnard Castle, Scotch Corner, and southwards *viâ* Boroughbridge and outward route.

Dry Batteries and Speed.

I have a 2 h.p. motor cycle with dry battery, from which I wish to obtain a higher speed. The battery I have had tested and it registers nearly 4 volts. If I get a new battery, 4½ volts, will that alter the speed? I only get about 60 miles to a gallon of petrol, and I believe I should obtain from 100 to 120 miles to the gallon. What alteration shall I have to make?—H.W.

The strength of the battery would not alter the speed appreciably. However, you do not test a dry battery with a voltmeter, but with an ammeter. Certainly you ought to get 100 miles to the gallon with a 2 h.p. machine. We should recommend you to try a smaller jet. Also take pains to find out if the inlet pipe has no leak in it and that it is a gas-tight fit at the union with the cylinder.

LOST AND FOUND.

We receive many letters regarding accessories, etc., both "Lost and Found," which we are unable to find space for. As these particular matters are of interest to two persons only, viz., the finder and the loser, we have decided to keep a list of such articles, and all that are notified to us will be inserted in this list. Should we receive a letter from the finder which corresponds to the article lost, the two persons will be put into communication, but it must clearly be understood that we cannot enter into correspondence on the matter beyond this.

READERS' REPLIES.

Portsmouth to Harrogate.

On page 865 of your issue of the 3rd inst., in reply to "G.L.C.," regarding a route from Portsmouth to Harrogate, you advise through Winchester, Newbury, and East Ilsley to Oxford. I have recently been by this route twice, and find the road from Winchester to Newbury to be in a dreadfully loose state, with very sharp flints, which did considerable damage to my rear tyre on a Model A Douglas. I would strongly advise your correspondent to cut out the Winchester-Newbury Road to Oxford and substitute the road from Winchester *viâ* Basingstoke and Reading to Oxford. This will add about eight miles to the total journey, but the road is far preferable to the one suggested, if the question of tyres is to be considered.—CR 1566.

Lack of Reliability.

If "Clement," who enquires *re* 2¼ Clement-Garrard machine in your issue of *The Motor Cycle* of June 19th, cares to write to me, c/o the Editor, giving his address, I can give him information of a practical kind on the points he mentions, as I have been using a similar machine for the past six years.—WM. REDPATH.

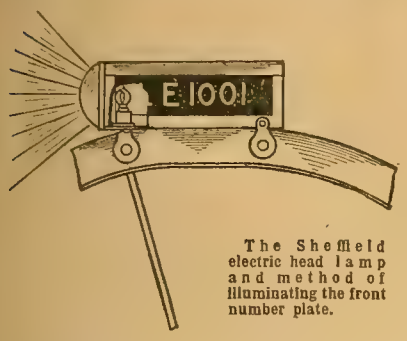
EXPERIENCE WANTED.

"Barry" (Manchester). — 5-6 h.p. Rudge-multi with sidecar. Consumption reliability, slow running in traffic.

AMONG THE ACCESSORIES.

A New Head Light.

The accompanying illustration shows an electric head light and illuminated number plate combined, brought out by

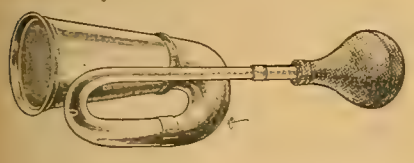


The Sheffield electric head lamp and method of illuminating the front number plate.

the Sheffield Patents Co., Times Buildings, Sheffield. The device should certainly be handy for riding during dusk and in towns.

Novel Waterproof Cap.

We recently paid a visit to the premises of Messrs. John Piggott, Ltd., 117, Cheapside, E.C., where much of interest to motor cyclists is always to be found. Among their specialities for this year is a 2¾ h.p. lightweight motor bicycle, single-cylinder, 70 × 75 mm., which is excellent value for the price asked for it, fitted with footboards and pedals, U.H. magneto, B. and B. carburetter and an Armstrong gear or Albion clutch may be fitted as an extra. As

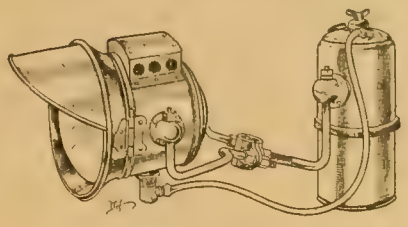


regards accessories, Messrs. Piggott have introduced a simple form of motor cycle horn, sold at a very moderate price. It has a gauze-covered mouth and gives a clear and audible note of warning. Being simply designed it is most easy to clean. In connection with clothing, the Double-purpose cap illustrated is most interesting. It will be seen by fig. 1

Fig. 1

Fig. 2

Fig. 3



Motor cycle lamp sold by Messrs. Piggott.

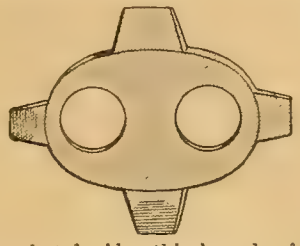
that the cap, under ordinary conditions, is exactly like any other. Figs. 2 and 3 show how it can be converted into a most effective waterproof cap. Such a cap as this should be invaluable to those who take long tours, and yet desire to be independent of the weather. It is one of the most ingeniously designed caps we have ever seen. Messrs. Piggott have also lately introduced a motor cycle boot, which has a very thick sole, waterproof tongue, and long uppers, which is absolutely water and dustproof. These are but a few of the specialities Messrs. John Piggott, Ltd., sell for motor cyclists.

A Neat Switch.

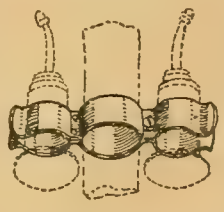
The accompanying illustration shows a handy little cut-out switch made by the Aston Motor Accessories Co., Birmingham. It is very well designed and impervious to wet.

A Four Bladed Screwdriver.

Messrs. Herbert Terry and Sons are, above all, specialists in the manufacture of

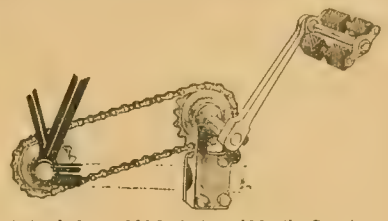


springs, but besides this branch of their business they manufacture many articles useful to motor cyclists. We illustrate a pocket screwdriver which has four blades for various sizes of screws, and also a double clip which holds a petrol and oil squirt on any convenient part of the frame without any possibility of rattle. Route card holders, valve removing tools, spiral vaporisers to fit over jets, terminals, and flexible cable are among the many articles listed by the company.—Herbert Terry and Sons, Redditch.



A Simple Form of Foot-starter.

A simple form of foot-starting device, which the illustration renders self-explanatory, has been introduced by the Grandex Cycle Co., 86, Grays Inn Road, W.C. Many pedalless machines cannot be started on the stand, and in such cases this device would be of great



A simple form of kick starter sold by the Grandex Cycle Co.

service. Moreover, the Grandex starter might take the place of pedals in the case of a three-speed clutch machine; room would then be left for footboards.

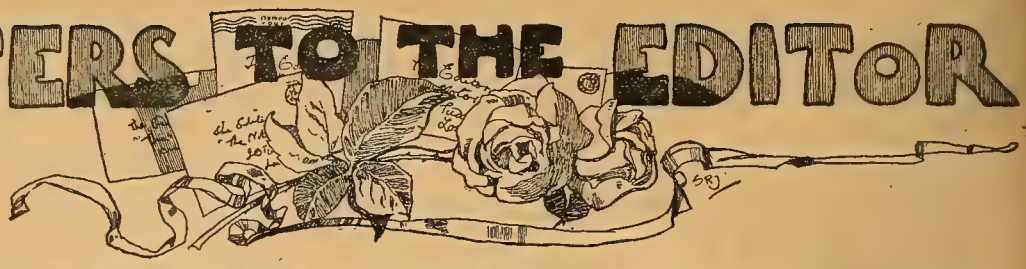
Beldam Motor Cycle Tyres.

Quite an interesting tyre is the Beldam motor cycle tyre, manufactured by the Beldam Tyre Co., Ltd., Brentford. The feature of this tyre is the shape of the tread, which provides an ample thickness of rubber, while its non-skidding properties are due to the V-shaped projections, which serve a double purpose. They provide an additional radiating surface to the tyre to keep it cool, and secondly act as efficient non-skids. Moreover, they allow lateral displacement of the rubber as opposed to circumferential displacement. In the case of circumferential displacement it is held that the rubber heaps up in front of any object it may strike, and that the object is therefore driven into it; consequently, a

puncture is the result. In the case of lateral displacement, however, this does not happen, and a firm grip of the road is obtained. This tyre has only recently been placed on the market, and since its introduction has been further improved by the addition of transverse grooves. It is beautifully made by the same firm which produced the car tyres that came through a 5,000 miles R.A.C. test last year with great success.

We have now run one of these tyres on the back wheel of a 6 h.p. motor cycle for about 800 miles, half the distance being with a sidecar. The tyre has stood up well, and there is plenty of rubber left on the tread.

LETTERS TO THE EDITOR



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Unstretchable Belts.

Sir,—In reply to "J.T.B.," I beg to say that I do not think that he or anyone else has ever seen a belt of exactly similar construction to the one I am introducing. If they have, no doubt the Controller of Patents would be pleased to hear their objection to the sealing of my patent. "J.T.B." says he knows one maker who discarded a similar belt six years ago. I should like to tell him that I know two, one of them a very influential man in the belt trade, who have told me that they have been experimenting with this class of belt for a long time, but were unable to bring out a suitable fastener. As to "J.T.B.'s" opinion that a belt that will not stretch is not worth having, all I can say is that his opinion is very different from that of any motor cyclist I have spoken to on the matter.

A. PERKINS.

The £100 Cycle Car.

Sir,—In your description of the new single-cylinder A.C. four-wheeler in your issue of June 26th, you hail it as a definite step towards the £100 four-wheeled cycle car. But this desideratum has already been actually accomplished with success by the maker of the L.M. machine, whose specification includes a twin-cylinder 8 h.p. engine with chain drive to live axle, driving both wheels through a balance gear, at a price of £99 15s.

I do not drive an L.M. or any other cycle car, and have no interest in any, and I may possibly be mistaken in the above specification, but believe that I am right; and in any case the L.M. should have the credit of being the first £100 four-wheeled cycle car.

C.F.W.

A Protest.

Sir,—I should like to protest against this year's Six Days' Trials being held in the Lake District. As a matter of fact, I think it quite unnecessary to hold them at all, especially if they are to take place in a part of the country frequented by holiday-makers. If motor cyclists must have a test of this sort, cannot they find some spot well away from civilisation and beauty, where they will not disturb the peace, quiet, and pleasure of tourists; or else distribute their route in such a way that it covers a far larger area, and by so doing minimise the discomfort and annoyance they undoubtedly cause to people in a particular district?

It would be a thousand pities to have the peace and quiet of our Lake District spoiled for some time by motor cyclists racing past its beauties, round its corners, up its hills—and its mountains too—ignoring everything except the pace of their machines.

What will the district be like for some weeks? To those of us who are used to spending our holidays there (and I am one of some twenty or so friends on whose behalf, as well as my own, I am writing) it will be absolutely unbearable! People who come to Keswick and the surrounding parts come there for that peace and quiet which in England only the Lake District affords. As a well-known resident of Keswick has said in a letter to me on the subject, "For every one person this sort of thing attracts it will drive twenty away"; and this I feel to be true.

I only hope that this protest will be taken up in the spirit in which it is written—that of protecting from all such disturbances the most sublime piece of country we have.

I might add that I am a keen motor cyclist myself.

HOWARD PEED.

[We like to give all points of view, so we publish the above letter and deal with it in our leaderette.—ED.]

A Revolutionary Suggestion.

Sir,—"L.M.M.J." has courteously forwarded me copies of the letters, the contents of which he considers me to have misrepresented. There are several passages in these relating to the "dimensions" of his proposed trumpet valve, and in view of our controversy as to whether his valve was more or less frangible than the standard solid type, I consider it was perfectly legitimate to interpret these as meaning an increase upon the normal dimensions. His letters do not, however, appear to have claimed that the use of special materials was possible, and on that point my comments were unfair to him, for which I am naturally regretful. I received several other letters on the subject, and in this detail I must have fathered somebody else's notion upon him.

IXION.

Sir,—As stated in my previous letter, a valve of almost identical shape to that suggested by "L.M.M.J." has been successfully used on racing cars. It is a very good shape, particularly for the inlet valve, as the underside of the valve is approximately of what might be termed "streamline" form. That is to say, it *gradually* changes the course of the gas. Thinking that the thickened neck rendered such a valve particularly suitable for motor cycles, I suggested this construction to a designer of a large firm, and showed a sketch which is quite as extreme as the illustration put forward by "L.M.M.J." I was told that these valves elongated slightly and decreased in diameter accordingly. I cannot help agreeing with "L.M.M.J." that "Ixion's" criticism was unmerited.

ERIC W. WALFORD.

The Transmission Question.

Sir,—I have closely followed the transmission question as shown in varied personal experiences recounted through your columns and, perhaps, may be permitted to add another mere experience.

For four years I had belt drive on my Triumph and was satisfied—because I knew no other.

This year I have "gone over" to chain transmission on my Indian; and by comparison I realise now fully how much labour was seemingly unnecessarily expended in constant attention to keep the belt in proper condition.

I have completed over 2,000 miles without the slightest trouble with the chains. The two adjustments have taken such a little time that the sum is negligible. A mere twist with a wrench on the spindle nut and five seconds at each adjuster at the fork ends and the nut retightened and the whole job is completed.

At 2,000 miles, when the chains were given a soaking a close examination proved both faultless. No sign of wear whatsoever was shown, although my chains are not enclosed.

I can only say that I have found, with a properly working clutch, chain drive "velvet" under all conditions; and I am certain never to return to belt drive.

C. R. WADMAN.

Where to Stay.

Sir,—A correspondent, "AL 2162," approaches you on this much vexed question, and your reply refers him to the A.C.U., or the A.A. and M.U., although he distinctly states that his pocket runs to about 5s. for tea, bed, and breakfast. Now this is about my own figure when on the move, and I think extremely few places to meet it will be found on either of the above lists.

The Cyclists' Touring Club caters for the man of limited means, and as the council of this body have recently shown

very plainly their determination to cater for motor cycling members by refusing to give publicity to the fulminations of a few hot-headed back numbers, motor cyclists might as well avail themselves of the very excellent handbook of hotels, *cafés*, boarding houses, and farm houses issued by the Club.

Another body issuing a guide book of economical hotels—mainly temperance—is the Commercial Travellers' Christian Association, of Aldersgate Street, E.C. They have a small monthly, called *Good Lines*, at 2d., which incorporates a very good list of hotels.

I trust this may help a few of your readers who find it necessary to watch carefully the "bawbees."

"AL 2162" will be well advised to take his holiday in July or September if he fancies the Yorkshire coast.

J STUART-WHITE.

A Lightweight in New Zealand.

Sir,—As readers of your journal, *The Motor Cycle* (to which, we may say, we always look forward, although received seven weeks after publication), and noting several remarkable performances by motor cycles of various makes, we thought perhaps you would be interested to know how the Levis motor cycle is faring in the colonies. We may say we have given this motor cycle a most severe testing, and it comes out with flying colours. Both in hill-climbing and reliability it has quite surprised us, although so small a machine. We have known it to take hills which an ordinary 3½ h.p. would not climb. We entered it in the New Brighton beach race (eight miles) on April 24th; it was the smallest motor cycle entered. Result, Levis 1st. On May 24th we again entered one machine against twenty-one, all powerful machines up to 7-8 twins. Result, Levis 1st; the only machine to make a non-stop run, and the smallest power entered, one firm alone putting ten 3½ h.p. machines in the race against one Levis. We consider that we are safe in recommending the Levis to anyone.

Christchurch, New Zealand. PITCHER BROS.

Carburetters and Flexibility.

Sir,—All motor cyclists will agree with your leaderettes as far as the necessity for greater flexibility is concerned, also that the lack of it is principally due to the type of carburetter at present in vogue; but I imagine very many will shake their heads at the suggestion that the solution lies in the automatic carburetter.

A truly automatic carburetter (if there is such a thing) should give a uniform mixture at all engine speeds; but no alteration can be made whilst riding to compensate for variations in the temperature of the engine or the atmosphere, or for whether the engine is running under heavy load or light. Imagine a machine facing a long steep hill that is just within its power; there are very few good riders who will go the whole way up without altering the air lever, though the throttle may not be touched, and the speed of the engine may be practically uniform.

Compromise in this, as in so many other motor matters, seems to me the best solution. As you point out, the need for the automatic carburetter is most felt in traffic, and if with a two-lever carburetter the engine can be made to tick along at 5 or 6 m.p.h. on top, and open up to 18 or 20 m.p.h. by moving the throttle only, very few riders will object to manipulating the air lever a little, above the latter speed; in fact, on the open road this adjustment adds zest and interest to the riding. This desirable result can be obtained by fitting some form of by-pass or pilot jet.

The poor running at low speed of the average motor cycle carburetter is due to the following: As the throttle is closed down, the rush of air round the jet is greatly reduced and insufficient petrol is drawn out; at the same time the suction in the inlet pipe greatly increases, because the engine is trying to draw mixture past the closed throttle; this causes air to leak in at any faulty joint on the pipe and up worn inlet valve guides, but if a by-pass or pilot jet be fitted, the increased suction in the inlet pipe will draw a sufficient quantity of rich mixture from it to counteract these defects. As the throttle is opened and the suction on the main jet increases, the suction in the inlet pipe is reduced and draws less of the rich mixture from the by-pass. This balancing action will maintain the quality of the mixture at the lowest speed. My experience has shown that with one of these devices fitted the air lever never needs closing below the best position for about 20 m.p.h.

FRED BADCOCK.

£30,000.

Sir,—Being in want of something to do one evening, it occurred to me that it would be interesting to know the total value of all second-hand machines advertised in *The Motor Cycle*. The result surprised me very much, as, excluding new and shop-soiled machines, also sidecars and miscellaneous articles and machines for which offers were wanted, but including cars and cycle cars, the figures were over £30,000. These figures should prove the value of *The Motor Cycle* as an advertising medium, bearing in mind that there would be several more thousands to add if everything was included.

B. C. HARVEY

Wear of Bearings.

Sir,—The article on "Wear of Bearings" in your issue of June 26th was most interesting, if only on account of the inference by "A.M.I.C.E." that practically any alloy, or even a lead bearing, would give the satisfactory results looked for, if efficiently lubricated. In this I cannot believe that he is serious. May I suggest that, so far as the bearing itself is concerned, it is most important to use the alloy of phosphor bronze or white metals most suited to the purpose required, and to cast this in such a manner as will eliminate segregation; that is, give a close even grain to the bearing structure. Such bearings are now being produced and used most successfully in the motor industry. Still the point is that we must lubricate and lubricate efficiently, and in regard to that I am glad to have the opportunity of endorsing all the remarks of your contributor.

A.M.I.MECH.E.

Is the Three-wheeler a Cycle Car?

Sir,—It would be interesting to know whether the A.C.U. definition is to be maintained and whether the three-wheeler will continue to compete with cycle cars. The A.C.U. definition explicitly includes three-wheelers. The C.C.C. in its hill-climb excluded them. The B.M.C.R.C. also excludes them in the Six Hours' Trial—the consolation race for cycle cars which have not entered for the Grand Prix. The latter club has gone a step further and does not allow three-wheelers over 1,000 c.c. to compete at all. On the other hand, the Cycle Car Cup for the hour record and all records at Brooklands are open to cycle cars which come under the A.C.U. definition. So also were the Hereford Cup, the Shelsley Hill-climb, and the Porthcawl Speed Trials—all won by three-wheelers.

The term "cycle car" was invented to denote a light, inexpensive machine—the missing link between the cycle and the small car. If the lightest and least expensive type be excluded the term becomes meaningless.

We have always maintained that the three-wheeler possesses advantages which the four-wheeler does not share in an equal degree. We are glad that this is now acknowledged by the admission that (we quote *The Motor Cycle*) "it is only natural that a three-wheeler should beat a four wheeler of equal power"—and therefore natural, perhaps, that some manufacturers of four-wheelers should wish to have a little class all to themselves. H. F. S. MORGAN.

One of the latest model water-cooled Chater-Lea cycle cars on the Sussex Downs near Brighton

Tyres and Accessories in the T.T.

Sir,—Replying to the letter from "Further Interested" in the issue of July 7th, I think the following may help to enlighten this gentleman on the points he raises. In the first place, as a racing competitor of some experience, I can give the denial direct to the statement that men would use any tyre, no matter how poor the quality, provided the inducements offered were sufficiently large. This must appear ridiculous to anyone who knows anything about the game, because the prizes offered by manufacturers are only given in the event of the competitor being successful. Therefore unless the rider knows something of the quality and reliability of the tyres he is asked to ride, he is certainly not going to risk his neck for a remote chance of success under any consideration. If "Further Interested" has ever taken part in any of the big racing events, such as the T.T., he will have some idea of the huge expense competitors are put to, and undoubtedly, were it not for the support given by manufacturers, many of the most brilliant riders would be unable to compete.

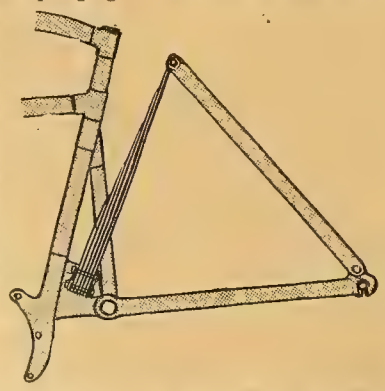
With regard to the last paragraph of his letter, I think your correspondent shows considerable bias. He states that there are "dozens" of various makes of British tyres on the market of far better value than the foreign ones. I think pretty nearly every British and foreign make of tyre was represented in the T.T. race, and had equal chances, and I have yet to be shown how cash prizes offered by tyre manufacturers can affect the performance set up by their tyres in competitions. As to who ultimately pays for these prizes, I think that is a question which can best be answered by the manufacturers themselves, but the same question could be asked with regard to the large amounts spent annually in press advertising by every British and foreign tyre company, and without which their goods would have a very poor chance of getting on the market.

With regard to the remark that foreign makes of tyres have gained their reputations by fictitious means, I should like "Further Interested" to explain himself more fully on this point. In the interests of fair play, I must say that I have never come across an instance of this. "Live and let live" is a motto which "Further Interested" might well take to heart.

GORDON L. FLETCHER.

Rear Springing.

Sir,—I notice that in *The Motor Cycle* "Ixion" again discusses the topic of rear springing. I am therefore enclosing a sketch of a laminated rear springing device which I have provisionally patented. As you will see from the sketch, a set of quarter elliptic laminated springs is attached to each of the back down stays and fixed by their lower extremities to a special lug situated at the junction of the seat tube and the horizontal stays. This lug also carries the swivelling device for the last mentioned stays. An additional stay, which is suitably fixed to the seat tube, passes between the two sets of springs, and is then secured to the special lug. I might say that I shall be pleased to hear from anyone interested in the invention.



G. S. PATRICK.

Carburetters and Flexibility.

Sir,—I read with much interst your leading article on "Engine Flexibility" in your issue of July 10th, and feel that I must give your readers my experience of the Amac carburetter. My engine is a 6 h.p. a.o.i.v. twin, and my great difficulty, when first I had it, was to get good results from the carburetter then fitted, which was a well-known two-lever pattern. I was at last persuaded to get a carburetter of the automatic type, and I must say it would run slowly, but sudden opening of the throttle choked, and on slowing uphill the engine knocked badly and the absence of air control became apparent, insomuch that I was obliged to change down to keep going. My next purchase was an Amac, and the result has been remarkable

I always run with a sidecar, and my gear is a P. and M. 4⅛ and 8½ to 1. With an injection I can start in three yards every time perfectly cold, change up and throw my air right open, where I leave it, very often running twenty or thirty miles only using the gas lever. When I come to a bad hill, I can plug along on top gear for a long time by slowly closing my air. I can average with sidecar 28 m.p.h. for, say, fifty miles; my health prevents me keeping it up. I can run on top gear for miles at about 6-8 m.p.h., and on low gear slower than a telephone call. My consumption is about 50 m.p.g.

I know the Amac people do not claim their carburetter to be automatic, but personally, as a practical motor cyclist, I can tell your readers it is automatic in the best sense of the word, *i.e.* having always your air lever to fall back on in emergencies.

I need hardly say I have no interest whatever in the firm.

ERNEST MAYS.

Win, Tie, or Wrangle!

Sir,—I trust that you have not yet purchased the extra large w.p.b. alluded to in the leading article of last week, and that you will do me the favour to publish the enclosed letter. I have **already** addressed it to the editor of *The Field*, but to my very great surprise it has not been published.

"I see that in your report of the Wessex and Loanshire match that you state that I was bowled by Colin Barnes. This is, I consider, an aspersion upon my cricketing ability, and I should therefore be glad to see the following explanation in print.

In the first place, I was not ready and never saw the ball at all, nor did I attempt to play it. Secondly, it was plain to anyone that the ball was a yorker which broke both ways and would have bowled the best batsman. (This I think should have been stated in your report.) Thirdly, the sun being in my eyes, I mistook the ball for a half volley and tried to drive it past second slip. Fourthly, the umpire, who gave me out, was an obvious partisan and was not looking at the game, but at a girl amongst the audience. I noticed this just before shutting my eyes to hit. In view of this explanation, I trust the committee will see their way to grant me a non-stop certificate and a gold medal—I mean a century not out, instead of what is vulgarly called a 'blob.'"

A. R. ABBIT.

Benzole.

Sir,—Perhaps some of your readers will be interested to hear my experiences with benzole. I have now used it for some months on my 1911 P. and M. with sidecar for most runs.

At Whitsuntide we toured the Lakes. Total weight was about 24 stones (we carried all luggage and spare benzole); total mileage, 300 exactly; consumption, 3⅛ gallons! This result has not been faked in any respect by slow driving, as we have pegged on merrily most of the time.

I am confident that on fairly level country I could get 120 m.p.g. if I never exceeded the limit.

Now, as regards to power, it has converted my 3½ h.p. into 5-6, as I have passed most outfits on hills and on level. My engine knocks badly when using petrol, when changing to high gear, or on climbing hills, but I can drive all day long and never have to retard the ignition.

I have a Binks carburetter on my machine, to which I have fitted an extra air inlet (this before using benzole), as I thought it extravagant when running solo, as one never gets off the pilot jet except on hills, and the pilot jet is admitting a rich mixture according to Mr. Binks. My air inlet will allow extra air to engine on both pilot and main jet. I find that if I am going nicely on level at, say, 20 m.p.h. on pilot jet, I can get 25 m.p.h. by admitting more air, which proves conclusively that the pilot is extravagant.

A. ROBINSON.

A.C.U. Silencer Trials—Judges' Supplementary Report.

Sir,—We are pleased to note that the A.C.U. have at last published some data obtained at the bench test, but a perusal of these data, we feel sure, cannot but add confusion, as the judges anticipate, on account of the somewhat contradictory nature of the report.

The question is sure to be asked how it is that back pressure and engine speed are opposed instead of being in relation to each other. For instance, the third Clair silencer which we entered obtained the highest engine speed in the tests both on the slow and fast test, and yet against this silencer is recorded 0.37 lb. per square inch back pressure.

Our second Clair silencer obtained a somewhat less speed on both tests, but the back pressure recorded against it is only 0.27 lb. per square inch.

The Chase silencer failed to obtain such a high engine speed as our No. 3 Clair silencer, but it is credited with less back pressure. There is evidently no doubt of the correct recording of the engine speed, which, in other words, is engine power, and it appears to us that if the back pressure measuring instrument were also infallible the results recorded are against all text book theory and the general acknowledged principle, and, basing one's argument on the data of this report, one could say that back pressure tends to increase engine speed rather than decrease it.

This report of the bench test also opens up the point of the reliability of placing too much importance on the track test portion of the trials. In the track test it will be remembered that the Chase and Hutton silencers were credited with an increase of speed with their silencers fitted, whereas our No. 3 silencer was debited with a loss of 0.39 m.p.h., yet on the bench test this Clair silencer obtains a considerably higher speed than either of these other two silencers, and even less back pressure than the Hutton.

The judges have undoubtedly had a most difficult task in view of what cannot be considered other than contradictory data, and we think it is a pity that they have not seen fit to include in this supplementary report the proportion of marks allotted under different heads. For instance, what proportion of the marks were allotted to the track test, and what proportion to the bench test, and how were the data, obtained at both tests, reconciled with each other in view of the discrepancy which we have pointed out?

Now that the data are published we should like to mention publicly that the second and third Clair silencers which we entered were of *identical construction in every possible detail*, and we purposely entered these two identical silencers with a view of proving, for our own information, the reliability of the data, and we cannot but confess that we are startled at the considerable difference in the data reported for these two silencers alike as regard the engine speed, the back pressure, the marks for noisiness, and the total marks allotted.

From the commercial point of view we are quite satisfied, especially as the Clair silencer heads the list for power; but we looked to these tests to furnish us with what would have been valuable information for our workshop use had the results been, in our opinion, reliable.

J. C. LYELL AND CO., LTD.,
FRED G. GAUNTLETT, Manager.

Belfast v. Dublin.

Sir,—I notice in *The Motor Cycle* of the 10th inst. that particulars of the above event, held a fortnight ago, are published, and that, in common with other papers, you have been supplied with a report of an important contest, the actual results of which, up to the present date (the 11th inst.) have not been officially verified or announced.

The onus of making arrangements for this year's run lay with the Southern Centre (M.C.U.I.), as Dublin was the starting point, and it was understood, as per custom, that the last pair of riders would collect and bring with them the returns of the secret and open checking stations; but as the returns from those stations controlled by the Southern Centre were not forthcoming, when the run terminated at Belfast, it was found impossible to hold a joint meeting of Ulster and Southern Centre representatives to examine and check the returns by which the result would be known; it was therefore left to the acting secretary of the Southern Centre to furnish the check sheets of the controls under his jurisdiction, but as these, for some reason, are still withheld, the actual result of the inter-city contest still remains in abeyance, and will do so until the Ulster Centre Committtee is afforded an opportunity of going over the returns, etc. Much to their surprise, while waiting for such, a Dublin newspaper published an account of the run, giving times and figures so manifestly one-sided as to leave no doubt that the Southern Centre riders had virtually a walk-over. Later on *The Irish Motor Cyclist*, in a more modified article, claimed victory for the Dublin men. No notice was taken of these statements by the Ulster Centre Committee pending the receipt of the checking returns from the acting secretary of the Southern Centre, who, though written to several times, has not replied. When, however, *The Motor Cycle*, the leading journal of motor cycling matters, has been furnished with particulars, etc., that still require full and proper verification, I feel it incumbent, as head of the Ulster Centre, and on behalf of its committee, to write and give you the actual facts, and also a contradiction of what has already appeared in the press. Until the committee of the Ulster Centre have had before them all the documents or records of the run for their inspection and satisfaction, the result cannot be pronounced; in this case a victory has been claimed, but as yet the proofs that it was one are still wanting.

Trusting to your courtesy and impartiality to give publicity to this letter in your next issue, and thanking you in anticipation,

R. G. LINDSAY,
President of the Ulster Centre M.C.U.I.

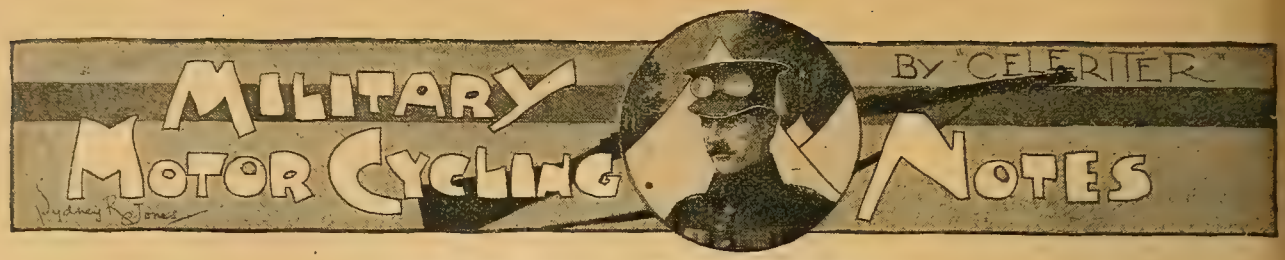
Hill-climbing Formulæ.

Sir,—I trust you will be able to find space for the following letter, although it is rendered perhaps unnecessary by your editorial comments, which certainly show that my formula gives valuable results, and by your remarks in regard to incorrect data. In the first instance, Mr. Morgan's letter is, of course, very reasonable, as he has been misled by the printing of wrong figures, and he is quite right in pointing this fact out. I would remind him that if the constants are chosen correctly, and it is quite easy to produce an equation to give these constants if necessary, the formula gives very satisfactory figures indeed. It would appear that Mr. Feeny has also taken the wrong figures for granted, and, I am afraid, it is excusable, because he had no other figures to see; but it is surely fairly obvious that, when this inaccuracy is removed and the correct figures taken for the Chota, the results are very regular, and, to a great extent, what one would expect by using commonsense. As regards what Mr. Feeny is pleased to call the theoretical aspect, I would point out that he has not read my original letter, which was not published in full as it happens, as it was written in the first instance to correct an error which stated that *The Motor Cycle* formula was to be used for the hill climb. It is perfectly easy to regulate the constants by means of another formula, but this is really quite unnecessary, because it is distinctly stated that the constants are chosen to suit the capacities of the machines and the length of the hill. May I suggest that, if Mr. Feeny would choose K equal to 200, then he is not a suitable person to select constants for formulæ; of course, I do not mean this seriously, but I just want to show how ridiculous it is to make comparisons based on entirely incorrect assumptions.

In your interesting article on formula on another page you point out that the time factor depends on the average speed of the machines, which is yet another argument in favour of my formula. Again, your contributors both talk about big differences, but, considering the differences on my formula are *actually less than those with the old formula*, I think that this statement will speak for itself. The results on my formula are distinctly interesting, and if they are plotted against calculated horse-power they provide some most valuable data. On the old formula Morgan machines would have won all through; but, in spite of the excellence of this make, I do not think that it can be denied that the order of relative merit as seen from the formula used is perfectly just. It is ridiculous in the extreme to use the same formula for long hills as for short, so that the time factor is allowed to control absolutely everything, and it is equally absurd to neglect the fact that a small capacity engine making not such a very much slower climb than one of more than double the capacity certainly deserves to score on formula.

I must honestly say that as the comments appearing on this subject are based on absolutely wrong figures it is only to be expected that they would be somewhat wide of the mark, and their writers are more than justified in drawing attention to this fact. Apart from this, they provide very excellent proof of the correctness of my formula.

A. W. LOW, A.C.G.I., D.Sc., ETC.



THE MOTOR CYCLIST RESERVE.

THE recent *communiqué* from the War Office, published in *The Motor Cycle* a few issues ago, roughly outlined the scheme under which motor cyclists may join the army, but we are now enabled to give details regarding the matter.

As regards the London district, officers have been appointed to form the Motor Cyclist Reserve Committee.

Alternatives.

There are two schemes under which motor cyclists may serve their country.

Class I.—Motor cyclists required for duty with units of the Army Signal Service, Expeditionary Force.

Class II.—Motor cyclists required for service with units of the Territorial Force. While, in addition to the above, a motor cyclists' section (special reserve) has been formed of the Royal Engineers.

Before going into details representing each of these three classes, it is necessary to deal with the matter generally. In order to provide the necessary organisation for finding the *personnel* required, it has been decided to form committees in the different commands in Great Britain and Ireland.

Twelve committees will be formed, one in each Territorial Divisional Area in England and Wales. In Scotland there will be three committees. In Ireland two committees will be formed. The committees are to be composed of one or more military officers appointed by the general officer commanding-in-chief, preference being given where possible to officers having a knowledge of motor cycles; representatives of the principal motor cycle unions or associations in the districts, and, where necessary, representatives of the county associations. A military member and representative of a county association (if serving) will act as joint secretaries.

Special Requirements.

Candidates desirous of joining must have their motor cycles inspected and fill in the required certificate on an Army form. The certificate will then be passed in the case of a candidate for the Special Reserve to the officer in charge of the Royal Engineer Records, and in the case of a candidate for the Territorial Force to an officer of the Territorial Force Association of the committee. In the case of a special reservist the candidate must be medically examined.

As regards the Royal Engineers, Special Reserve, Motor Cyclist Section, the following arrangements have been approved.

In peace each detachment is attached to a unit of the Army Signal Service. For the purpose of administration and mobilisation the Motor Cyclist Section will be under the officer in command of the Royal Engineer Records. Officers will not be promoted above the rank of lieutenant.

Terms of Service.

The conditions and terms of service for officers will be similar to those laid down for Royal Engineers, Special Reserve. Their probationary training will consist of fifteen days' continuous training, to include pistol exercises and practices, with the regular signal unit to which they are attached. The annual training will consist of fifteen consecutive days' training, while officers may, in addition, with their own consent, be employed on military duty with the unit to which they are attached, or with any regular Special Reserve or Territorial Force unit. The officers will wear uniform of the Royal Engineers' pattern, and, in addition, will provide themselves with drab waterproof overalls, brown gauntlets, and goggles of a suitable description for use with motor cycles. They will be armed and equipped as mounted officers of the Royal Engineers with the exception of sword, saddlery, and spurs. The pay during training for special service will be the same as an officer in their rank in the Royal Engineers, Special Reserve. They will also draw the motor cycle allowance and travelling allowance under certain conditions. A certificate of proficiency at their trade will be required of men before their enlistment to fill vacancies as motor cycle artificer-corporals. Recruit training will be not less than seven nor more than fifteen days' continuous training. The annual training will be the same as for officers. Non-commissioned officers of the Motor Cyclists' Section, when training or on special service, will draw the same allowance as non-commissioned officers of corresponding rank in other branches of the Royal Engineers. Motor cycle artificer-corporals will receive pay at the rate of three shillings per day.

Expenses.

To cover the cost of petrol and wear and tear, and all liability for damage, an allowance of 8s. per day will be granted. Travelling allowance: Motor cyclists when joining for annual training or other military duty will, if they proceed by motor cycle, receive an allowance at the rate of 1½d. per mile, provided they travel by the shortest route and that the allowance does not exceed the expenses, first-class for officers and third-class for a man, which would have been incurred had they proceeded with their motor cycles by rail. Officers and other ranks will be required to submit their motor cycles for inspection before being permitted to join the Motor Cyclists' Section of the Royal Engineers, Special Reserve, and a further annual inspection will be carried out in the spring of each year. These inspections will be arranged for by the Motor Cyclist Reserve Committee of the district in which the motor cyclist resides. Penalties have been instituted for those who fail to turn up for inspection with their machines, or if the machines are not in a serviceable condition when inspected.

Mobilisation.

On receiving an order to mobilise, motor cyclists will report where ordered, bringing with them their machines fully equipped. Each motor cycle will then be inspected by the officer to whom the motor cyclist has had orders to report himself, who may take it over at a valuation or replace it by a new one. The motor cyclist must state the original price of the machine and the date of purchase, and produce a receipt, etc. On the motor cycle being taken over by the Government a reduction of 10% of the original cost will be made for the first year since purchase, and a further reduction of the original cost for each subsequent half-year or part thereof. The price paid will not be less than 30% of the original cost of the motor cycle.

Half the above equipment will be provided by the War Department and the rest must be provided by the motor cyclist himself.

Types of Machine.

Motor cycles must be of a well-tried and approved make, of which adequate stocks of spare parts are available in the country. They must be fitted with variable speed gear and magneto ignition. The wheels must be 26in. in diameter, with not less than 2¼in. tyres, for machines with engines of 500 c.c., and not less than 2in. tyres for machines with engines of 350 c.c. Engines to be single-cylinder of about 500 c.c., with dimensions of not less than 84 mm. bore and 84 mm. stroke. A certain number of horizontal twin-cylinder machines will be accepted. The magneto must be efficiently protected from the wet, and preferably of the waterproof type. The magnetos should, where possible, have interchangeable base and drive. Spring forks must be fitted, and the screw threads used should be standardised as far as possible. Lamps and generator to be fitted with brackets

The Motor Cyclist Reserve.—

for attachment to the machines. If a belt is used it should have the standard angle and section of ⅞in. or 1in. Spare parts must be carried, and the machine must be fitted with a suitable valise or bag for carrying personal kit. The machines must be effectively silenced.

The list of spare parts to be carried for annual training is as follows:

One valve, complete with spring, washer, and cotter.
One sparking plug.
Tyre repair outfit, including spares for valve.
Spare inner tube.
Spare belt and fasteners if belt-driven.
Spare links if chain-driven.
Selection of nuts and washers.
Two valve cap washers.
Any special spare parts required for particular type of machine.
Complete set of tools.

Two gaiters for tyre repair, and, when on war service, a complete set of spares for magneto and spare chain where chain-driven. A spare outer tyre cover for each motor cycle will be carried by signal units.

Arrangement of Detachments.

With regard to Class 1, the section will in peace be formed in detachments attached to a unit of Army Signal Service.

As regards Class 2, recruits on final approval will at once be appointed lance-corporals (unpaid), and will be eligible for subsequent promotion to the rank of corporal and sergeant.

The regulations for the Territorial Force as applied to the arm of service into which the motor cyclists are enlisted will apply to them with the following modifications:

Recruit drills will be confined to twenty drills, including pistol exercises and practices.

Annual drills will be confined to the annual course in pistol practice

Motor cyclists will be armed with a pistol, and equipped with a brown leather belt, holster and pouch.

Motor cyclists will be allowed 8s. a day during training or other special duty, but not during drills.

In aid of the cost of conveyance to and from the place of annual training, the following grants are made:

	s.	d.
For motor cycles, not exceeding 12 miles ...	1	0
Exceeding 12 but not exceeding 25 miles ...	1	6
Exceeding 25 but not exceeding 50 miles ...	2	0
Exceeding 50 but not exceeding 75 miles ...	3	0
Exceeding 75 but not exceeding 100 miles ...	4	0
For each additional 50 miles or portion thereof	1	0

Motor cyclist artificer lance-corporals will be paid in the following way:

	s.	d.
Yeomanry and Royal Engineers	2	0
Cyclist Battalions	1	9

Territorial Motor Cyclists.

During peace motor cyclists will be required to provide and maintain their machines in order, and on joining must present their machines for inspection. Motor cyclists on coming up for annual training will be required to produce their machines in a serviceable condition. The same arrangements exist as regards the valuation of motor cycles and providing new ones.

The establishment of motor cyclists allotted to units of the Territorial Force is interesting. It is arranged as follows:

Regiments of Yeomanry allotted to mounted brigades	8
Divisional Telegraph Company	8
Wireless	4
Cable	5
Air-line	3
Cyclist Battalion	17

The regulations with regard to the standardisation of motor cycles are the same as for the Royal Engineers' (Special Reserve) Motor Cyclist Section, except that motor cyclists of the Territorial Force may join with machines of twin-cylinders and with greater capacity. The list of spares are the same, except that a piston ring must form part of the equipment. Motor cyclists are to be supplied with thirty-six rounds of ball ammunition, the allowance for practice being a hundred rounds for the first year and fifty for the second.

Suggested Coventry Testing Track.

A MOVEMENT has been set on foot in Coventry by a committee of the Motor Cycle Manufacturers' Union to bring into being a track for the general use of the trade. It is proposed that the track be constructed about forty feet wide and to the scale of one mile to the lap, and that it be entirely managed and used for the benefit of the various companies engaged in the manufacture of motor vehicles.

It is not intended to use the proposed track in any way for racing, nor is it at present proposed to construct it for public use. Therefore, the movement is of no direct interest to the motor cyclist of the "nut" variety. But we need hardly point out that such a scheme would ultimately prove of enormous benefit to the great body of motor cyclists.

At the present time it is necessary for a firm situated in the Midlands, where the majority of motor cycle manufacturers are to be found, to adopt one of two methods for trying out any new ideas they wish to incorporate in their models. One is to go to great expense by utilising Brooklands, which is too far from their base of operations, the other to put the material under trial into the hands of their testers and allow them to take it out on to the public roads, and act eventually on the information which can be gleaned from their reports.

The Difficulty of Adequate Testing.

Given a really capable, conscientious tester, this method is satisfactory, but such testers are not to be found in abundance, and each factory may count itself lucky if it possess one such Admirable Crichton. The test cannot always, under such conditions, be carried out under the eye of the works manager or designer, and the presence of such a testing track as proposed would be perfectly ideal for the purpose of the acquisition of knowledge about any alteration of design. Each firm would have its own little depot on the track, and the testers would be immediately under the eye and control of a responsible official deputed by the factory for that purpose. Such a plan would also free the Midland roads of a swarm of motor cycles which, to speak plainly, are not invariably ridden with all the care they might be. The comparative absence of accidents in the Coventry, Birmingham, and Wolverhampton districts is probably due more to the wonderfully clever handling of the machines by the testers than to the fact that any great care is shown.

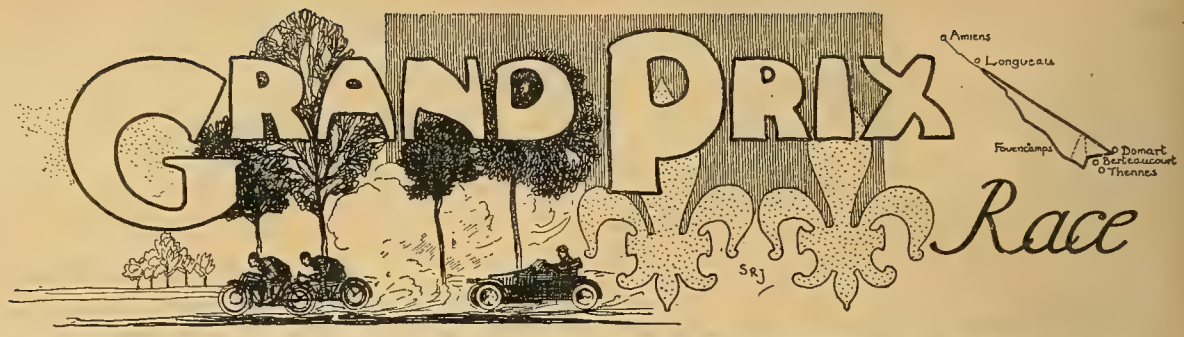
The Financial Aspect.

A great saving of time in placing new ideas in the hands of the riding public would be effected if the tests could be carried out on a special track, and the small inventor would have a far rosier chance of his ideas being tested if the trial could be made quickly under the superintendent's eyes on the testing track.

The financial aspect in this project is, as in most other schemes, the crucial matter. We understand that about £20,000 would be required to launch the scheme satisfactorily. It is proposed to form a limited company, the shares to be subscribed by interested manufacturers. Those using the track would, of course, pay a *pro rata* sum according to the number of machines which were tested. Provided these matters can be fairly adjusted, and a suitable site secured, there is little doubt that such a project would be to the ultimate benefit of both the manufacturer and the private user.

A similar project is on foot in Wolverhampton, two schemes having been suggested, one similar to the proposal at Coventry, at an estimated cost of £13,000, and a more ambitious idea on the lines of Brooklands to cost about £150,000, where, of course, race meetings and competitions would be held.

The GRAND PRIX Race



The Grand Prix races were run off on Sunday last on the triangular course near Amiens. The feature of the day's racing was the overwhelming victory of the British machines and riders. In the 500 c.c. class the success of our products was extraordinarily complete, the French only getting one machine home among the first eight. In the class for sidecars and cycle cars, a British victory was also achieved, while in the motor cycle class for machines not exceeding 350 c.c., Britain was fourth but the winning French machine in this class was ridden by an Englishman.

Length of course: 10·86 miles { Motor Cycles: 20 laps = 217·2 miles. Sidecars and Cycle Cars: 15 laps = 163 miles.

THE preliminary stages of the race proper began on Friday last when the weighing and examination of machines took place. The Grand Prix cars, as well as the motor cycles, were attended to, consequently there was a big crowd present. Racing is done thoroughly well in France. Several fields were specially chartered, in which were erected special lock-up cages for the machines, a telegraph office, telephones, tents, restaurants, lavatories, and four big stands.

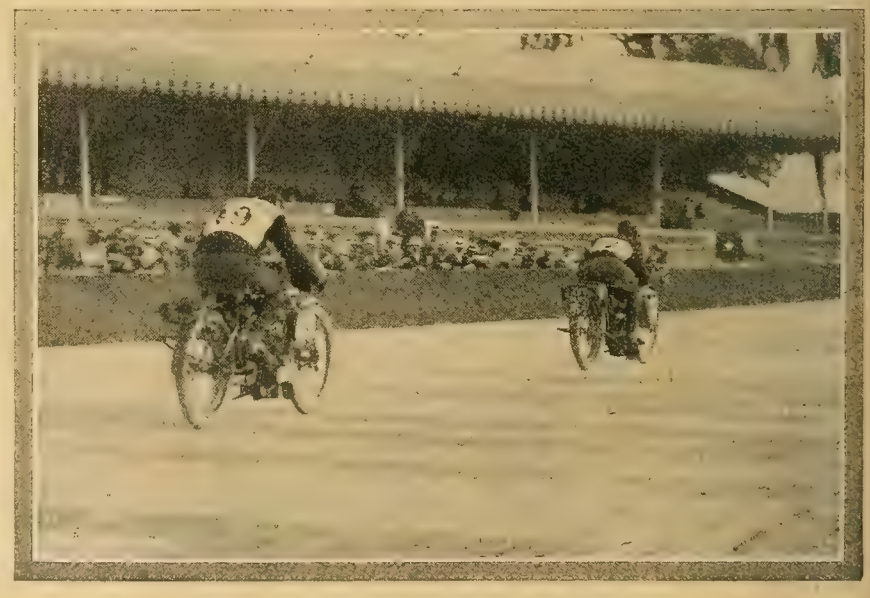
In front of the stands a special road of concrete surface had been made, and depots for replenishment arranged immediately in front.

The chief trouble in the inspection of the motor cycles was the removal of cylinders to check bore and stroke, but all were found according to entry, and weights were added in the case of those not up to the minimum. Several late arrivals duly reported themselves, including Esser and his Mathis, Mundy's Morgan propelled by a twin Green-Precision engine, and Nash's G.N., the trio of Triumphs, and Alexander's Douglas all these not having practised on the course. Paul (Clément) that morning suffered a bad fall owing to taking his hands off the bars to show a friend how easily his machine steered. Harry Reed was using a Swiss engine, and had the misfortune to damage the timing gear, and he was unable to get spares in time. The competing machines looked a workmanlike lot, and gave promise of a good race. The four-cylinder Marlborough had some difficulty in getting within the weight limit.

START OF THE RACE.

The motor cycle race started at 6 a.m. in glorious weather. Both classes were sent off together in groups of four. The French have clearly done us the compliment of following as far as possible the Auto Cycle Union system of organising the start of a motor cycle race. Each man wore a coloured waistcoat with his number on the back. These were the international colours: England, green; France, blue; Switzerland, red. There was not quite the same perfect order as at Douglas, but the organisation was good, and there is no doubt that such experienced officials as the Chevalier René de Knyff, Comte de Clerc, and M. Longuemare certainly handled the start well. Most got away in good style. From the press stand one got a splendid view of the start and the first half-mile of the course. The cornering, too, at each end of the connecting "legs" of the course, which is cemented and banked slightly, was most interesting to watch. The interior is banked with a cinder heap of coal slack so that in case of accident practically no damage can ensue. Each "leg" of the triangular course (17.50 kilometres) is in good order and has not suffered much from the car race. That on the north is best, but the westerly connecting road is narrow and not too smooth, and the corners at each end are bad. As regards the home stretch the turns entering and leaving Boves are tricky, and the surface in the village very rough. After all the riders had been despatched Alexander (Douglas), first to appear, took the bend without cutting out, a performance which few others dared emulate. In fact the cars found these corners far more difficult than the motor cycles. Dacier (Alcyon) came by slowly, followed by a group who were travelling well, consisting of Kickham (Douglas), Fenton (Clément), Vulliamy (Motosacoche), Fenn (B.S.A.), Ball (Douglas), and Millaud (Motosacoche). Griffith (Zenith) then appeared, passing Lamb opposite the stands. Pélissier then came in to effect an adjustment to his magneto. Cisey (N.S.U.) had a narrow escape from a fall, Lehmann (Alcyon) and Cuzeau (Terrot) stopped through tyre troubles. Dacier's Alcyon was squeaking somewhat as it passed the Tribunes.

When the times were put up it was seen that Fenton (Clément) was leading in the 350 c.c. class, and Lavanchy (Motosacoche) at the head of the 500 c.c. riders. Fenton had averaged 87.500 kilometres an hour. As soon as the first lap times were posted there was made an anouncement that the leaders' times only would be published and the number of laps accomplished by the others. It is interesting to note that the arrival of each competitor was announced by soldiers mounted on a watch tower by means of a bugle.



A. G. Fenn (B.S.A.) and Baudry (Griffon) passing the stands.

A. R. Abbott (Rudge) and A. Clayton (Triumph) passing through Boves. The roads were very uneven hereabouts.

The first lap order and times were as follow:

350 c.c. Class.

		m.	s.
1.	Fenton (Clément)	12	41
2.	Vulliamy (Motosacoche) ...	12	47
3.	Alexander (Douglas)	13	28

500 c.c. Class.

1.	Lavanchy (Motosacoche) ...	12	14
2.	Perrin (Peugeot)	12	22
3.	Sproston (Clément)	12	35

In the 350 c.c. class, Ball (Douglas) was running sixth and Kickham (Douglas) ninth. In the 500 c.c. class, Greene (Rudge) was fourth, Abbott (Rudge) fifth, Ravelli (Premier) sixth, and Cheshire (Triumph) seventh. On his third lap, Péan, the hope of the Peugeot team, had his front wheel come adrift at the corner, which, of course, threw him, but without causing damage to himself. Naturally, after this he retired. The cause of this trouble was a broken spindle. Cisey, who had a narrow shave from falling on his first lap, managed to tumble properly on his fourth, this time at the left-hand corner near the grand stand. Sproston (Clément), who held a leading position, unfortunately broke a chain. Lavanchy up to his sixth lap had averaged 87 kilometres an hour. Abbott was soon again in trouble with his tyres, and stopped opposite the depôt and took his wheel out. Lehmann (Alcyon) also had tyre troubles. Lamb, the Premier rider, who had taken Holloway's place, suffered a burst tank. In the fifth lap the order stood as below:

At quarter distance.

350 c.c. Class.

		h.	m.	s.
1.	Fenton (Clément)	1	5	22
2.	Royer (Clément)	1	7	3
3.	Vulliamy (Motosacoche) ...	1	7	39

500 c.c. Class.

1.	Lavanchy (Motosacoche) ...	1	0	51
2.	Greene (Rudge)	1	4	44
3.	Cheshire (Triumph) ...	1	5	13

Of the other English competitors in the small class, Ball (Douglas) was sixth, Alexander seventh, and Kickham eighth. In the 500 c.c. class, Fenn (B.S.A.) was fifth, Woodhouse sixth, and Isodi seventh, also on B.S.A.s; Clayton (Triumph) was eighth. Griffith (Zenith), Newsome (Triumph), and Darmont (Zenith) were low down in the list.

During the racing several aeroplane pilots soared above the course, and executed some splendid flights. Rowlandson (Rudge) stopped several times owing to plug and valve troubles, while Lavanchy (whose splendidly running Motosacoche appeared to be bringing him to certain victory) suddenly developed valve gear trouble, and though he worked hard and long before the depots he ultimately had to give up the race.

An interested spectator, who is still tremendously keen on motor cycle racing, though he no longer rides a two-wheeler, was the Austrian, Count Kolowrat. He spent a long time conversing with Davis, the Douglas agent in Paris, and was talking of buying an engine from him to put in a cycle car.

When the tenth lap times were published Fenton was again well ahead, and the following was the order of the leaders; but in the 500 c.c. class Greene (Rudge) was now leading:

350 c.c. Class.

		h.	m.	s.
1.	G. Fenton (Clément) ...	2	10	44
2.	Vulliamy (Motosacoche) ...	2	17	11
3.	Millaud (Motosacoche) ...	2	19	22

500 c.c. Class.

1.	Greene (Rudge)	2	10	17
2.	Vulliamy (Motosacoche) ...	2	17	11
3.	Perrin (Peugeot)	2	13	33

In the 350 c.c. class, Ball (Douglas) was running fourth, and Kickham sixth. In the large class, Cheshire took fourth

J. W. Woodhouse (B.S.A.) overtaking Millaud (Motosacoche) at the right angle turn at Tracy.

Sproston (Clement), Ravelli (Premier), and Franquebalme (Terrot) racing past the grand stand.

place, Clayton (Triumph) fifth, and Sproston (Clément) sixth. Fenn (B.S.A.) dropped back to seventh place, while Rowlandson was running eleventh and Newsome twelfth.

Tyre troubles were pretty frequent. Newsome started quite early with this exasperating type of *panne*, and changed his cover. Fenn, who had been running well in the early part of the race, and appeared to have a good chance of winning, twice had to change a valve owing to loss of compression. Alexander had to retire owing to valve trouble; he was also suffering from difficulty with a new type of adjustable pulley, which continually caused the belt to bottom. By the time the fifteenth lap times were published a good many men had fallen out, and among those reported as retired were Alexander, Loubier (Debeaune), Naas (Griffon), and the ill-fated Lavanchy. The following table shows the progress of the race at the end of the fifteenth lap:

350 c.c. Class.

		h.	m.	s.
1.	Fenton (Clément) ...	3	18	57
2.	Vulliamy (Motosacoche) ...	3	25	59
3.	Millaud (Motosacoche) ...	3	30	13

500 c.c. Class.

1.	Greene (Rudge)	3	16	49
2.	Fenn (B.S.A.)	3	22	5
3.	Cheshire (Triumph) ...	3	22	23

As regards the other English competitors in this lap, Clayton (Triumph) was fourth, Isodi, who, though French, was riding a B.S.A., 5th, Abbott (Rudge) 6th, Woodhouse (B.S.A.) 8th, and Rowlandson (Rudge) 9th. It was drawing near the end now, and though the English machines were quite out of the running in the 350 class they were doing exceedingly well in the 500 category.

Fenton, who had completed the course with only one stop, ran along the special track at the finish after his magnificent ride, but Greene, who had not been signalled to and did not know the ropes, pulled up at the depot. It was a fine race, keenly contested, and a great British triumph.

Result.

350 c.c. Class.

		h.	m.	s.
1.	Fenton (Clément)	4	27	41
2.	Millaud (Motosacoche) ...	4	38	0
3.	Vulliamy (Motosacoche) ...	4	41	31
4.	Ball (Douglas)	4	54	56
5.	Verpault (Terrot)	5	2	25

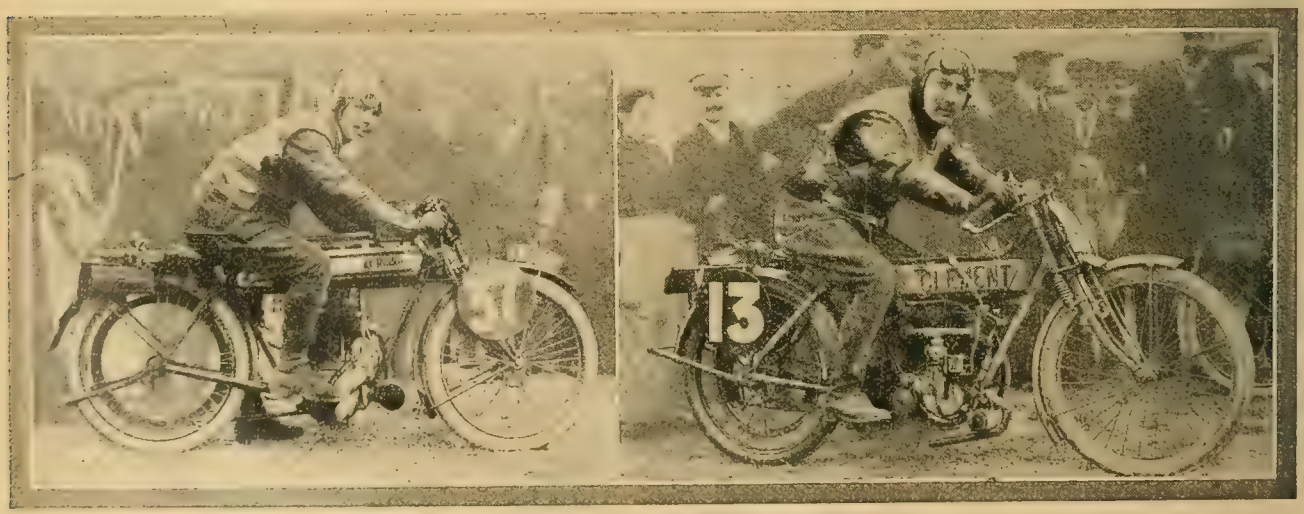
500 c.c. Class.

1.	Green (Rudge)	4	22	55
2.	Cheshire (Triumph) ...	4	26	29
3.	Fenn (B.S.A.)	4	30	58
	Clayton (Triumph) ...	4	34	5
	Perrin (Peugeot)	4	41	9
	Isodi (B.S.A.)	4	45	19
	Abbott (Rudge)	4	59	4
	Rowlandson (Rudge) ...	5	2	23
	Cisey (N.S.U.)	5	10	0
	Baudry (Griffon)	5	13	55
	Newsome (Triumph) ...	5	19	16
	Griffith (Zenith)	5	25	42

Woodhouse (B.S.A.), who was well up in the sixteenth lap had to retire owing to a broken piston ring. Sproston's withdrawal was caused by a broken valve.

The riders had not impressed the spectators by their speed capabilities, about a mile a minute seeming to represent the best top speed of any competitor, which is difficult to explain as the roads generally were excellent and quite straight, and owing to the absence of hills a high gear was used by most riders. Some put it down to the heat. It should be added that the 350 c.c. machines were up to their usual form.

The first five riders in order of speed were British.



THE TWO WINNERS IN THE GRAND PRIX MOTOR CYCLE RACE.

(1) T. E. Greene (3½ h.p. Rudge), leader of Class II. for 500 c.c. machines. (2) Greame Fenton (2¾ h.p. Clement), winner of Class I. and third fastest of the day.

Isodi (B.S.A.) at speed.

IN THE DEPOT.

The replenishment depot is the spot for incidents during a race, and in the French Grand Prix one can see everything and follow the race closely, as the scoring board is arranged immediately behind the pits from which the attendants handed competitors all they require. Newsome was amongst the first to stop, reporting a burst tyre, as a result of which he was hurled into the ditch. He took the precaution to change. The course being so short, the riders were continually round, and the trumpeter had quite a busy time announcing by continual blasts the approach of a competitor. Péan (Peugeot) and Lavanchy were very fast, but the surprise of the day was Greame Fenton's Clément, with M.A.G. twin engine, which ran splendidly. Alexander, who started first, was going strong, and kept his lead for a few laps, when trouble assailed him. It appears that he was using a new adjustable pulley, which continually opened out and lowered the gear considerably and caused his belt to slip. Punctures were a bugbear; several had to stop for spare tubes. There had been talk overnight of steel studs being scattered over the course from the car races of the Saturday. Péan's spill near the grand stand owing to a broken front spindle might have been more disastrous; it was very bad luck, seeing that his new side by side valve twin Peugeot was pulling splendidly.

French Methods of Riding.

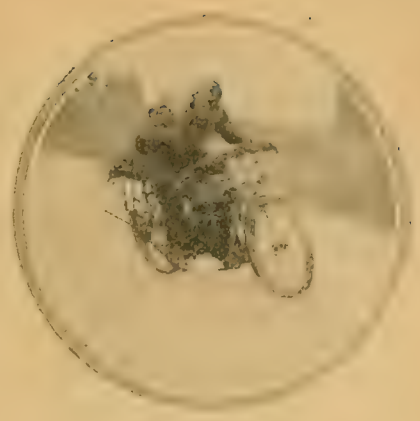
Some of the French riders adopted queer attitudes—one foot on the pedal and one on the footrest was quite usual. They showed signs of excitement on the corners, when they often used their feet to brake instead of the brake pedal. Several times three or four would pass the depot in a bunch. In one of these Clayton (Triumph) showed up well. Greene, the ultimate winner, stopped on his seventh lap for petrol and oil, and the next time round led from Fenton by half a minute. The speed of the 350 c.c. Clément was the talk of the day, and more than one quaked lest it should head the 500 c.c. machines.

The Frenchmen were taking the race very seriously, and practically all had a system of signalling to and from their attendants. Griffith was riding steadily on the Zenith, but had to stop for oil and also changed a belt. He complained of his engine drying up on the level. Lavanchy (Motosacoche), who won the last French race, was in trouble, for his engine would only fire on one cylinder. He shook his head ruefully as he overhauled each part in an endeavour to right matters. Abbott's Rudge did not appear up to his usual form—he told us it varied in speed most unaccountably. Rowlandson had to change his plug more than once. Gradually Greene (Rudge) drew away from Fenton, but the latter, who resides in France, was a great favourite and always came in for a cheer from the crowd. The B.S.A.'s and Triumphs were close on their heels, and only one stop was wanted to alter all the positions. Fenn replaced an exhaust valve in the depot. Woodhouse (B.S.A.) and Cheshire (Triumph) in particular were riding in promising style; 3m. 25s. separated Greene and Fenton at the completion of the fourteenth lap. Vulliamy (Motosacoche) had, however, crept nearer to Fenton, but still had 6m. leeway to make up. The crowd was much larger towards the finish, and it was now plain that a decisive British victory would be the outcome.

Timing gear trouble caused Pelissier's (Motosacoche) retirement. The positions were little altered in the later stages. At the seventh lap three minutes only separated the leaders of 350 c.c. and 500 c.c. classes. Both got a cheer as they entered upon their last lap, Fenton getting home first, Greene half a mile behind, though actually faster time, as he started after Fenton.

THE WINNERS.

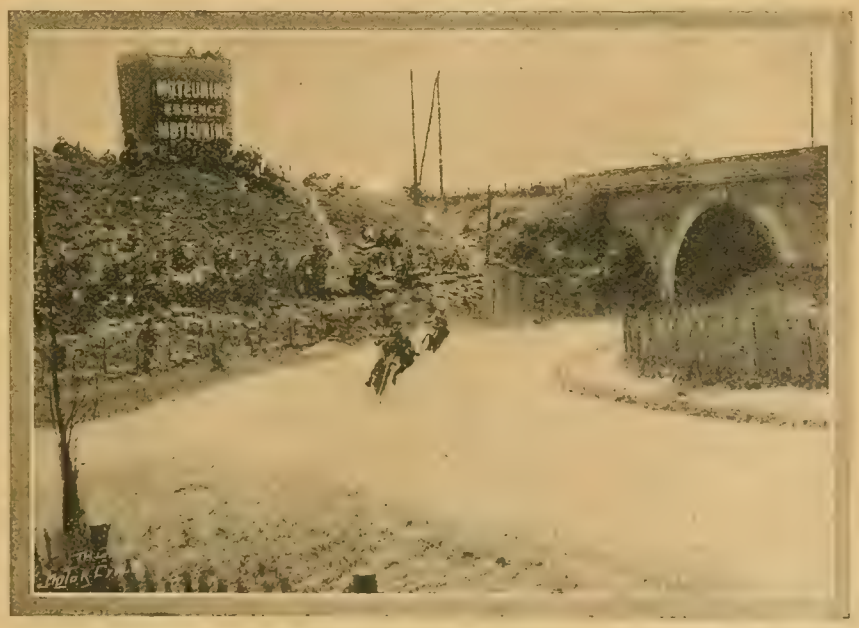
The winner of the 500 c.c. class, Thomas E. Greene, of Dublin, rode in the T.T. He enjoyed a non-stop run throughout, and stopped twice only for petrol and oil. His T.T. Rudge had a 4 to 1 fixed gear. Asked what he thought of the course, he replied that he considered the corners at the end of the by-road were most trying. The bumpy road surfaces—in Boves, for



Greame Fenton, an English rider of a Clement-M.A.G. rounding a bend.

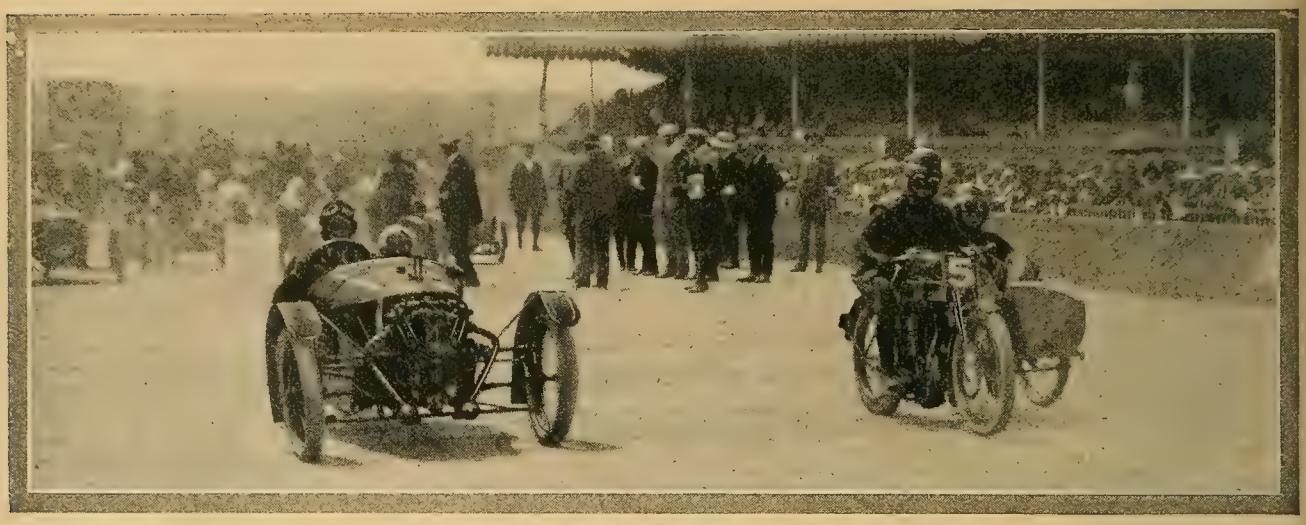
instance—he continued, did not concern him, as he is so accustomed to the rough roads of Ireland. His ride was devoid of incident, though he told us of several "scraps" he had with fellow competitors.

Greame Fenton is an Englishman by birth, but has lived in France many years, his father being a manager of the Clément-Gladiator Company. Like Greene, Fenton had no occasion to stop throughout the run, and only pulled up once for petrol and oil. He was able to pass several 500 c.c. machines in speed bursts, his twin Clément running faultlessly throughout. On his last lap the high speed chain broke and disappeared, but he had such a comfortable lead that he was able to continue on the lower ratio for the last five miles, the ratio being such that the Clements were capable of 45 m.p.h. on the low. Fenton used a new Longuemare handlebar controlled carburetter with adjustable jet. He made use of the latter for rapid acceleration at the start, and spoke very highly of the carburetter generally.



The bridge and S bend near Boves showing two competitors about to commence to climb the steepest hill on the course—about 1 in 16 gradient.

The Sidecar and Cycle Car Race.



AT THE START OF THE SIDECAR AND CYCLE CAR RACE.
W. G. McMinnies (Morgan Runabout) and Touchet (Regal-Green sidecar) get away together. The former won his class, and made the fastest time of all the passenger machines.

The passenger motor cycles were started at noon in a broiling sun. Frank Smith was a notable absentee owing to throat and chest troubles, and Messervy's place was taken by de Peyrecave. There were a number of other non-starters. There was a lot of interest taken in the little machines. The cycle cars outnumbered the sidecars 4 to 1, and, unfortunately, neither class had a really representative British entry. The first trio away caused great amusement by the passengers immediately clambering over the carriers to assist in cornering, whilst several passengers pushed and sprang over the back like cats. The foreign journalists in our vicinity yelled with delight as each group were given the word to go and crawled off the line. Bonville stopped his engine. There was a splendid view of a straight half-mile from the grandstand, and it was noticed that a B.S.A. sc. led the first batch, whilst the three water-cooled Morgans in particular accelerated very rapidly. Barnes (8 Zenith sc.) started with a René Gillet and left a trail of smoke to guide the driver of the latter. Hawkes's passenger pushed the Dew cycle car and then jumped aboard; whilst the sight of three tandem seaters crawling off the line raised another derisive laugh. Once under way, however, they went well. Sidecar and cycle car racing was something entirely new to the crowd, and they seemed to enjoy the gymnastic methods of cornering, and screamed when two passengers on different vehicles leaned outwards instead of inwards to keep the inside wheel down. The long, racy-looking Automobilette was slow off the mark, but once on the move showed a real turn of speed. The last pair, Sphinx and Bogey, kept practically together until out of sight.

A few minutes' wait, and McMinnies turned up, cornering fast, thanks to the low build and wide track of his Morgan. A minute later and another Morgan, Mundy up, appeared. He took the first corner wide at about 35 m.p.h. and the offside front wheel was seen practically to double up under the strain. At the second bend it was on the point of collapsing, but Mundy managed to pull up safely. This was a quick finish to a third fastest lap and unfortunate, as a new Green-Precision V-type engine was being used for the first time. It pulled finely. Bourbeau's Bedelia had made a good circuit, also the smart-looking Mathis with its white and red coating. The Marlborough carried the only lady passenger, and she soon became a favourite and was cheered every circuit. Nash's G.N. was second fastest. There was some consternation at the non-appearance of H. F. S. Morgan, due, it was subsequently learned, to the breakage of a connecting rod but three miles from the start. A Violet, dexterously driven by the designer and maker, surprised many by its speed. A single-cylinder air-cooled Globe was new to competition work and got along at a fine bat.

A Sidecar Leads the Field.

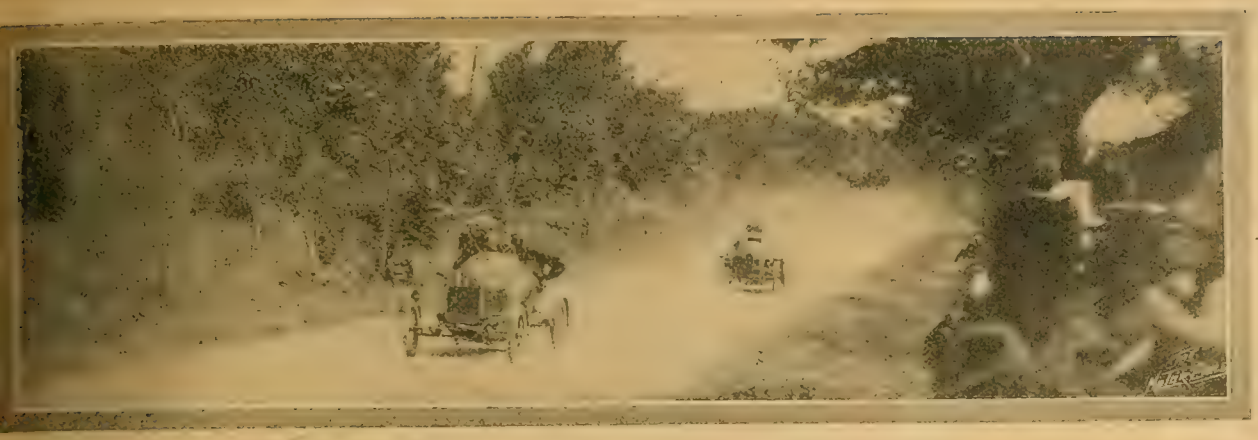
There was a wait ere the leaders on the second lap appeared, when it was seen that Touchet (Regal-Green) was leading McMinnies by threequarters of a mile, the latter having had to change a plug. The Ronteix, like the Mathis and Marlborough, has a four-cylinder engine, and is, in fact, a car in miniature. Francis (Duo) skilfully shot past Nash (G.N.), who had stopped on the corner to dispense with the bonnet. This, however, was not permissible, and the officials called him back. He stopped again in a hundred yards owing to misfiring. Esser (Mathis) steered the larger Grand Prix car the day previously, and much was expected of him. His engine emitted a fine buzz. The Marlborough was improving, but already intervals were occurring. Touchet (Regal-Green) increased his second lap lead, and was apparently the fastest sidecarist, excepting Barnes (Zenith). The latter was missing in the second lap due, it was subsequently learned, to engine troubles. Five riders had only done one lap when the leaders finished three. The Ronteix drives on to a single wheel by chain, and we were interested to observe that there was no apparent difference in cornering or speed. The Marlborough driver treated the spectators to an interesting exhibition when it passed two French cycle cars at speed. McMinnies came in very late, and stopped for a spare tube, his front tyre having picked up a nail, notwithstanding that he used an 80 mm. section. When Nash (G.N.) next appeared his passenger was carrying the engine bonnet under his arm.

On the third lap a friction-driven Violet-Bogey led, with two Bedelias in close attendance, and the Regal-Green sidecar fourth. Samuelson (Marlborough) stopped for water, his engine having boiled the radiator almost empty. Three trumpet calls announced the approach of competitors, and there was quite a fight for the leading position, with the Regal-Green sandwiched between two Bedelias.

On the completion of the fourth lap the order and times of both classes were:

		m.	s.
1.	Bonville (Bedelia)	61	39
2.	Esser (Mathis)	62	35
3.	Samuelson (Marlborough) ...	63	28
4.	Touchet (Regal-Green) ...	63	34
5.	Canouel (Sphinx-Globe) ...	63	49
6.	Violet (Violet-Bogey) ...	65	35

Two cycle cars close up were Peyrecave's Duo and Leveque's Super. Both were running very steadily, and their drivers took no risks. The Dew passed with the tail end considerably sagged. It was withdrawn later with a broken tie rod. Ronteix stopped a few seconds to pick up an oil gun. Samuelson again stopped for water, and his fair passenger was noticed drying her smarting face, boiling water having spurted through



Violet on the Violet-Bogey and C. M. Whitehead (G.N.) at speed along the home straight.

ne radiator owing to the loss of the filler
p. After improvising another cap and
plenishing, he was away again, a
ghty cheer lending encouragement.

Sixth Lap Leaders.

Peyrecave (Duo) easily beat the
.S.U. sidecar, whilst Bonville (Bedelia)
xecuted a dangerous swerve in corner-
ng. The race was interesting to watch,
s it was of such an open character, and
ne vehicles so new to speed work.
here was little change among the
aders, however:

	h.	m.	s.
. Bonville (Bedelia)... ...	1	31	48
. Esser (Mathis)	1	33	10
. Violet (Violet-Bogey) ...	1	34	34

Canouel (Sphinx-Globe), Ronteix, and
ouchet (Regal) followed in the order
med. McMinnies had now settled
wn again, and from the way he sped
own the straight stretch towards
loreuil promised to be among the leaders
n the end.

The Marlborough, now relieved of its
onnet, managed another lap without
topping for water. A puncture on the
Mathis caused a few minutes delay to
hange wheels. The Bedelia and Violet
drivers continued to fight out their duel,
and when Bonville dashed into control
and his excited helpers ran to him with
petrol and oil, they were promptly
ordered into the pit again. A little knot
of Englishmen were urging our men to
victory, and certainly they were putting
up a good fight despite their handicap
of a lack of knowledge of the course.
The passenger on Leveque's Super
actually replaced a belt which had jumped
off the pulleys while travelling along at
30 to 40 m.p.h.

Eighth Lap Positions.

		h.	m.	s.
1.	Bonville (Bedelia) ...	2	1	36
2.	Violet (Violet-Bogey) ...	2	3	2
3.	Ronteix (Ronteix)	2	6	46
4.	Esser (Mathis)	2	6	54
5.	Bourbeau (Bedelia) ...	2	8	44
6.	Leveque (Super)	2	12	38

The sidecars were faring badly, a René Gillet and B.S.A. retired, leaving but four in the running. McMinnies had gained the lead in this section and was now 11m. 13s. behind the leading four-wheeler with just over half the race to go. The Violet driver brought in a mudguard and handed it to an attendant, but it was promptly returned by an official to be carried on the car throughout. At this point eight competitors were officially reported retired. By the tenth lap the order was:

		h.	m.	s.
1.	Bonville (Bedelia) ...	2	31	35
2.	Violet (Violet-Bogey) ...	2	34	58
3.	McMinnies (Morgan) ...	2	41	14
4.	Bourbeau (Bedelia) ...	2	41	28
5.	Leveque (Super)	2	45	23
6.	De Peyrecave (Duo) ...	2	47	3

Now a curious incident occurred. Touchet (Regal-Green) was signalled to stop, and informed by an official that as a mudguard was noticed missing from his machine he must discontinue the race. Surely this was harsh ruling for a competitor lying second in his class. Why not have let him finish at any rate? Naturally, there was great discontent over this ruling, especially as the bumpy road surfaces had resulted in several cycle cars having shed their mudguards.

The Violet attendants were doing all in their power to urge their representatives on by signals and gestures. By this time the runners had dwindled down very considerably—only four in Class I. and nine in Class II. remaining.

Bonville lost his lead in this lap owing to his machine catching fire, his passenger being slightly burnt in stemming the flames.

Another view of the S bend, showing Bourbeau's winning Bedelia overtaking the Rene Gillet sidecar. There is a sharp bend to the left after passing under the bridge.

change of positions. The leaders on the twelfth lap stood as follows:

		h.	m.	s.
1.	Violet (Violet-Bogey) ...	3	2	50
2.	McMinnies (Morgan) ...	3	9	23
3.	Bourbeau (Bedelia) ...	3	10	48
4.	Canouel (Sphinx-Globe) ...	3	18	49
5.	De Peyrecave (Duo) ...	3	19	31
6.	Leveque (Super)	3	23	20

With luck the Morgan had a chance to overhaul the leader in the final laps, and after seeing the regular running of the car subsequent to the tyre trouble it was expected that McMinnies would finish first. Near the end he stopped for petrol and to secure a broken front tie rod. The Violet attendants overdid the signalling business, and when they excitedly jumped about as the last lap was entered upon the driver misunderstood their meaning, and actually stopped beyond the stand to enquire, losing quite a minute thereby, which unluckily lost him first place, Bourbeau beating him by 8s. McMinnies, on the Morgan, was first home and received a great cheer on registering the third British victory that day. Bourbeau followed a minute or two later. Meanwhile the stragglers, who had several laps still to cover, continued to career round the course, the final positions of the survivors being:

FINAL RESULT.

THREE-WHEELERS.

		h.	m.	s
1.	McMinnies (Morgan) ...	3	53	9
2.	Meuriot (René-Gillet) ...			
3.	Pellud (N.S.U.)			

CYCLE CARS.

1.	Bourbeau (Bedelia) ...	3	55	54
2.	Violet (Violet-Bogey) ...	3	56	2
3.	Canouel (Sphinx-Globe) ...	4	5	11
4.	Ronteix (Ronteix) ...	4	11	16
5.	De Peyrecave (Duo) ...	4	12	24
6.	Leveque (Super)	4	12	32
7.	Pouliez (Violet-Bogey) ...	4	16	47
8.	Esser (Mathis))	4	19	17
9.	Jolibois (Ronteix)	4	30	15

One of the four-cylinder Ronteix about to take a bend. There were two of this make in the race and both finished.

THE SIDECAR AND CYCLE CAR RACE FROM BOVES.

By means of a very fair by-road and aided by courteous and intelligent gendarmes, we reached Boves without difficulty, and arrived quite near the bridge, which is approached by the famous S bend. The René Gillet, like most of the sidecar machines, took the corner quietly, as also did a Duo. The Mathis came up fast, with a healthy buzz, and took the corner splendidly. The point where we were stationed was where Delpierre went over the bank on Saturday. This point was kept clear by soldiers and gendarmes, but the *brassard* given us by M. Longuemare on Friday worked wonders, and considerable assistance was rendered by a *caporal*, who understood English, and forthwith swore to become a subscriber to *The Motor Cycle* as soon as he knew we were connected with such a paper.

One of the Violet-Bogeys skidded as it turned. Nash came by going well, but his mechanic held the bonnet in his hand. The Super also skidded slightly as it took the bend. The Marlborough came round beautifully, and was heartily cheered, as it carried a lady as mechanician. The Dew came round with its occupants leaning well over. The next time the René Gillet sidecar came along we noticed the occupants were leaning out on the wrong side as it took the corner.

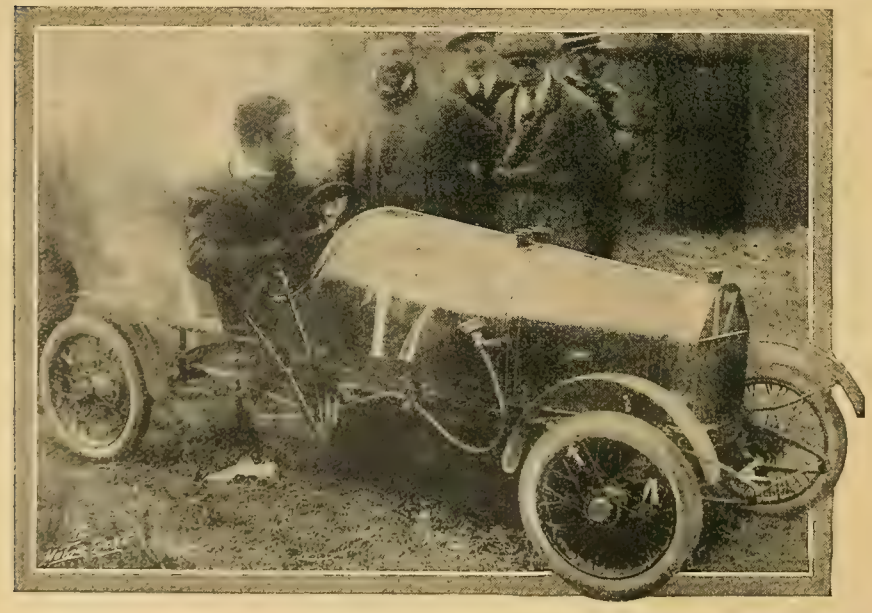
A little farther down the road we had a good impression of the cycle cars at speed. Nash came by at a good rate, waving his hand when he saw us. Bourbeau (Bedelia) was travelling well, and best of all as regards steady running was the Mathis, whose engine continued to give forth a healthy note.

THE WINNERS SPEEDS COMPARED.

It is instructive and interesting to compare the times of the winning machines in the motor cycle and cycle car races, taking the fifteenth lap times and speeds for the motor bicycles. We give them below:

OFFICIAL TIMES FOR FIFTEEN LAPS.

	h.	m.	s.	Average speed. m.p.h.
Fenton (2¾ Clément) ...	3	18	57	... 49.4
Green (3½ Rudge) ...	3	16	49	... 49.7
McMinnies (8 Morgan)	3	53	9	... 41.9
Bourbeau (8 Bedelia)	3	55	54	... 41.4



The friction-driven Violet Bogey, which finished eight seconds behind the Bedelia, but was disqualified owing to a mudguard coming adrift.

ACTUAL SPEEDS IN THE GRAND PRIX.

Times specially taken for "The Motor Cycle" by A. V. Ebblewhite and A. G. Reynolds.

The average speed in a race conveys little to the ordinary reader who does not know the corners and how much the pace was reduced to negotiate them, and for that reason we commissioned Messrs. A. V. Ebblewhite and A. G. Reynolds to take specially for *The Motor Cycle* the times over a kilometre on the fastest stretch of the course, viz., between the grand stand and the turning before Moreuil. The figures given below in order of merit form an interesting comparison both among the motor cycles alone and with the cycle cars. It will be observed that the opinion expressed in our report of the race that the speeds were not strikingly high is borne out by the published figures. The fastest speed attained was 61.79 m.p.h. by A. R. Abbott (Rudge), but the most regular speed was maintained by E. W. Cheshire (Triumph). The winning Morgan was only five or six miles per hour slower than the motor cycles.

No.	Machine and rider.	Selected five best runs over measured kilo.				
		m.p.h.	m.p.h.	m.p.h.	m.p.h.	m.p.h.
MOTOR CYCLES.—500 c.c. class.						
38.	Triumph (Cheshire)	60.46	60.46	60.13	60.13	59.49
43.	Rudge (Abbott)	61.79	61.12	60.46	58.56	58.56
19.	B.S.A. (Fenn)	61.12	60.79	60.46	60.13	58.87
37.	Rudge (Greene)	60.46	58.87	58.56	58.25	57.95
35.	Peugeot IV. (Perrin)	59.49	58.87	57.36	57.36	56.49
47.	Triumph (Clayton)	58.25	58.25	57.65	56.78	56.78
22.	Triumph (Newsome)	59.49	58.56	58.25	55.92	55.65
17.	B.S.A. (Isodi)	56.78	56.49	55.92	54.29	54.03
23.	Rudge (Rowlandson)	54.83	54.29	54.03	53.77	53.01
24.	Zenith (Griffith)	51.31	51.07	50.38	50.38	48.84
MOTOR CYCLES.—350 c.c. class.						
13.	Clement (Fenton)	57.65	56.20	56.20	55.92	55.65
15.	Motosacoche (Millaud)	58.25	56.49	55.37	55.10	54.56
14.	Douglas (Ball)	53.52	53.26	53.26	52.27	52.02
11.	Motosacoche (Vulliamy)	53.52	52.51	52.51	52.27	52.02
CYCLE CARS.						
13.	Bedelia (Bourbeau)	54.29	53.52	53.26	52.76	53.01
32.	Bedelia (Bonville)	52.27	51.78	51.54	51.07	50.16
17.	Violet-Bogey I. (Violet)	52.27	52.02	51.07	50.61	49.93
25.	Ronteix (Ronteix)	50.16	49.06	48.42	47.80	46.99
38.	Violet-Bogey III. (Pouliez)	48.42	48.21	47.80	47.59	47.19
20.	Mathis I. (Esser)	49.71	49.27	47.39	46.99	45.28
37.	Sphinx-Globe II. (Canouel)	48.84	48.21	47.19	46.99	46.80
26.	Ronteix II. (Jolibois)	47.80	47.19	47.19	46.60	46.22
15.	Duo Car I. (Peyrecave)	46.80	46.60	46.22	45.84	44.03
28.	Marlborough I. (Samuelson)	46.60	46.41	45.47	45.47	45.28
21.	Super I. (Leveque)	47.39	45.65	44.92	44.03	43.35
SIDECARS AND RUNABOUTS.						
4.	Morgan (McMinnies)	55.37	55.37	53.77	52.27	51.78
12.	René Gillet V. (Meuriot)	41.58	40.67	40.38	40.38	40.23
1.	N.S.U. III. (Pellud)	37.66	37.53	37.41	35.73	36.67

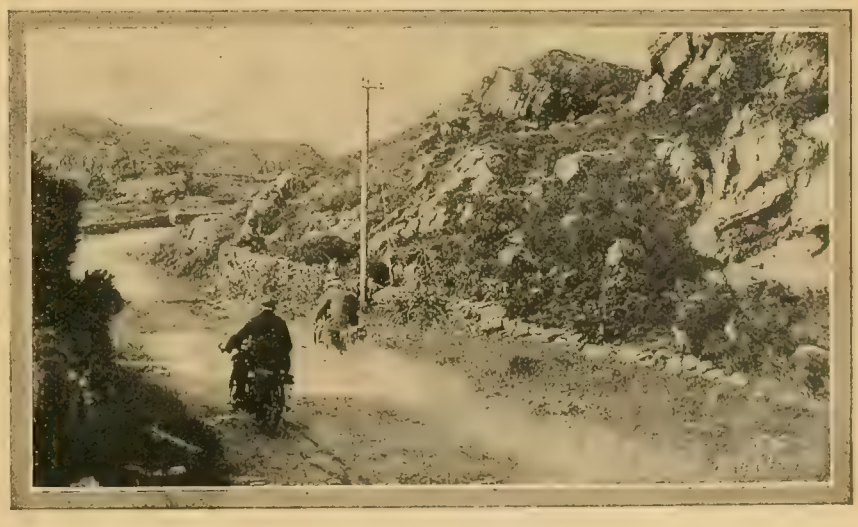
IRISH END-TO-END TRIAL.

THE annual reliability trial from End-to-end of Ireland, under the auspices of the Ulster Centre of the Motor Cycle Union of Ireland, took place on Monday, the event as usual being run from south to north. The start was an hour earlier than a year ago; this gave more night driving, and, despite the better roads, the first section of the course was the severest of the 390 miles. Added to this was the fact that at one part of the road between Goleen and Schull, fifteen miles from the start, obstructions appear to have been deliberately placed on the road, and several riders came to grief. Gibson (Bradbury) had a narrow escape, the wheel of his sidecar striking a log of wood, and another Bradbury rider, Wilhelmj, broke his fork. Wasley (Douglas) was in trouble early. The key of his sprocket became loose in the first hundred yards; he spent a lot of time repairing in the dark, and was over an hour late at Cork (81 miles), but continued. Another Douglas rider who met with early trouble was Towell, who broke the spindle of his back wheel in the first ten miles and had to retire. Shaw (5 Rudge) went astray by following Roche (Rover), the pair not discovering their mistake till near Glengariff, and consequently retired. Knox (Forward) had a lot of tyre troubles before reaching Cork, but went on an hour to the bad, as also did Walsh (Bradbury and Dudley (2½ Hobart). Sweeney (P. and M.) gave up at Cork with tyre and plug troubles, and Healy (6 Enfield) broke a control wire, and was out in the first fifty miles. Murphy (Douglas) had trouble with his pump, but made up time before Cork, and Mooney (P. and M.), after having tyre troubles, ran short of petrol just as he arrived in sight of the control on time. Doleman (5 Rudge) was among those who fell over the obstructions near Schull, but he did no damage beyond breaking off a footrest. Atkinson (3½ Rudge) and Rickerby (5 Rudge) were troubled with tyres on the first section, and did not go beyond Cork.

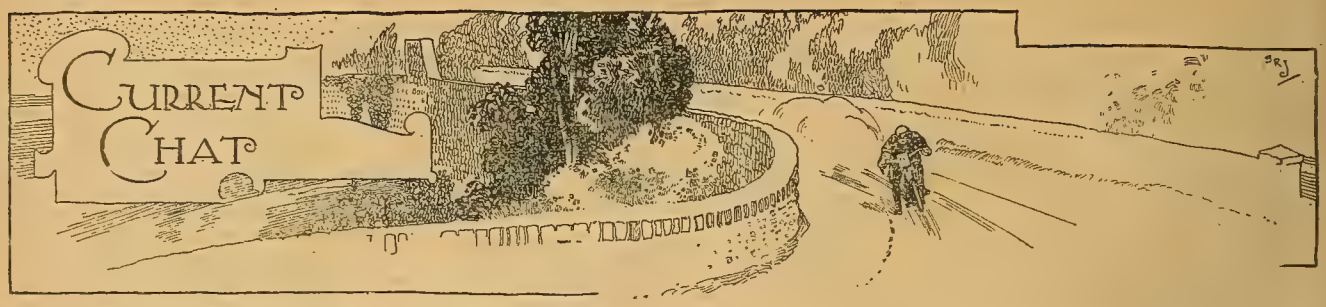
Many riders dropped out between Cork and Dublin, and of the forty riders who left Cork only twenty-nine reached Dublin in time to give them hope of awards. Amongst these O'Sullivan (3½ Humber) had lost eight marks at Mitchelstown control through losing his way. Mooney (P. and M.) was on time, despite fourteen punctures; Panner (6 A.J.S.), Dooley (3½ Ariel), and Martin (Triumph) suffered in the same way. Walsh (Bradbury) retired near Goleen, and Farrell (Triumph) had a fall near Urlingford, which resulted in a broken finger, but he continued.

After Dublin was passed the weather broke up, and a thunder shower was encountered. From Dublin to Antrim Panner had an avalanche of punctures, and retired at Banbridge. Gibson repaired nine, the last being dealt with just before Cushendall, but he still managed to keep to schedule, and made a perfect ascent of both observed hills; his was the only sidecar to finish.

The following were officially observed on the two hills: Stewart (Douglas), Delahay (Sunbeam), Murphy (Douglas), Wasley (Douglas), Russell (Douglas), M'Cann (Triumph), Thompson (B.S.A.), Sullivan (3½ Humber), Chambers (B.S.A.), Fenn (Triumph), Mooney (P. and M.), Porritt (Douglas), Brown (3½ Rudge), Lavery (Ariel), Newey (Ariel), Lucy (Triumph), Farrell (Triumph), Martin (Triumph), Gibson (Bradbury), O'Callaghan (Bradbury), Mallon (Sunbeam), Noble (Rover), McManus (Sunbeam), Woods (P. and M.), and Dooley (Ariel). The winner will probably be found among the following: Thompson (B.S.A.), Delahay (Sunbeam), Newey (Ariel), Gibson (Bradbury), O'Sullivan (3½ Humber), and Farrell (Triumph).



Two competitors on the road between Rock Island coastguard station and Goleen.



TIME TO LIGHT LAMPS.

July	17th	... ...	9.7 p.m.
,,	19th	... ...	9.5 ,,
,,	21st	... ...	9.3 ,,
,,	23rd	... ...	9.0 ,,

The Unlucky (?) Number 13.

Here is a poser for the superstitious! The Motor Cycle Grand Prix Races were run on July 13th, 1913. Fenton, who won the 350 c.c. class, was allotted No. 13, and singularly enough Bourbeau also carried that number to victory on his Bedelia in the cycle car class.

Unsportsmanlike Behaviour.

F. W. Barnes's retirement in the second lap of the Grand Prix was due to the fact that some evilly-disposed person had wilfully wrecked his engine. Such is the verdict of Zenith Motors, Ltd., who have since carefully examined the engine. On being dismantled the crank case was found to contain a quantity of clear sand, which had worked up and scored the cylinders very seriously. This kind of practice is, fortunately, practically extinct in these days, and it is regrettable to have to record such an instance at so important an event as the Grand Prix.

Spanish Road Race.

A number of Grand Prix competitors are making a move to Bilboa this week for a road race on Sunday to San Sebastian and back. The Douglas, Triumph, Rudge, and Humber teams, are among the entries.

Six Days' Trials in Lakeland.

Among the earliest entries for the A.C.U. Six Days' Trials next month are:

F. Dover (3½ Premier).
T. J. Ross (Triumph).
G. D. Hardee (Triumph).
W. J. Spoule (P. and M.).
J. D. Morrison (Bat).
J. Pippins (6 Rudge)

Motor Cyclists and the Navy.

Although we do not suppose motor cycles will actually form part of the equipment of future Dreadnoughts, it is interesting to notice that the Admiralty are availing themselves of the use of motor cycles in connection with the naval manœuvres in August in the North Sea. The Yorkshire coast will be watched during the "battles" by small parties of motor cyclists, who will keep in rapid communication with infantry units stationed in the neighbourhood.

THE GRAND PRIX. De Peyrecave (Duo) negotiating the S bend under a railway bridge outside Boves. This section was included in the car course. De Peyrecave ran very regularly throughout and finished fifth

SPECIAL FEATURES:

THE GRAND PRIX RACES.
IRISH END-TO-END TRIAL.
HINTS TO AMATEURS.

Anglo-Dutch Trial.

The Dutch motor cyclists will be met at Harwich by members of the A.C.U. and also members of the Ipswich and District M.C.C., who have offered to pilot them out of the district.

At a committee meeting in London last week, the price of tickets at the official dinner at the R.A.C. was fixed at 12s. 6d. Evening dress will be worn.

Latest Scottish Trials Entries.

We are informed by Mr. Campbell McGregor, the hon. secretary of the Edinburgh and District Motor Club, under whose auspices the Scottish trials are promoted, that H. F. S. Morgan (Morgan runabout), Lovegrove (3½ Raglan), and L. Martin (Singer cc.) have sent in their entries for the trials. This brings the total number of competitors to 105.

The Grand Prix Races.

From a spectacular point of view, the car race last Saturday was by far the most interesting of the three races, the tremendously high speeds, both on the level and in cornering, which usually resulted in huge skids, rendering the race really exciting. It is interesting to note that the winning car, which averaged 72½ m.p.h., attained a speed of 97 m.p.h. over a measured kilometre, according to *The Autocar* time-keepers.

Singles v. Twins at Brooklands.

The B.M.C.R.C. meeting yesterday, when the six hours' race was run off, was one of the most important racing events of the year on the track. A study of the entries revealed some rather interesting details as to the type of speed machine now in vogue. Among the "junior" machines of the 350 c.c. was an enormous preponderance of twin over single cylinders, no fewer than ten out of fifteen entries being fitted with two-cylinder motors. But when the entry list of the "seniors," or 500 c.c. class, was studied, the exact reverse was found to be the case, only four machines out of eighteen entries being so equipped. The Scotts were entered for the first time in a long distance track event. The Colliers pinned their faith in a 494 c.c. twin, but the 499 c.c. singles were in an overwhelming majority. When we get to the big class, twins again reigned supreme, therefore it appears that at the present time twins hold the field as far as the very small and very large classes are concerned.

Sanction Withdrawn.

The Bradford Motor Cycle Club had arranged to hold an open hill-climb on July 19th, but we are now advised that the police permission, after being granted has been withdrawn, and the climb has therefore had to be abandoned.

English-Dutch Trial.

With reference to the forthcoming English-Dutch motor cycle trial, we are informed that the new president of the Dutch Association, the Nederlandsche Motorwielrijders Vereeniging, Mr. Nico Jannink, will be unable to come over to England with his compatriots. Mr. R. R. toe Laer, the late president of the Association, will, however, come over as first reserve rider.

A.C.U. News.

Permits have been granted to the Hertfordshire M.C.C. to hold a half-day reliability trial on July 19th, to the Mersey M.C.C. to hold a hill climb on Pen-y-ball Hill on Aug. 2nd, and to the Liverpool A.C. to hold a reliability trial (date not settled).

AN UNOFFICIAL TRIAL.—As he was driving a vehicle not under the jurisdiction of the A.C.U. owing to its being overweight, the case of Mr. I. B. Hart-Davies, who recently took part in an unofficial trial, has been handed over to the Royal Automobile Club to be considered.

Bad Road Avoided.

A correspondent writes us to say he has discovered an alternative route from Corwen to Cerrig-y-Druidion avoiding the bad surfaced road between these two places. He went from Corwen to Bala *viâ* Llandrillo, which he considers the better of the two routes, and thence on to Cerrig-y-Druidion. There are no severe hills on this run.

Anglo-Dutch Trial Fund.

We have pleasure in recording the following additions to the fund towards the expenses of this trial:

	£	s.	d.
Mr. J. R. Nisbet ...	1	1	0
Bowden Wire Ltd. ...	1	1	0
Mr. W. B. Gibb ...		10	6
Mr C. R. Charlesworth		10	6

The Portmarnock Fatality.

We regret to announce that W. F. Parker, who was so seriously injured in the collision in which M. J. Barrett was killed at Portmarnock recently, has died after lingering on for a few days. Parker was an Englishman who was engaged in the motor cycle trade in Dublin, and was only nineteen years of age.

Well! Well!!

Quite evidently Skegness does not want motor cyclists, and it would appear that a set of laws, different from our usual code, prevails in that part of England; for if the chairman of the local magistrates is correctly reported, he recently said, in fining two motor cyclists for dangerous driving, that "there was no denying the fact that, even when they kept to the letter of the law, motor cyclists were a public nuisance. They frighten horses and created a stink, and really they had no right to use the public highway at all." Well, we must be thankful to breathe at all after this!

Illuminating Front Numbers.

Last week a motor cyclist was summoned at the Guildhall, London, for alleged negligence in lighting the front number plate. The machine was examined in a darkened room. The numbers appeared to be perfectly lighted, and it is reported that the police said the number plate had been moved since the summons had been issued. This was proved to be absurd, as the lamp bracket was rigid with the forks, and the plates permanently fixed to the mudguard. In the end the case was dismissed on payment of costs, but this case shows that motor cyclists should take pains to satisfy themselves that they go out at night so equipped that the law can take no exception.

FUTURE EVENTS.

July 19.—Herts M.C.C. Open Half Day Trial.
„ 21-26.—SCOTTISH SIX DAYS' TRIALS. Starting Point Perth
Aug 2-3.—International Cup Race in France.
„ 2-3.—Hertfordshire M.C.C. Open Half-Day Trial.
„ 2-4.—M.C.C. Devon Trial.
„ 4.—ENGLISH-DUTCH INTERNATIONAL TRIAL. Starting Point Oxford.
„ 4.—B.A.R.C. Meeting at Brooklands
„ 9.—B.M.C.R.C. Race Meeting.
„ 18-23.—A.C.U. SIX DAYS' TRIALS. Carlisle as Centre.
„ 30.—Herts M.C.C. Open Half-Day Trial.
Sept. 6.—Cov. and Warwickshire M.C. Annual Open Hill Climb.
„ 13.—B.M.C.R.C. Race Meeting.

England's Lead.

The results of the Grand Prix have set the seal on the superiority of English machines. The T.T. Races indicated this happy state of affairs previously, but although they were international in character, the British riders greatly preponderated over the foreigners, and thus one might reasonably look for success. In France, however, the reverse was the case. The French were on their native heath, and had had the advantage of practising on the course, but all the same they were outclassed when it came to racing, and, despite their lack of practice, the British riders were too good for our neighbours. It is said that a boom in motor cycling is pending in France, but with all due respect to their mechanical knowledge, the French designers will have to learn that such things as automatic inlet valves, for instance, are now out of date.

Next Week in Scotland.

On Monday next 103 competitors will be sent off from Perth on the Scottish Trials. These, as regards the route, are by far the most severe test to which any motor cycle is subjected; for, although the regulations in the English Six Days' Trials are stricter, the total distance is less, and bad as the hills in the Lake District, where the trials are being held next month, will be found to be, there is nothing to compare with the Spital of Glenshee or the frightful ascent and descent from Applecross to Tornapress and back. We shall give fully illustrated reports of these trials in our next two issues.

Inexpert Speed Judging.

The Sheffield and Hallamshire M.C.C. are to be congratulated on the non-success of the judges' efforts in their recent speed-judging competition. We say "non-success" advisedly, because the result shows the extraordinary difficulty of estimating speed. Members of the general public were asked to judge the pace of competing motor cycles, and only two out of a large number of guesses were near being correct. It was a curious fact that the noisier the machine the faster the speed was adjudged to be—a matter that has probably misled many a member of the force in the past. Perhaps now the silencer regulations are in full swing and being rigidly applied we shall be judged by the powers in blue to be going slower than we really are. The interesting question arises how many noisy exhausts in the past have been responsible for fines?

Winners of the team prize in the Nottingham and District M.C.C. Reliability Trial for the Campion Cup. From left to right they are G. Brough, W. A. McKeggie, and T. Rigley, all of whom rode 6 h.p. Brough machines.

NEXT WEEK'S SCOTTISH TRIALS.

A Strenuous Course involving Precipitous Hills.

ON Saturday next motor cyclists will be pouring into Perth, the starting place of this year's Scottish Trials, and on July 20th all competitors are obliged to present themselves and their machines at the garage of Messrs. Fergusson and Batchelor at 11 a.m. in order that their machines may be examined and sealed. After the seals have been affixed, no competitor may make any further adjustments.

The total distance of the trials is approximately 980 miles, the longest day's run being the fifth, when about 200 miles will have to be covered.

Two nights will be spent at Strathpeffer, but a different stopping place will be utilised all other nights. For the benefit of our northern readers we repeat the various halts during the week, which are—first day, Inverness, second, Thurso, third and fourth, Strathpeffer, fifth, Grantown, and sixth, Edinburgh. A full list of entrants, with the machines they will ride, has already appeared in our columns.

While the route is, generally speaking, of far greater severity than that of, say, last year's English Six Days' Trials, there is a certain freedom allowed to the competitors that makes the run rather easier from a mental point of view than its English prototype, although harder physically. We allude to the total absence of secret checks. Unless the committee considers that undue scorching takes place, it is quite sufficient for a rider to get to his evening's destination up to time, but if it be considered that reckless riding takes place, the committee reserves the power to enforce secret checks upon due notice being given to the riders.

But those who know the routes will readily agree that it is not very likely that any undue speed work will be indulged in, for even the hardiest scorcher soon tires of thinking he is riding a T.T. when every hour's run is replete with ups and downs and lurid hairpins that put Porlock and Craig-na-baa completely in the shade.

Ups and Downs.

The riders will not have any time to acclimatise themselves to the mountaineering game, for in the first twenty-five miles comes Amulree, followed later in the day by the notorious Spital of Glenshee, which includes the wicked Devil's Elbow. There is practically a fifteen miles climb all the way up to the summit, the road rising from about 800ft. to 2,200ft. above the sea, in that distance. The worst part of this ascent is that the stiffest part of the climb comes at the end, and has to be faced with overheated and tired engines, while the surface is as a rule exceptionally rough.

This mountain has to be traversed from the reverse direction on the last day, but, although a bad climb, it is by no means such a terrifying experience as from the Kirkmichael side. While the whole route abounds with sheer precipice-like rises and falls, the Spital is the severest difficulty in the first half of the trials, but the fourth day provides a perfect nightmare of hills, the climax being the ascent, from both sides in succession, of Applecross. From

Starting the first competitor—W. Bruce Hodgson (3½ h.p. Torpedo)—in the Hull and East Riding A.C.C. Reliability Trial for the Rudge Cup.

Tornapress the road rises sheer for six miles from practically sea-level to 2,100ft., and drops equally abruptly to Applecross. Those competitors who get over this mountain have to return immediately over their tracks to Tornapress, the climb from the Applecross side being slightly the steeper of the two. The road is cut zigzag up the hill, but the surface is reported to be atrociously stony and rough. It can safely be said that any motor cycle which can be coaxed over this mountain road under its own power is capable of going anywhere. Apart from the satisfaction of a successful climb, the competitors will enjoy the finest and wildest scenery of the Western Highlands on this day's run. It must not be forgotten that power of the brakes is quite as important as brake-horse-power in this part of the world, and both will have to be equally vigorously applied to their respective tasks.

After negotiating these obstacles such trifles as the Shiel Inn Hill, about five miles of from 1 in 8 to 1 in 10 on the fifth day, and Kenmore on the last day, do not present much difficulty, severe though they be.

Several machines are making their *début* in long distance trial work, the most notable newcomers being, perhaps, the 3¼ Lea-Francis, 8 Williamson, and the 3½ Edmund. Quite a number of lightweight machines are entered, among them 2¾ Douglas, 2¾ Sun-Villiers, and 3 Enfield, while George Brough is again attempting to emulate his last year's success by riding a single-gear 6 h.p. Brough through the trial. If he succeeds we shall not know which to admire most, the flexibility of the motor or the pluck and skill of the driver.

Scene in the Sheffield and Hallamshire M.C.C. speed-judging contest, in which the spectators and not the motor cyclists had to judge the speeds.

B.M.C.R.C. Six Hours' Race.

AN OPEN EVENT FOR MOTOR BICYCLES, SIDECARS, AND CYCLE CARS.

The following is the complete list of entries for the Brooklands meeting, which took place yesterday. Considerable interest centred in this meeting, and some competitors had been preparing their machines for a long time past.

DIVISION I.

CLASS A. (Cylinder capacity not exceeding 275 c.c.)

Rider, Machine, and Cubical Capacity.	Rider, Machine, and Cubical Capacity.
H. Martin (1-cyl. Martin, 268 c.c.)	

CLASS B. (Cylinder capacity not exceeding 350 c.c.)

Hugh Mason (2-cyl. N.U.T., 350 c.c.)	J. T. Bushall (2-cyl. Douglas, 349 c.c.)
P. Newbold (1-cyl. Zenith, 345 c.c.)	M. Heinzel (2-cyl. N.S.U.)
S. Wright (2-cyl. Humber, 350 c.c.)	R. J. Bell (2-cyl. N.S.U.)
F. G. Edmond (2-cyl. Humber, 350 c.c.)	E. E. Elwell (2-cyl. Douglas, 350 c.c.)
S. H. Dawson (1-cyl. Humber, 348 c.c.)	E. Milner (2-cyl. Douglas, 350 c.c.)
W. R. Steel (1-cyl. Sunbeam, 350 c.c.)	G. E. Stanley (1-cyl. Singer, 349 c.c.)
A. Bushall (2-cyl. Douglas, 349 c.c.)	T. Thompson (2-cyl. Douglas, 350 c.c.)
	H. H. Clark (1-cyl. Corah, 350 c.c.)

CLASS C. (Cylinder capacity not exceeding 500 c.c.)

G. Baker (1-cyl. Peerless, 499 c.c.)	J. Cocker (1-cyl. Singer, 499 c.c.)
L. Cushman (1-cyl. N.L.G.)	F. A. Applebee (2-cyl. Scott, 486 c.c.)
C. G. Pullen (Rudge, 499 c.c.)	A. J. Dixon (1-cyl. Singer, 499 c.c.)
C. R. Collier (2-cyl. Matchless, 494 c.c.)	H. O. Wood (2-cyl. Scott, 486 c.c.)
D. R. O'Donovan (1-cyl. Norton, 490 c.c.)	P. Brewster (1-cyl. Norton, 490 c.c.)
W. G. Howard (2-cyl. Matchless, 496 c.c.)	J. L. E. Emerson (1-cyl. Norton, 490 c.c.)
H. Reed (1-cyl. Dot, 499 c.c.)	S. A. Rowlandson (1-cyl. Rudge, 499 c.c.)
E. H. Victor (1-cyl. Singer, 499 c.c.)	R. Bownass (1-cyl. Matchless 499 c.c.)
O. C. Godfrey (1-cyl. Indian, 497 c.c.)	R. B. Ewens (1-cyl. Rudge, 499 c.c.)

CLASS D. (Cylinder capacity not exceeding 750 c.c.)

S. R. Axford (2-cyl. Martin, 738 c.c.)	F. A. McNab (2-cyl. Triumph, 745 c.c.)

CLASS E. (Cylinder capacity not exceeding 1,000 c.c.)

H. Reed (2-cyl. Dot, 986 c.c.)	A. A. Knight (2-cyl. Zenith)
E. Gwynne (2-cyl. Indian, 998 c.c.)	J. Hellaby (2-cyl. Indian, 994 c.c.)

DIVISION II.

CLASS G. (Cylinder capacity not exceeding 500 c.c.)

H. Le Vack (2-cyl. Motosacoche, 496 c.c.)	H. C. Wells (1-cyl. Zenith-Green, 499 c.c.)
J. S. Holroyd (2-cyl. Motosacoche, 496 c.c.)	Howard Riddell (Zenith-Precision, 499 c.c.)

CLASS H. (Cylinder capacity not exceeding 750 c.c.)

R. E. Guest (2-cyl. Matchless, 742 c.c.)	E. B. Ware (2-cyl. Zenith, 750 c.c.)
H. Gibson (1-cyl. Bradbury, 554 c.c.)	

CLASS I. (Cylinder capacity not exceeding 1,000 c.c.)

S. T. Tessier (2-cyl. Bat)	N. F. Holder (2-cyl. Morgan, 986 c.c.)
F. W. Barnes (2-cyl. Zenith)	

DIVISION III.

CLASS J. (Cylinder capacity not exceeding 750 c.c.)

J. F. Buckingham (1-cyl. Chota, 746 c.c.)

CLASS K. (Cylinder capacity not exceeding 1,000 c.c.)

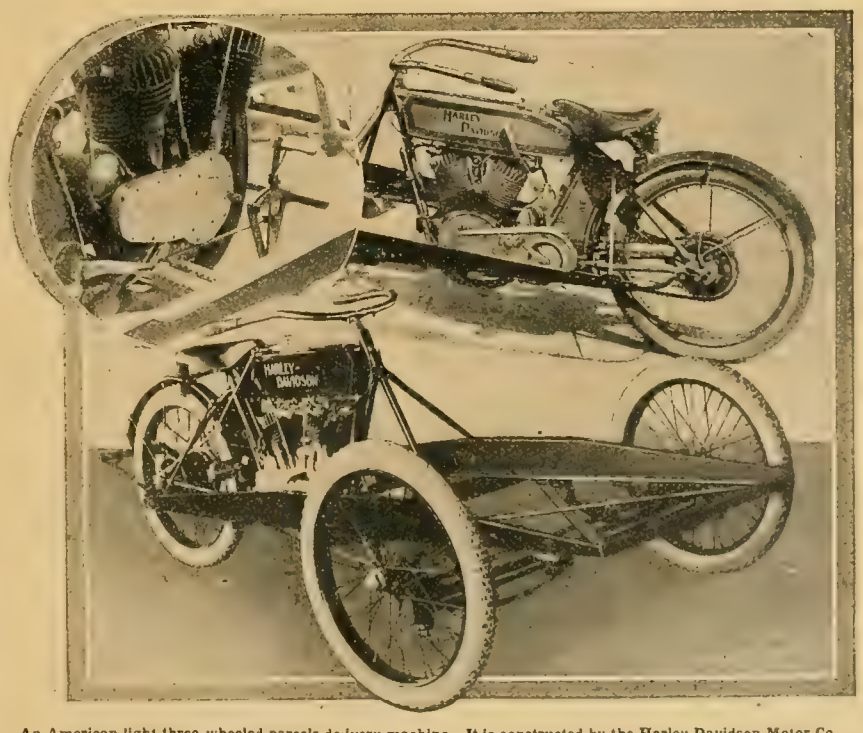
L. Martin (4-cyl. Singer, 1,096 c.c.)	A. Francis (2-cyl. Duo, 1,075 c.c.)
L. F. de Peyrecave (2-cyl. Duo, 985 c.c.)	C. F. Halsall (4-cyl. Wilton,

As will be seen from the above, sidecars and three-wheeled cycle cars were run in the same class.

A Sturdy American Three-wheeler.

THE Harley Davidson Motor Co., a firm of high repute in America, have recognised that there is a big future for the light three-wheeled parcels delivery machine, and have evolved a most satisfactory looking design for the work. The chassis is designed to carry 600 lbs., and is constructed of pressed steel, very stoutly fixed to a special motor cycle frame. The big twin engine drives through a two speed and free engine to the rear wheel, the transmission being by chain. A spring saddle-pillar is fitted, and an automatic carburetter. The engine and gears are practically fool-proof, and are very soundly constructed. The petrol consumption with load works out at about 32 m.p.g.

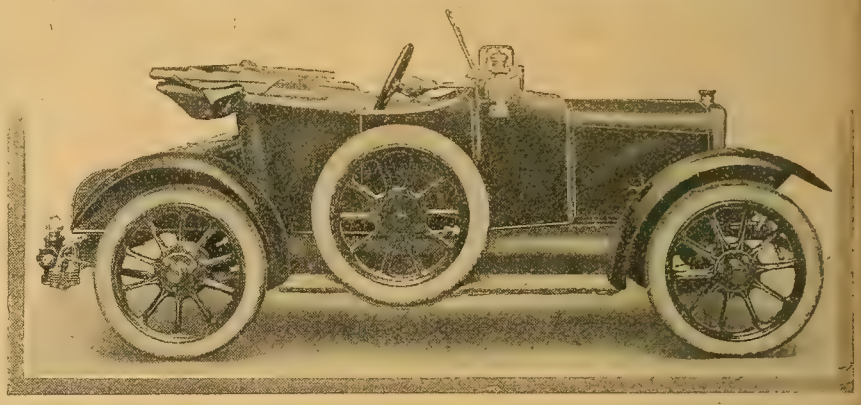
The gear is of the counter-shaft type, and although wheels are always in mesh the shafts do not revolve except when the low gear is in operation. The engine may be started with the wheel on the ground, and the pedals used for this purpose also apply a powerful hub brake if their motion be reversed. An additional brake pedal is convenient to the driver's right foot, and is held by a ratchet, thus allowing the machine to be left standing on a slope. 28in. × 3in. tyres are used throughout, and the front of the vehicle is suspended on quarter elliptic springs, which are fixed below the axle tubes. Gear ratios of 5 to 1 and 10 to 1 are employed, whilst the vehicle has a track of 56in. and a wheelbase of 76in. We hear that many of these machines are already in use and giving satisfaction in all weathers and under all conditions.



An American light three-wheeled parcels delivery machine. It is constructed by the Harley Davidson Motor Co., and has a twin-cylinder engine and two speed gear. The carrier frame is of pressed steel.

LATEST PERRY DETAILS.

WE recently had an opportunity of seeing one of the latest Perry cycle cars, which is sold in London by Cars and Motor Sundries, Ltd., 175, Shaftesbury Avenue, W.C. Since the chassis was first exhibited at the Show and described in these pages, the Perry has undergone some slight alterations, though the main features are kept the same. The engine is now fitted with a Zenith carburetter, which gives plenty of power and yet permits of slow running. The final drive is by bevel instead of by worm as originally fitted. The body is of pleasing appearance, and is most comfortable, while the sloping dashboard, under which the petrol and oil tanks are carried, is quite graceful. The car is supplied complete for 130 guineas, with five detachable wheels and shock absorbers to the back springs. These springs are carried underneath the axle. The five wheels are provided with brake drums which are detachable with the wheels, and in the case of the front wheels these drums act as an adequate protection for the steering joints. The steering on this little vehicle is direct. The whole design shows careful forethought, and such refinements as sheet steel valances between the steps and the body, and inner shields to the handsome dome mudguards are provided. Messrs. Cars and Motor Sundries, Ltd., are now able to deliver a limited number of these attractive little vehicles, which should find a ready market.



Side view of the 10 h.p. twin-cylinder Perry light car.

CYCLE CAR TIPS.

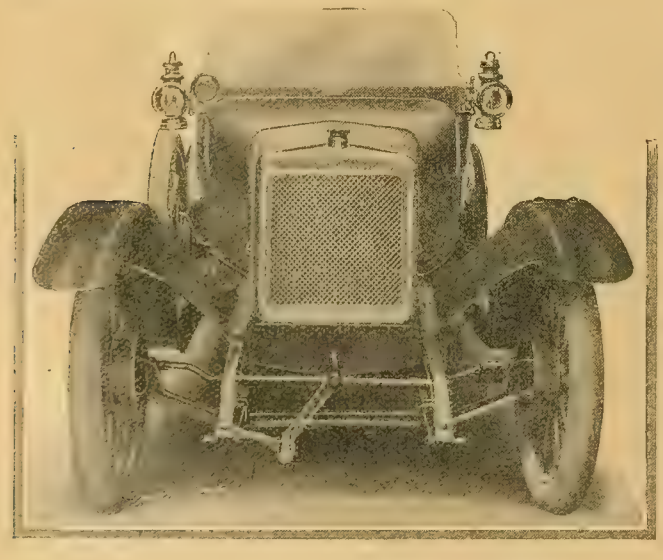
DON'T fold up your hood till it is dry.

Don't leave a machine standing on an incline with only a brake to hold it.

Don't forget to engage a low gear and close the throttle before descending dangerous hills.

Don't forget to oil and grease your machine regularly. The leaves of the springs should receive occasional attention in this respect.

To make the best use of your head lamps, fix them fairly low down; see that both lamps and brackets are securely fastened.



Front view of the Perry showing neat appearance and general lines.

Tar stains are best removed with benzine though petrol is a fair substitute. The tar should be softened first by applying a greasy substance, such as butter, to the stains.

Springs after hard use are apt to lose their temper, or "to take a set," another leaf will often put things right. If not, they should be returned to the makers.

A few spare minutes may be well spent filling cuts in tyres; this will often prevent long stoppages on the road, besides increasing the life of the tyres.

Keep your engine clean and use good lubricating oil. Good lubrication means long life and economy.

If a rattle develops, see to it at once or it may result in a broken mudguard stay or some other part.

Keep your brakes well adjusted; your life and that of your passenger often depend on them.

Don't overload your cycle car. It is all very well to take four up certain hills, but the machine was not built for it, and you are doing it no good.

Keep your magneto points clean and well adjusted; this and absence of air leaks in the intake system will ensure easy starting.

Whether you have a differential or not, drive reasonably round corners. Fast cornering, besides being dangerous to yourself and others, is bad for tyres, wheels, axles, and transmission.

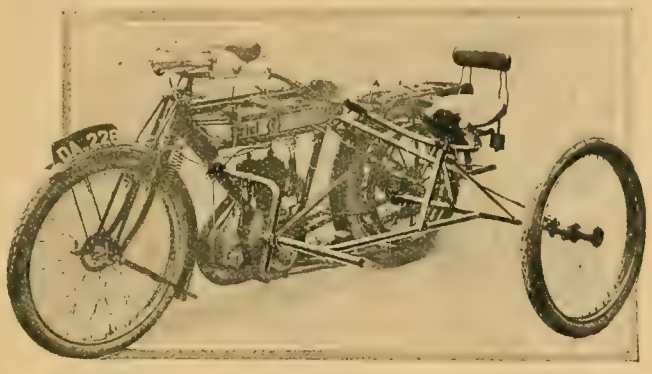
If rain spots get on to freshly painted coachwork these should be removed by copious washing with plenty of water at the earliest moment. A few spots of rain will make more marks on new paint than a deluge. This is particularly the case with the bonnet, the heat of the engine drying up spots from a light shower very quickly.

A Featherweight Attachment.

THERE are many riders at the present time who possess machines of 3½ h.p., or less, who would often be glad to take an occasional passenger, and who, wisely, do not care to use their carriers for the purpose or to attach a heavy sidecar to a lightweight or single-geared 3½. To such as these the attachment manufactured by the Tennant Engineering Company will come as a solution to the puzzle. It consists of a strongly built sidecar chassis of somewhat special construction, on which is mounted, in lieu of the usual body, a large Brooks saddle with back rest; a pair of handle-bars are clipped to the seat post and project in an inverted position on each side of the passenger. A 26×2¼ Continental tyre is fitted, and a stout domed mudguard covers the wheel. At first sight the outfit looks bare and uncomfortable, but a trial run showed that this was not by any means the case, and though, of course, the luxury of the modern sidecar chair is absent, the machine was really wonderfully comfortable.

Decreased Windage.

The strains on the motor cycle frame are considerably decreased as the complete sidecar, with quick detachable fittings, weighs less than 40 lbs., and there is no heavy body to sway outwards and cause side pull; added to this the windage is slightly decreased. In the case of bad weather a waterproof sheet can be supplied at a small extra cost, which passes from the axle round the outside of the footboards and upwards over the passenger's legs to the handlebars. The footboards are not shown in our photograph, but lie directly behind the front cross stay. Without saddle and handle-bars the machine weighs only 30 lbs., and in this state can be used as an outrigger to prevent skidding on greasy roads. Deliveries can be made in seven days, and the price is £5 10s. There should be quite a future for the device, especially among the sporting brigade. The Tennant Engineering Company, whose address is Pershore Street, Birmingham, have also recently taken over the manufacture and sale of the Glad Eye electric motor cycle lamp, which they will shortly be able to deliver in quantities. This lamp was described and illustrated in *The Motor Cycle* of February 13th last. It has a swivelling bracket which enables the light to be thrown on the machine for repairs.



A lightweight passenger attachment made by the Tennant Engineering Co.

Bonuses in Competitions.

AT a meeting of the Manufacturers' Union, held last week, the question of the payment of competition riders for using various accessories, such as carburetters, tyres, belts, etc., in races and hill-climbs, was fully discussed. Readers will remember that we published an article on the same subject in the issue of March 6th last.

Two Important Resolutions.

The outcome of the discussion at the meeting was that a committee was appointed, consisting of four members from each section, "to consider the advisability of taking steps to regulate, or to put an end to the existing practice of offering bonuses, retainers, and the like, to trade and private motor cycle competition riders." Another resolution that was passed at the same meeting was, "That in the opinion of the meeting, the time is now opportune for the whole question of competitions to be considered in all its aspects, and that four members of each manufacturers' section be invited to form a sub-committee for that purpose." Both the above resolutions were unanimously carried.

The payment of competition riders for the use of various accessories has become such an abuse that, instead of a manufacturer fixing the specification of his machine, the competition riders do it for him. This is brought about as follows. Presuming that a manufacturer decides on a certain specification, and delivers a machine to a competition rider, who is financially interested in two or three different makes of accessories, if he does not find the standard specification includes these items, he removes the standard equipment, and substitutes for it articles for which he receives a bonus from the manufacturers in the event of a win. Many makers claim that this prevents their finding out what is the best equipment for any particular machine, and their conclusions become involved, owing to the fact that the articles used by many competition riders are not employed because of their merit, but on account of the bonuses paid for successes. Manufacturers of complete machines are of the opinion that if the accessory makers wish to contribute towards the expenses of racing, it would be far better for them to do so openly, instead of offering retainers to the riders. One suggestion made was that any bonuses offered by accessory firms should be offered to the maker of the machine, as by so doing the accessory maker would contribute towards the cost of racing.

Heavy Cost of Racing.

The Union contends that it is uncommercial for bonuses and retainers to be offered to the rider of the machine, but that if they were offered to the maker, the particular article in question would only be used provided it was of real merit, and the bonuses so provided would help towards the heavy cost of supporting race meetings and competitions.

Whether the Union will be able to put an end to the practice of presenting bonuses is very much open to question, but the fact that they have considered it advisable to attempt to regulate the matter is one which will be welcomed by the majority of our readers.

IMPORTS AND EXPORTS.

The following figures show the imports of motor cycles and parts have increased steadily, the chief increase in parts being accounted for by tyres:

	Month ended June 30th.			
	1912.		1913.	
	Number.	Value.	Number.	Value.
Motor cycles ...	124	£3,803	243	£8,323
Parts		£14,886		£19,362
	Six months ending June 30th.			
Motor cycles ...	793	£24,828	1,161	£39,484
Parts		£57,292		£107,318

The export of motor cycles has increased in roughly the same proportions as the imports, but the numbers and values are much greater.

	Month ended June 30th.			
	1912.		1913.	
	Number.	Value.	Number.	Value.
Motor cycles ...	559	£23,115	1,419	£62,416
Parts		£9,878		£21,437
	Six months ended June 30th.			
Motor cycles ...	4,931	£195,311	8,677	£369,655
Parts		£74,137		£119,031

CLUB NEWS.

Showing the two lines of spectators in the Sheffield and Hallamshire M.C.C. competition judging the speed of a passing motor cyclist.

Sheffield and Hallamshire M.C.C.

A novel competition was held on the 12th inst., which consisted of speed-judging by the general public. The speeds varied from 7 to 45 m.p.h., and, as might have been expected, the estimates were, in many cases, very wide of the mark, especially so in the case of the higher speeds, which were much over-estimated when the machine was noisy or geared low. The winner gave only two correct results.

Bishop Auckland, Darlington, and District M.C.C.

A hill-climb took place at Legs Cross, near Piercebridge, on the 9th inst. Results: W. Swan (5-6 Zenith), 10s. start; J. P. Foster (5-6 Bat-Jap), scratch.

Middlesbrough and District M.C.C.

There was a sidecar trial on the 9th inst. over a forty-five mile course *via* Marton Bungalow, Stokesley, Easby, Ayton, Guisborough, Ormesby. Result: 1, R. Sorrell, lost 4m. 5s.; 2, H. B. Beckwith, lost 4m. 10s.; 3, G. W. Liddle, lost 4m. 25s.

Scottish Border M.C.C.

The club held an open hill-climb at Lanton Hill on the 12th inst. Results: Class V. Generals. Lightweights up to 350 c.c.—1, J. Balfour-Robertson (2¾ Douglas), 64.3s.; 2, A. N. Toovey (2¾ N.U.T.), 71.2s.; 3, G. L. Carmichael (2½ Singer), 79s. Class VII. Open, any machine.—1, J. R. Alexander (7 Indian), 50s.; 2, D. S. Alexander (7 Indian), 50.3s.; 3, C. Armstrong (7 Indian), 54.3s.; 4, A. J. C. Lindsay (3½ Rover), 55.1s. Class VIII. Generals; any machine.—1, J. B. Innes (5-6 Bat), 52.1s.; 2, J. B. Robertson (7 Indian), 54.1s. Class IX. Generals; machines up to 600 c.c.—1, R. McGibbon (3½ Norton), 54s.; 2, J. B. Laing (3½ Triumph), 57s.

Nottingham and District M.C.C.

The results of the Campion Challenge Cup trial are as follows:

	Rider and machine.	Marks lost.	Total error. m. s.
1.	C. C. Elborne (Triumph) ...	0 ...	3 54
2.	George Brough (Brough) ...	0 ...	4 13
3.	Harold Marshall (Campion) ...	0 ..	5 14
4.	H. S. Dawson (Bradbury) .	0 ..	5 37
5.	Miss Richards (Sun)	0 ...	5 48
6.	J. Richards (Sun)	0 ...	8 0

TEAM PRIZE.

1. Brough team—Geo. Brough, W. A. McKeggie, and T. Rigley.
2. Sun team.—Miss Richards, J. Richards, and J. Fisher.
3. Triumph team.—C. C. Elborne, R. B. Glover, and J. Mitchell.

Bradford M.C.C.

A twenty-four hour reliability trial to London and back took place on the 5th inst. Six clubs sent teams, Crossgates M.C.C. proving to be the winners. T. G. Bulliss (3½ P. and M.) won the trophy.

Cumberland County M.C.C.

Fifteen members took part in the twenty-four hours' reliability trial to Birmingham and back. Results—Solo machines: 1, J. Robinson (2¾ N.U.T.); 2, W. B. Little (3½ Premier); 3, W. B. Jeffreys (8 Zenith). Sidecars: 1, T. B. Westmorland (6 Matchless); 2, T. Wilkinson (5-6 Clyno).

North Birmingham A.C.

A flexibility hill-climb was held on the 12th inst. Result: 1, Howard Newey (2¾ Levis); 2, Harry J. Moseley (3½ Wearings-Jap); 3, Roy Lovegrove (3½ Singer); 4, Gerald Lovegrove (3½ Raglan); 5, E. H. Bayliss (8 Chater-Lea sc.); 6, A. W. Thrush (Triumph).

Hull and East Riding A.C.C.

A reliability trial was run off on the 12th inst. over a course which included the famous hills of Staxon and Garrowby. The following made non-stops: Bruce Hodgson (3½ Torpedo), T. T. Laker (3½ Torpedo T.T.), B. Rhodes (3½ three-speed Rover), H. Taylor (3½ B.S.A.), Hughes (3½ B.S.A.), J. Padgett (3½ Ariel), and J. Harland (5-6 Clyno and sc.)

Lincolnshire M.C.C.

The results of the hill-climb held at Scamblesby on the 5th inst. on the knock-out principle are as follows:

Class I.—1, C. O. Hayward (2¾ Douglas); 2, Ward (2¾ Douglas).

Class II.—J. Drakes (3½ B.S.A.); 2, J. H. Brookes (3½ Rudge).

Class III.—1, B. Rhodes (8 Zenith); 2, S. E. Sanders (7 Indian).

Walthamstow M.C.

The annual Dinner Cup Competition was held from London to Manchester and back as a non-stop and speed-judging competition, watches and speedometers being barred. Results: Silver cup and gold medal, G. Wilson (2½ S.I.A.M.T.), error 1m. 8s. Silver medals—G. West (5 A.C.), error 1m. 31s.; W. S. Low (3¾ Scott), 2m. 26s.; A. T. Peppercorn (3½ Bradbury), error 8m. 3s.; C. Lankshear (3½ James), error 8m. 3s.; H. J. Beal (4 L.M.C.), error 9m. 20s.; A. J. Peppercorn (3½ Bradbury), error 9m. 35s.; F. Cudden (3½ Ariel), error 10m. 57s.; J. Henbrey (8 Chater-Lea sc.), error 13m.; R. J. Holt (15 Darracq), error 13m. 18s.; and —. Price (3½ Humber), error 14m. 3s.

Competitors in the Bradford M.C.C. trial to London and back crossing the bridge over the Trent near Newark.

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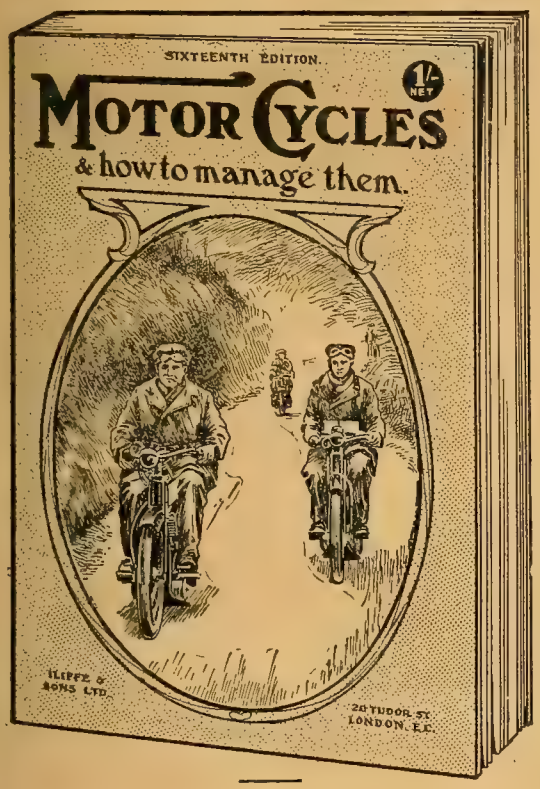

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"MOTOR CYCLES AND HOW TO MANAGE THEM" is unquestionably the best and most complete handbook on motor cycles, their care and management. The sixteenth edition (now on sale) is a great improvement on its predecessors, and will be found invaluable to beginners, and both useful and instructive to more experienced riders. It deals with a multitude of subjects relating to all types of motor cycles, and new matter is included dealing with cycle cars.

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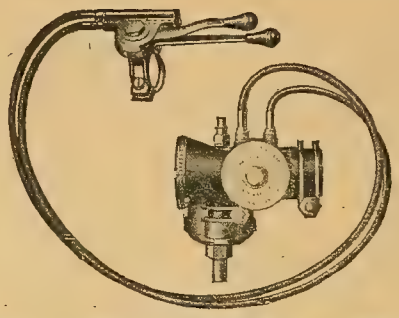

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(Colwyn Bay.)

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Club News.—

Bristol M.C.C.

A picnic was indulged in on the 5th inst. The next event of importance is a 24-hour run on the 25th and 26th inst. to either Land's End or Llandudno and back.

Herts. M.C.C.

The third half-day open sporting trial will take place on the 19th inst., starting from the George Hotel, Enfield, at 2.30 p.m., and finishing at the Salisbury Hotel, Barnet. The trial will consist of non-stop runs, speed trials, and a hill-climb.

Leeds M.C.C.

An interesting and amusing gymkhana was held on the 2nd inst. in the pretty village of Harewood. The weather was somewhat threatening, although it managed to keep fine. The competitors and spectators, of whom a large number were of the fair sex, entered into the fun with zest.

Merionethshire M.C.C.

A petrol consumption test took place on the 2nd inst. A hilly route of twenty-four miles was selected. Results:

1. O. P. Hughes (Turner light car) ... 36 m.p.g.
2. A. Williams (3½ Triumph) ... ... 147 m.p.g.
3. B. Edwards (3½ B.S.A.) ... ... 122 m.p.g.

Liverpool A.C.C.

The postponed Buxton reliability trial was held last week. E. F. Baxter (6 Rex) was the winner, with L. V. Barton (6 Rex) second.

The open reliability trial has been postponed from July 26th to August 9th. Particulars and entry forms from the hon. sec., Mr. S. W. Phillpott, 1, Oakdale Road, Mossley Hill, Liverpool.

Burton-on-Trent and District M.C.C.

A thirty-five mile reliability trial, under novel conditions, was held on the 9th inst. The route was kept secret, and each competitor was directed to proceed to Lichfield, where "sealed orders" were distributed. From Lichfield the party had to return by a round-about course passing through Handsacre and Abbots Bromley. Results: 1, C. Mansfield (2¾ Douglas), loss of time 4m. 45s.; 2. W. Williams (3½ Williams sc.), loss 7m. 40s.; 3, E. Payne (3½ Rudge), loss 7m. 41s.; 4, R. P. Robinson (3½ Rex), loss 8m. 25s.; 5, W. V. Harrad (5-6 Clyno sc.), loss 11m. 45s.; 6. H. Hardwick (3½ Triumph), loss 16m. 10s.; 7, Jones (3½ Ivy-Precision), loss 18m. 42s.; 8, W. Dunkerley (3½ Triumph sc.), loss 28m. 30s.; 9, Harold Hardwick (3½ Rudge-multi sc.), loss 33m. 10s.; 10, G. A. Bivens (3 Fafnir), loss 99m. 5s.

Cape Peninsula M.C.C.

A hill-climb for sidecars took place recently on the road to the Kloof-nek. There were two hairpin bends with gradients of 1 in 4 and 1 in 3. Winners: Class I. (Under 560 c.c.).—J. Thornton (3½ P. and M.). Class II. (Over 560 c.c.).—D. Garlick (6 Enfield), who also made fastest time of the day.

Birmingham M.C.C.

The annual club reliability trial to Edinburgh and back will take place on August 2nd and 4th. The start will be at 2 a.m. from Messrs. Sarson and Duke's Garage, Birchfield Road, near Perry Barr. Assistance *en route* will lead to disqualification, but small spares may be purchased. Route: Sutton Coldfield, Nottingham, Doncaster, Boroughbridge, Carlisle, Edinburgh; return, Carlisle, Shap, Preston, Warrington, Tarporley, Whitchurch, Newport, Brownhills, and finish at the Parson and Clerk. Application by intending entrants should be made to Mr. S. C. Perryman, 29, Albert Street, Birmingham.

Westmorland M.C.C.

By the kind permission of Lord Lonsdale, the above club held their annual speed trials in Lowther Park on the 5th inst. The event was also open to members of the Cumberland Club. The course was half-a-mile in length and a flying start allowed. Four classes were run, the first three on time and the fourth on formula. Results:

Class I.—Up to 350 c.c.

	Time.
H. Mason (2¾ N.U.T.)	30⅕s.
W. Westwood (2¾ Douglas)	35s.
P. Gilbanks (2¾ Douglas)	39⅘s.

Class II.—Up to 560 c.c.

H. Taylor (3½ Bradbury)	30⅘s.
J. E. Dean (3½ Singer)	31⅗s.
J. Braithwaite (3½ Braithwaite)	32⅖s.

Class III.—Up to 1,000 c.c.

B. Jefferys (8 Zenith)	27s.
A. I. Moffat (6 Zenith)	28⅘s.
H. Taylor (3½ Bradbury)	30⅘s.

Class IV.—Sidecars.

	Fig. of merit.
G. W. Braithwaite (3½ Zenith)	1,577
H. Taylor (3½ Bradbury)	1,668
E. Burras (3½ Zenith)	2,015

BANK HOLIDAY AT BROOKLANDS.

On August Bank Holiday Monday (August 4th), there will be three races for motor cycles and one for cycle cars, together with a "winner's" handicap for winners in the motor cycle, cycle car, and car races. One of the motor cycle events will be for machines fitted with sidecars. Entries close July 21st, and are 10s. 6d. per event, except the winners' handicap, entrance for this being free. Racing commences at 12 noon. The events are as follows:

The Sixteenth Short Motor Cycle Race. (A handicap.) For all classes of motor bicycles. Distance, about 5¾ miles.

The Thirteenth Long Motor Cycle Race. (A handicap.) For all classes of motor bicycles. Distance, about 8½ miles.

The Second Cycle Car Handicap. Distance, about 5¾ miles.

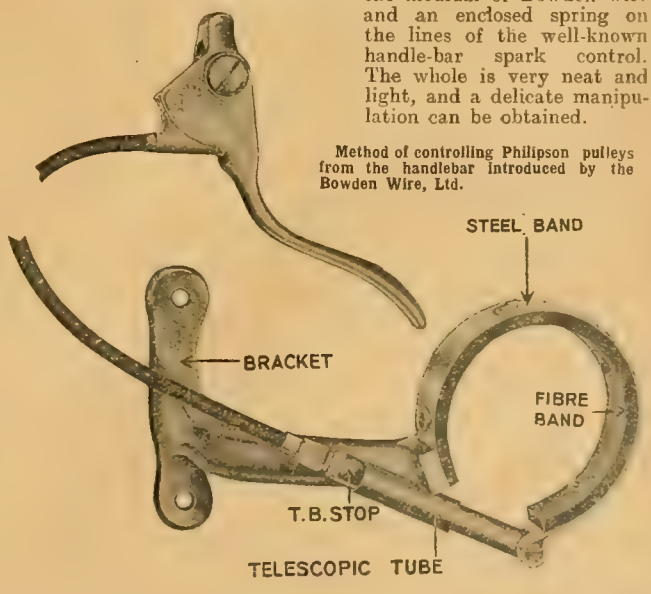
The August Sidecar Handicap. Distance, about 5¾ miles.

A Winners' Handicap. For all winners in above events. Distance, about 5¾ miles.

CONTROL FOR PHILIPSON PULLEY.

Now that the Philipson pulley is becoming so popular and some riders are spending much time in devising controls for the same, a ready-made handle-bar control is being turned out by Bowden Wire, Ltd., Pratt Street, Camden Town. The Philipson pulley, as most of our readers know, will act automatically according to the load on the engine and the gradient of the hill, but some think that it is an advantage to have a separate control. As will be seen from our illustration a fibre faced band brake is mounted on a stout bracket which can be attached to the crank case bolts, and on this bracket is mounted the stop for the wire control.

On the handle-bar is mounted a lever of the usual brake or exhaust lifter type connected to the brake band through the medium of Bowden wire and an enclosed spring on the lines of the well-known handle-bar spark control. The whole is very neat and light, and a delicate manipulation can be obtained.



Method of controlling Philipson pulleys from the handlebar introduced by the Bowden Wire, Ltd.

Records at Brooklands.

Oleo plugs were used in the recent record-breaking ride made by Howard Riddell at Brooklands.

Benzole in Oxford.

We learn that the Midland Motor Company, Oxford, stock benzole, and understand that they are the only people in the University city to do so.

Hints for F.N. Riders.

Messrs. F.N. (England), Ltd., 106, Great Portland Street, W., have brought out a little booklet entitled "Hints and Tips for the 5 h.p. Four-cylinder F.N." This publication should be of inestimable value to users of this machine. It will be sent post free on receipt of a post-card to any F.N. rider.

Palatine Tyres.

Palatine motor cycle tyres, which recently underwent a 3,000 miles test under the observation of the A.C.U., from which they emerged with great success, are proving themselves equally satisfactory in the hands of private users. We learn that J. J. Day, of Blackpool, gained a gold medal on these tyres, which were fitted to his 3½ h.p. Bradbury and sidecar in the recent Liverpool to Edinburgh and back twenty-four hours' run.

"Continental" Insurance Scheme.

The Continental Tyre Co. have a scheme by which all workmen who have served the company for ten years receive a life insurance policy of £75, and similar arrangements are made for certain of the clerical staff. Over 300 workmen and 100 of the office staff have been awarded this benefit. Every year bonuses are distributed, and the amount given to workmen in 1912 totalled £2,500 in addition to a further £1,000 for contributions in aid of the widows and orphans of deceased workmen.

New Edition of "Motor Cycles and How to Manage Them."

A new and enlarged edition of "Motor Cycles and How to Manage Them" is now ready for circulation. This useful and popular work has been brought right up-to-date, and several new features are included among them chapters on cycle cars, decompressors, spring frames, etc. All such important details as carburetters, magnetos, lubricating devices, etc., are dealt with in separate chapters, and the number of illustrations has been greatly increased. The cubical capacity table is not the least instructive feature. It has been compiled by *The Motor Cycle* staff, and may be obtained, price 1s., from our publishing offices at 20, Tudor Street, London, E.C.

Dunlop Successes.

Users of Dunlop tyres and belts have of late been wonderfully successful. W. J. Clarke, who has recently established an unofficial sidecar record week's ride on a 4¼ h.p. Monarch-Precision, fitted with a Roc gear, used Dunlop tyres and belt on his combination with excellent results, covering 1,800 miles in 118½ hours' actual riding time. The recent "Benzole" race at Brooklands was won by G. E. Stanley on a Dunlop-tyred and belted Singer, and other successes on similarly equipped machines have lately been numerous.

Victor Motor Cycle Tyres.

At the recent cycle car hill-climb at South Harting Hill, near Petersfield, Lord Exmouth, driving his G.N. cycle car used Victor motor cycle covers, a make he has favoured for some little time, with, we understand, excellent results.

A Handy Book.

"The Motor Mechanic Handbook:" F. Heron-Rogers and G. W. Watts; Cassell and Company, Limited. A useful book for motor vehicle owners and mechanics, and all those interested in internal combustion engineering.

Notice of Removal.

Owing to the extraordinary increase in their Scottish trade the Avon Indiarubber Co., Ltd., have found it necessary to remove their Glasgow branch from 197, Buchanan Street, to larger and more commodious premises situated at 250, Buchanan Street

Change of Address.

The Dunlop Rubber Co. are now in new premises at 63, Bath Street, Glasgow, where all communications relating to Scottish business should be addressed. The repair works are located at 60, North Wallace Street, Glasgow.

Rom Heavy Tyres.

The Rom Tyre Company are making a special point of catering for sidecar owners and for those who have heavy twin machines. The 650×65 Rom combination cover has a tread of 17 mm. thickness, and is so manufactured that a skid is practically impossible on any kind of surface, wet or dry. The Rom Co. also make a heavy tread cover 26×3 to fit 2½ rims, and 26×2½ to fit a 2¼ rim.

British Successes in Canada.

Represented by the single-cylinder Triumph, England competed against America very successfully at a race meeting at Toronto. In the hill-climb for sidecars, in which machines up to 4 h.p. were eligible, H. Greenwood, on a Triumph, won in 38s., and P. Barnes, on a Triumph, was second in 44⅘s. In the class for 4 h.p. machines, Bastedo, on a Triumph, only failed to win by the fraction of a second, and there were five Triumphs in the first nine. Special prizes for flexibility were awarded Greenwood and H. Burgess both on Triumphs.

"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates:—Unmounted prints, half plate 1/6 post free; mounted, 1/9 post free. This refers to photographs taken by "THE MOTOR CYCLE."

Orders, which must be accompanied with remittance, should be addressed to the Photographic Department, Iliffe and Sons Limited, 20, Tudor Street, London, E.C.

"Lyso" Belts Victorious.

We learn that H. Collier, who ran up such a remarkable sequence of five wins at Brooklands on the 5th inst., including the Harry Smith Gold Cup, on his Matchless racer, used Lyso belts in all the events.

"Le Guide Michelin."

"The Michelin Guide to France." This indispensable work to those who tour on the Continent has been still further improved for 1913. Maps on a smaller scale have been added and the book is thinner and a little longer.

Road Maps of Ireland.

Messrs. G. W. Bacon and Co., 127, Strand, W.C., have sent us a case of motor road maps of Ireland. These maps are five miles to the inch and are supplied in a neat case. Each map is particularly clear and is mounted on linen and cut into sections.

A.C. Financial Success.

We understand that the directors of Messrs. Auto-Carriers (1911), Ltd., as a result of the year's trading ending February 28th last, have recommended the payment of a dividend of 6% on the preference shares and a 6% dividend on the deferred shares. We are informed that the amount of profit carried forward is nearly double that of last year.

Success on an Old Machine.

We learn that in our report of the Mersey Motor Club's twenty-four hours' trial to Edinburgh and back we should have stated that A. Marston, who gained a silver medal, rode a 3½ h.p. Triumph, 1910 pattern, fitted with a single gear.

Motor Cycles in the City.

W. H. Elee, who will be remembered as a very successful rider of Rudge machines at Brooklands and in trials, has opened a branch of his Romford business in motor cycles at 16, Bishopsgate Avenue, London, E.C. This should prove of great convenience to those clients who are at business in the City.

For London Owners of Enfields.

It will be of interest to Royal Enfield motor-cycle users in London and the surrounding district to hear that the Enfield Cycle Co. have special arrangements for carrying out repairs to their machines at their depot, 48, Holborn Viaduct. So convenient have these arrangements proved that the company are contemplating making extensive additions to their workshop and staff.

Clynos as Prizes.

The County Chemical Co., Ltd., as already announced in these pages, are running a competition for users of Robbialac, a high-class enamel, which, if carefully applied, gives a result almost equal to stoving. All a competitor has to do to gain one of the valuable prizes is to buy a tin of Robbialac from a motor cycle or accessory dealer and paint some article or accessory with it. The best pieces of work will be rewarded by a prize of a 6 h.p. Clyno three-speed sidecar combination, 1913 model, of which there will be ten put up as prizes. The Editors of *The Motor Cycle* and *The Cycle and Motor Cycle Trader* have been asked to officiate as judges.

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THE EXTRA CHARGE FOR DEFERRED PAYMENTS AMOUNTS TO ONLY TWO PER CENT. ON THE LIST PRICE—£1 ON £50. NO OTHER FIRM OFFER SUCH ADVANTAGEOUS TERMS. WE HOLD THE

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MOTOR CARS and **CYCLE CARS** also in stock.

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1913 Models.

3½ h.p.	Rover, 3-speed	£58 0
*2¾ h.p.	Douglas P., 2-speed	£48 0
2¾ h.p.	New Hudson, 3-speed	£49 7
3½ h.p.	New Hudson, 3-speed	£57 15
3½ h.p.	New Hudson, 3-speed	£60 18
3½ h.p.	Humber, 3-speed	£57 10
*3½ h.p.	Triumph, free engine	£55 10
3½ h.p.	James, 3-speed	£63 0
*3½ h.p.	Rudge Multi	£60 0
3½ h.p.	Ariel, 3-speed	£58 15
3½ h.p.	Singer, 3-speed	£58 15
6 h.p.	Zenith, kick starter	£78 15
8 h.p.	Matchless, 2-speed	£73 10
5 h.p.	Hazlewood, 3-speed	£68 5
3½ h.p.	Martin-Jap, 3-speed	£58 16
3½ h.p.	Bradbury, 2-speed	£57 10
3½ h.p.	Bradbury, 3-speed	£60 0
3½ h.p.	Bradbury, 2-speed	£60 0
*3¾ h.p.	Scott, 2-speed	£68 5
3½ h.p.	Swift, 3-speed	£58 15
*2¾ h.p.	Douglas R	£52 0
6 h.p.	Rex-Jap, 2-speed	£71 8
2¾ h.p.	Sunbeam, 2-speed	£63 0
*3½ h.p.	Triumph, 3-speed	£59 15
6 h.p.	Bat, 3-speed	£65 0
3½ h.p.	Premier, 3-speed	£56 0
*3½ h.p.	P. & M., 2-speed	£65 0
4½ h.p.	Singer, 2-speed	£65 0
3½ h.p.	Zenith-Green	£65 0
*5-6 h.p.	Rudge Multi	£70 0
4¼ h.p.	Ixion, 3-speed	£58 0
6 h.p.	Clyno, 3-speed	£75 0
*6 h.p.	A.J.S.	£72 9
6 h.p.	Trump-Jap	£69 10

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All Brand New.

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8 h.p.	Chater-Lea	£94 11
4½ h.p.	Singer and Car	£75 0
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3½ h.p.	Humber	£71 0
3½ h.p.	Humber	£71 0

Other combinations made up to order at a few hours' notice.

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We are now clearing out our fleet of DEMONSTRATION MACHINES at greatly reduced prices. Most of them have done less than 100 miles.

Examples.

3½ h.p. Rudge Multi (list £60) £45
3½ h.p. 3-speed Ariel (list £58 15s.) £47
3½ h.p. Bradbury and Sidecar (list £72) £65
3½ h.p. Zenith Green (list £65) £49

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Get a Suit to-day. Jackets of fine, light-weight oilskin, double all through, wind-cuffs, double-breasted, two roomy pockets. Black or Yellow **13/6**

Leggings shaped and semi-buttoned **7/6**
Suit complete **21/-**

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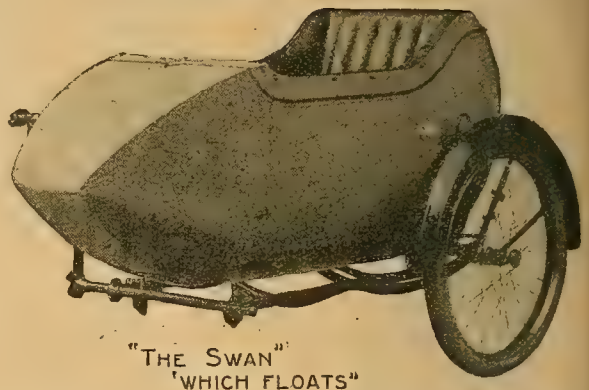
Suit complete **25/-**

Trouser Overalls
Clasp Fasteners, Black or Yellow **15/6**
Tan or Grey .. **17/6**
Without seat, Black or Yellow **14/-**
Tan or Grey .. **15/6**

Write or call for Patterns and the Beacon Booklet.

J. BARBOUR & SONS, LTD., Dept. D. **South Shields.**

"THE SWAN."



"THE SWAN"
'WHICH FLOATS"

If you were purchasing a car to enjoy the travelling of many miles on the open road and to appreciate the delights of touring under all conditions, would you not first seek that which afforded comfort and protection, and then that car which was graceful and charmed other road users?—this would be the genuine touring car.

Would not the same occur to you in the **purchase of a sidecar?** The Swan is **genuinely comfortable,** does really **give protection, is sensibly roomy**—and yet still retains a most **charming appearance.** It is a **thorough touring attachment.**

Price of car is £13 : 10 : 0.

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Sole London Agent:
A. P. REY, Great Portland Street, W.

No. 735.—TERRY'S tyre lever sets. High-grade quality. Tyres are very easily manipulated by their aid.

Motor Cycle size **1/6** per set.

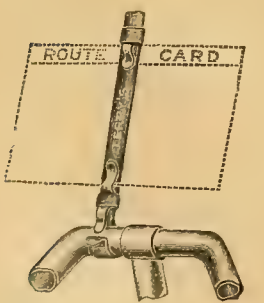
If difficult to get, order from us, giving dealer's name.

TERRY SPECIALITIES

are of proved efficiency—they do save time—money—and labour. Write now for our list, and see what they do.

"Always specify TERRY'S Springs."

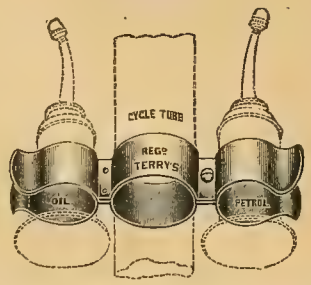
HERBERT TERRY & SONS,
The Spring Specialists,
REDDITCH, ENGLAND.



No. 555.—TERRY'S route card clips. Just the thing for the tourist or racing man. With wing bolt and nuts making attachment easy.

1/6 each.

Order from us, giving dealer's name, if difficult to get.



No. 557.—TERRY'S registered motor cycle oil and petrol can clips. Very good quality tempered steel clips. Complete with cans, **2/3** per set.

AMAC **AMAC**

BELT FASTENER.

PRICE 2/6

ONE YEAR'S GUARANTEE. MADE OUT OF SOLID STEEL BARS. HARDENED—UNBREAKABLE.

ASTON MOTOR ACCESSORIES Co. Ltd.
97, Aston Road North, BIRMINGHAM.

AMAC **AMAC**

"The Motor Cycle Journal of Canada," for April, 1913, says:—

COVENTRY CHAINS

"A large number of the racing machines in the States are fitted with **COVENTRY** chains. One rider, Ray Peck, used this chain on his mount all last summer and

DID NOT SUFFER A SINGLE BREAK

in any of his many races.

"THE COVENTRY" CHAIN CO., LTD., COVENTRY, England.

A lesson from the Isle of Man T.T. Races to Motor Cyclists.

The deserved success of the N.U.T. in the classic event of the year is as great a tribute to the determination of the man as to the proved efficiency of the machine which he piloted to victory.

Mr. Hugh Mason, far from being well, had unshaken confidence in the power and speed of the N.U.T. to acquit itself creditably in the competition, and his faith proved correct, for the

N·U·T

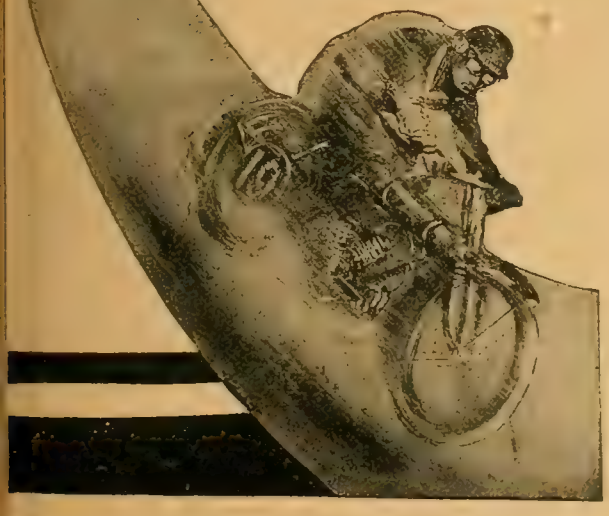
NEWCASTLE UPON TYNE.

WON THE JUNIOR RACE

AND ESTABLISHED ITS CLAIM AS THE MOTOR CYCLE OF UNEQUALLED EFFICIENCY.

Speed and enduring reliability are marked features of the N.U.T., and on this account it will assuredly render you a consistent service and complete satisfaction—always.

SIR WM. ANGUS, SANDERSON & CO., LTD.,
NEWCASTLE-ON-TYNE.



BURBERRY
TIELOCKEN COAT.

Illustrated Catalogue and Patterns of Gabardine Post Free.

When buying Burberry see that— The label says 'Burberry'— The bill says 'Burberry.'

BURBERRYS LATEST INVENTION for the Motor Cyclist or Motor Boatist—a double-breasted, buttonless coat, designed to provide unequalled security and comfort under the severest conditions.

BURBERRY WEAVE-PROOF GABARDINE, lined with proofed wool or camel-fleece, makes the Tielocken Coat a perfect safeguard against driving rain, chilling wind, dust, or spray.

LIGHTWEIGHT, YET WARM, Burberry Gabardine provides efficient protection against the worst weather vicissitudes, yet ventilates like ordinary cloth, thus preventing all danger of overheating or chill.

THE TIELOCKEN COAT, fastened with single strap-and-buckle, is easily put on or taken off. Worn with Trouserettes of Gabardine and Tielocken Gaiters, it supplies the finest protection available against the ill effects of exposure to wet or cold.

TIELOCKEN DUPLEX PROTECTORS, an application of the same principle, provide a four-fold yet airy safeguard of proofed Gabardine and proofed wool for keeping the knees and thighs dry in the heaviest rain.

PRICES: Tielocken Coat in Gabardine, lined proofed wool, 63/-; Gabardine Trouserettes, 31/6; Protectors, 15/-; Motor Cycle Cap, which can be readily transformed into a snug-fitting helmet, 15/-.

BURBERRYS Haymarket, LONDON;

8 and 10 Bd. Malesherbes, PARIS, and Provincial Agents.

12 months' Credit without interest.

That's Friswells' system of easy payments for Motor Cycles and Cycle-cars.

You pay ¼ of the amount down and the balance by 12 equal monthly payments free of interest.

Supposing you purchase a motor cycle costing £60. All you would have to pay down is £15 when you take delivery of the machine and the balance by 12 monthly payments of £3 15s.

Thus you purchase a motor cycle on the instalment system at cash price.

All the leading makes of Motor Cycles and Cycle-cars in stock and ready for immediate delivery. Write to-day.

FRISWELLS ALBANY STREET, REGENT'S PARK, N.W.
Telephone: 2115 North.
Telegrams: Friswell, London.

LEATHER BEAD
CHROME

Nothing Like LEATHER

FOR PROTECTING TYRES AGAINST THE DEADLY ATTACKS OF RUST.

Leather defies rust as stoutly as it resists wear. The bead of the Cann Tyre is encased with the finest chrome leather in such a manner that not only is it proof against rust, but the rim is also rendered watertight.
The chrome leather bead increases the strength of the walls of the tyre as well, and with the high quality of the material employed in manufacture in addition, together with the thoroughness of workmanship which characterises Cann methods it will be readily appreciated that the Cann Tyre may be depended upon to render better service, longer mileage and greater satisfaction than any other make of motor cycle tyre. And it does.

PRICES: 26 x 2¼in., 48/-; 26 x 2½in., 52/-.
Send your broken beads to us. Retreading from 12/6. Rubber studded

Further particulars and descriptive booklet post free from
TOM CANN, LTD., Applegate St., LEICESTER.
Telegrams—"Tom Cann, Leicester." Telephone—2073 (2 lines).

Cann
PATENT RUSTPROOF BEADED MOTOR-CYCLE TYRE

"All the Winners."

"Precision" Engines

"The Same as You can Buy."

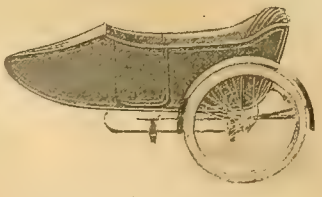
Please write for particulars to—

F. E. BAKER, LTD.,
Precision Works, Moorsom Street,
Birmingham.

London Stockists for "Precision" Engines and Spare Parts: Messrs. E. S. Thomas & Co., 154b, Gt. Titchfield St., W.C.

Wholesale Distributing Agents for Australia: Messrs. A. G. Healing & Co., 354-356, Post Office Place, Melbourne. Agent for South Africa, Rhodesia, and Portuguese East Africa: Victor S. Wellsford, P.O. Box 883, Durban. Agents for New Zealand: Messrs. J. B. Clarkson & Co., 120, Victoria Street, Wellington.

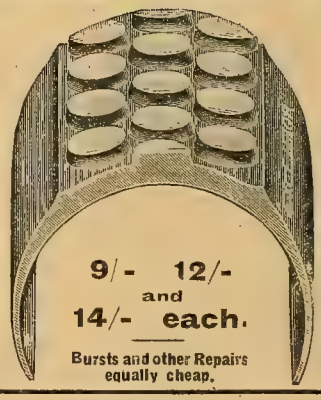
SHERBOURNE
ON EASY TERMS. **SIDECARS,**



25 lbs. ONLY.

Second-hand Cars taken in part payment.

Write for Catalogue. 10 Models.
Manufacturers—THE SHERBOURNE SIDECAR CO.,
100, Holyhead Road, COVENTRY.



9/- 12/- and 14/- each.

Bursts and other Repairs equally cheap.

RETREADING
MOTOR CYCLE COVERS.

—o—

We have specialised in all kinds of TYRE REPAIRS FOR 15 YEARS.

—o—

Send for Sections and all particulars to—

The Excelsior Tyre and Rubber Co.,
Hurst St., BIRMINGHAM.

NOW

is your opportunity to secure a really high-class

Motor Cycle and Sidecar

at a favourable price at

HARRODS

The whole of the present stock to be cleared before the holidays.
Do not miss this great opportunity.

DEFERRED TERMS (IF DESIRED).

N.B.—Complete lists cannot be sent as the stock changes too rapidly. If you cannot call, write your requirements and we will quote you by return, and reserve our quotation for 24 hours.

HARRODS Ltd. (By special appointment to H.M. the Queen). **LONDON, S.W.**

RICHARD BURBIDGE, Managing Director.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To insure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmorland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

WAUCHOPE'S

FOR BARGAINS OF QUALITY.

The House for Newest Models of all best makes, with latest up-to-date improvements; and Second-hands perfectly repaired, with all necessary replacements made, and put in thoroughly reliable riding order. Every machine fully guaranteed, and offered at lowest price for cash or in

WAUCHOPE'S EASY WAY—

¼ DOWN & 11 EASY EQUAL PAYMENTS

Order Form, full details, and to-day's Bargain List sent free on request.

7251.	2¾	h.p.	1912	standard **DOUGLAS**	£30 0
7253.	8	h.p.	1912	2-speed **MATCHLESS** and Sidecar	£67 10
7256.	3½	h.p.	1912	F.E. **TRIUMPH**	£40 0
7270.	3½	h.p.	1912	3-speed **PREMIER**	£37 10
7276.	2¾	h.p.	1913	lady's **DOUGLAS**	£44 0
7277.	2¾	h.p.	1911	standard **DOUGLAS**	£25 0
7279.	2	h.p.	1911	lady's **MOTOSACOCHE**	£19 0
7281.	3½	h.p.	1910	2-speed **P. & M.**	£32 10
7282.	8	h.p.	1912	2-speed **MATCHLESS** and Sidecar	£57 10
7284.	3½	h.p.	1912	F.E. **TRIUMPH**	£40 0
7291.	6	h.p.	1910	2-sp. **ROC** and Sidecar	£30 0
7292.	8	h.p.	1913	2-sp. **CAMPION** and Sc.	£60 0
	6	h.p.	1912	**REX** Sidette	£55 0
5596.	3½	h.p.	1910	**KERRY ABINGDON**	£27 0
5621.	2¾	h.p.	1912	3-speed **HUMBER**	£34 0
5742.	3½	h.p.	1910	T.T. **TRIUMPH**	£29 0
6082.	5	h.p.	1908	**V.S.**	
6161.	3½	h.p.	1912	F.E. **RUDGE**	£38 0
6170.	3½	h.p.	1911	**REX** tourist	£28 0
6176.	3½	h.p.	1912	free-engine **RUDGE**	£35 0
6179.	3	h.p.	1912	2-speed **N.S.U.**	£30 0
6276.	8	h.p.	1912	**ZENITH**	£55 0
6296.	3½	h.p.	1912	F.E. **KYNOCH**	£35 0
6343.	8	h.p.	1911	3-speed **CHATER-LEA** and Sidecar	£58 0
6378.	6	h.p.	1911	**ZENITH** and Sidecar	£50 0
6397.	8	h.p.	1912	3-speed **CHATER-LEA** and Sidecar	£65 0
6421.	3½	h.p.	1908	**MINERVA**	£18 0
6516.	8	h.p.	1911	3-speed **CHATER-LEA**	£47 10
6543.	3½	h.p.	1911	2-speed **ALLDAYS** and Sidecar	£35 0
6584.	2¾	h.p.	1911	2-speed **DOUGLAS**	£30 0
6646.	5-6	h.p.	1911	**A.C. SOCIABLE**	£52 10
6799.	7	h.p.		2-speed and F.E. **INDIAN**	£40 0
6834.	5-6	h.p.		**F.N.** and Sidecar	£23 10
6837.	3½	h.p.	1911	F.E. **RUDGE**	£35 0
6857.	5-6	h.p.	1910	**A.C. SOCIABLE**	£55 0
6863.	3½	h.p.	1910	**BAT**	£27 0
6900.	3½	h.p.	1912	F.E. **ROVER**	£38 0
7043.	3½	h.p.	1912	**ZENITH-GRADUA**	£38 0
7055.	2¾	h.p.	1911	**DOUGLAS**	£25 0
7000.	8	h.p.	1912	**MORGAN**	£75 0
6079.	3½	h.p.	1910	**TRUMP**, Mabon gear	£32 10
7080.	6	h.p.	1912	**CLYNO** and Sidecar	£55 0
7081.	3½	h.p.	1909	2-speed **TRIUMPH** and Sidecar	£32 10
7098.	3½	h.p.	1911	**ZENITH** and Sidecar	£37 10
7108.	3	h.p.		**GIVAUDAN**	£20 0
7110.	1½	h.p.	1909	**MOTOSACOCHE**	£14 0
7116.	3½	h.p.	1912	2-speed **BRADBURY**	£39 0
7124.	3½	h.p.	1911	T.T. **BRADBURY**	£30 0
7181.	2¾	h.p.	1912	2-speed **ENFIELD**	£35 0
7185.	2	h.p.	1910	**MOTO-REVE**	£14 0
7186.	4½	h.p.	1913	2-sp. **LINCOLN ELK**	£35 0
7191.	7	h.p.	1913	F.E. **INDIAN**	£47 10
7197.	3½	h.p.	1910	tourist **REX**	£22 10
	6	h.p.	1910	2-speed **MATCHLESS** and Sidecar	£45 0

Telegrams:
"Opificer, London."
Telephone:
5777
Holborn.

9 SHOE LANE. FLEET STREET LONDON.E.C.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry" or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmorland.

NEW Douglas, model R, in stock, can deliver immediately.—Walker, Fishburn, Ferryhill. [X2708

TWO 1911 P. and M.'s, 2-speed, £38; 1911 3½h.p. free engine Premier, £27; 1911 Douglas, standard model, £24; 1910 T.T. Triumph, £25; 1912 Scott, perfect, £45.—Walker, Fishburn, Ferryhill. [X2709

TURVEY and Co. have the following new 1913 model motor cycles in stock for immediate delivery: 3½h.p. 3-speed Triumph, £59/15; 3½h.p. 3-speed Humber, £57/10; 3½h.p. 2-speed B.S.A., £60; 3½ h.p. 2-speed B.S.A., £60, chain drive; 3½h.p. 3-speed Rover, £58; 5h.p. 3-speed twin Hazlewood, 65 gns.; 3½h.p. 3-speed Humber and sidecar, £63/16; 5h.p. 3-speed twin Hazlewood and sidecar, £78/10; Humberette and Perry cycle cars.—Write, wire, or 'phone, Turvey and Co., The Motor House, Sunderland. [X2309

TURVEY and Co. have the following second-hand motor cycles and sidecars in stock:

1909 3½h.p. Triumph, re-plated and enamelled, perfect running order, £22; 1911 3½h.p. Triumph, clutch model, lot of extras, £32; 1912 3½h.p. Ariel, practically new, £33; 1913 3½h.p. Humber, ridden 135 miles, customer bought Humberette, £50; 7h.p. Vindec Special, 2 speeds, 1911 model, and sidecar, £40; 8h.p. Chater-Lea twin, 3 speeds, coachbuilt sidecar, 700×80 car tyre on back wheel, as good as new, £55; two second-hand cars, £3 and £4 each; 3½h.p. Excelsior, Roc 2 speeds, coachbuilt sidecar, £33.—Turvey and Co., The Motor House, Sunderland. [X2310

ARIEL, 3½h.p., 1912, decompressor, excellent machine; sacrifice £29.—Cedric Palmer, Wooley, Crook. [X2438a

NEW Hudson, 2½h.p., 1911, Armstrong 3-speed gear; £24.—Cedric Palmer, Wooley, Crook. [X2433

TRIUMPH, 1907, new cylinder, piston, tyre, and belt, first-class order; £18.—W. Holme, Kirkby-Lonsdale. [X2567

3½h.p. Triumph, practically new tyres and tubes, 2 belts, most reliable; £14, or exchange higher power.—Taylor, Blackford, Carlisle. [8952

TRIUMPH, late 1910, splendid order, tyres good, belt new; on approval; £26, a bargain.—Box No. 3,578, *The Motor Cycle* Offices, Coventry. [X601

SECTION II.

York and Lancashire.

L.

HITCHINGS', Ltd., 74, Bold St., Liverpool.

MATCHLESS Agents, Hitchings', Ltd., sole representatives.

TRIUMPH, James, and Veloce motor cycles, Swift and Crescent cycle cars, Montgomery, Gloria, and Gondola sidecars; sole agents.—Prompt deliveries and absolute satisfaction guaranteed by Hitchings', Ltd., 74, Bold St., the firm of good repute. [1725

GOING STRONG.

We have a few Brand New 1912 Rexes (very late deliveries), and offer a discount of 10 to 15 per cent. from them together with a generous allowance for your old machine. We also consider any reasonable suggestion re purchase which you place before us. CASH OFFERS WANTED.

SOLD UNDER MAKERS' GUARANTEE.

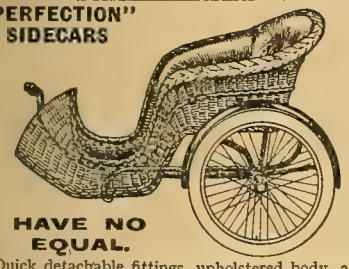
1912 4 h.p. Tourist, 84½ × 95 ..... £46 0
1912 6 h.p. 2-speed Twin de Luxe £62 10
1912 6 h.p. Twin, 77½ × 95 ..... £50 0

Easy Payments from £10 deposit.

NEW 1913's

TRIUMPH, 3½ h.p., 3-speed Sturmey £59 15
REX, 6 h.p., 2-speed, de luxe £62 10
REX, 6 h.p., 2-speed, de luxe, chain drive .. £67 15
REX, 4 h.p., 2-speed, de luxe £56 0
DOUGLAS, 2¾ h.p., 2-speed £48 0
BRADBURY, 3-speed, ... £60 0
BRADBURY, 2-speed, kick starter £60 0
REX-J.A.P., 6 h.p., 2-speed £71 8
REX-J.A.P., 8 h.p., 2-speed £73 10
B.S.A., 2-speed, free engine £60 0
WILLIAMSON, 8 h.p., L75, water-cooled .. £82 10
WILLIAMSON, 8 h.p., w.c., and sidecar £97 10

"PERFECTION" SIDECARS



HAVE NO EQUAL.

Quick detachable fittings, upholstered body, and complete with tyre. NOTE PRICE, **£5 5s.**

MISCELLANEOUS MACHINES.

Cash or Exchange.

B.S.A., 1913, 2-speed, 2½in. tyres, 750 miles . £49 10
SCOTT, water-cooled, 2 speeds, 1910 ..... £29 10
TRIUMPH, 1912, 3½ h.p., plate clutch £44 10
RUDGE Multi, 1912, and sidecar £47 10
REX, 4 h.p., 1912, the Big Single (NEW) .. £39 0
REX, 5 h.p., 1911-12, 2 speed, NEW..... £47 Gns
KYNOCH, 1912, 3½ h.p., 2 speeds, free engine £38 10
CALTHORPE, 1912, 2-speed, chain-belt ... £44 10
PRECISION (Ivy), Druids, h.b. control £32 10
REX, 1913, 6 h.p., 2-speed, twin £54 10
ROVER, 1911, clutch model; cost £55.. Offers
N.S.U., 5½ h.p., 2-speed, and Sidecar £31 0
JAMES, 1910, 3½ h.p. magneto £19 10
REX, 5 h.p., 1909, 2-speed. de luxe £29 10
P. & M., 3½ h.p., 2-speed, and Sidecar £25 10
ZENITH, 1911, 3½ h.p., and Sidecar £39 10
CLYNO, 1912, and special cane Sidecar £59 10
N.S.U., 5½ h.p., 2-speed, spring forks £27 10
PEUGEOT, 3½ h.p., magneto, 2 speeds £22 10
REX, 1913, 4 h.p., 2-speed, de Luxe, chain drive, nearly new £49 10
REX, 1911, 2-speed, twin, de luxe £38 10
PREMIER, 1911, 3½ h.p., variable gear £32 10
REX, 5½ h.p., twin, spring forks..... £15 10
TRIUMPH, 1908, 3½ h.p., and Sidecar £31 0
TRIUMPH, 1908, 3½ h.p. £27 10
J.A.P. 6 h.p., M.O.V., free engine, spring fks £34 10
MOTO-REVE, twin, lightweight, runs well.. £13 10
BAT-J.A.P., 6 h.p., spring frame and forks £29 10
BRADBURY, 1913, 3-speed Sturmey..... £47 10
QUADRANT, 1912, free engine £35 10
REX, 1911, twin, de luxe, and new £10 10s. Sidecar, specially good condition £45 10
REX, 3½ h.p., magneto, spring forks, 1908 .. £19 10
REX, 2¾ h.p., magneto, lightweight, h.b.c... £15 10
MINERVA, 4½ h.p., twin, M.O.V. £15 10
MINERVA, 3½ h.p., magneto, very low ... £15 10
MINERVA, 2¾ h.p., magneto, smart £14 0
REX, 3½ h.p., spring forks £12 10
2½ h.p. **PRINCEPS**, vertical engine £8 0
REX, 2¾ h.p., 1908, magneto. wants attention £9 10
2¾ h.p. 2-speed **BAT** £8 10
F.N., magneto, lightweight £14 10
New 1912 **ARMSTRONG** Gear and Controls—Mark II., £5 10 0; Mark III., £6 2 6; Mark VI., 1913, £10 10 0. Trade supplied.
Easy Payments on ANY Machine.

The Halifax Motor Exchange

Largest Rex Dealers,
16, WESTGATE, HALIFAX.
'Phone 766. Telegrams: "Perfection."

MOTOR BICYCLES FOR SALE.

2¾h.p. Rex, in perfect running order, Bosch, B B., P. and H. lamp, spare belt, mirror, watch; accept £12/10 for quick sale, no offers; deposit, editor.—Fred Hopton, 60, Elden St. North, Barnsley. [X2635

LATE 1912 6h.p. Rex-Jap, 2-speed gear, handle starting, speedometer, lamp, generator, horn, all tools and spare parts, ridden 1,500 miles; inspection invited; price £60.—Storey, Brock House, Freshfield, near Liverpool. [X1551

TRIUMPH, good condition, practically new tyres, 1912 N.S.U. 2-speed, new Binks carburetter, new lamp and horn; £30 cash; entertain exchange and cash for good make, Douglas preferred.—Evans, 50, Market St., Wigan. [X2495

TRIUMPH, 1911¾, free engine, Lucas lamp, horn, Cowey speedometer, spare heavy Continental tyre, all accessories; cost Sept., 1911, £65/14/6; guaranteed as new; price 39 gns.—Dr. R. B. Sephton, Culcheth, near Warrington. [X2391

SCOTT, 1913, as new used only for demonstration purposes, £63; P. and M., 1913, just delivered: Douglas, model N, just delivered; A.C., delivered February, 1913, excellent condition, 4 lamps, £75.—Everingham Bros., Pocklington. [8908

DOUGLAS, 1911, done 2,000, new tyres and belt, lamp, horn, etc., guaranteed new condition, £26; also 1906 Triumph, spring forks, perfect condition, £12/10; 2¾h.p. lightweight, mag., B. and B., excellent condition, £15.—Walton, Dawson Sq., Burnley. [X2728

GREAT Bargains, must be sold.—1911 Douglas, like new, £24; 1912 free engine B.S.A., £38; 5-6h.p. twin Rex, 1909, free engine, new condition, £20; 5-6h.p twin Rex and sidecar, 1911, 2-speed, free engine, £32; 1912 Premier and sidecar, 3½h.p., twin-cyl., 3-speed gear, £45; written warranty given with each machine; offers wanted.—J. Guttenberg, The Moor Sheffield. [0288

NEW March last and little used, Ariel 3½h.p., 3-speed, kick-starter, coach-built sidecar, with wind screen, Cane cart hood and side curtains, all accessories, speedometer, spare belt, buying car, any reasonable offer; also 1912 Enfield twin lightweight, 2-speed, free engine, little and carefully used, cost £55, accept £35, new condition.—Hey, Normanton. [9029

MANUFACTURERS' Agent having secured the following motor cycles, he invites cash offers, nothing reasonable refused: Rudge Multi, £60; New Hudson, model VIIa., £63; Singer, 3½h.p., 3-speed, £58/15; Clyno, 5-6h.p., £75; James, 3½h.p., Canoelet sidecar, £76/13; Douglas, models O and R, £48 and £52; Premier, 3½h.p., 2-speed, counter-shaft, £56; all guaranteed new 1913 models, must sell.—Letters only, Harrison, 33, Williams Rd., Burnley. [9016

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

PHELON and Moore, 1913 models in stock.—Motor Depot, Black Heath, Staffs. [X9824

TRIUMPHS, all models; immediate delivery.—Motor Depot, Black Heath, Staffs. [X9825

B.S.A's, 2-speed, chain or belt drive.—Motor Depot High St., Black Heath, Staffs. [X9826

3¾h.p. Precision, not soiled; take best cash offer over £34—77, Macklin St., Derby. [X2722

TRIUMPH, 3½h.p., 1908, in good condition; £20.—Bert Stubbs, 91, Stone Rd., Stafford. [X2479

TRIUMPH, 1909, perfect condition, very little used.—Wade, 97, Trent Valley Rd., Lichfield. [X2388

1913 Special Competition T.T. Red Rudge, new; £42.—Motorist, 12, Spring Rd. Wrexham. [X2654

TRIUMPH, 1908, Mabon var. gear, footboards; £17.—Hackett, 487, Hempshaw Lane, Stockport. [X2585

TRIUMPH, 3½h.p., 1913 model, type C Roadster, 3 speeds; £59/15; in stock.—Bailey's Garage, Stafford. [X7683

ROVER, 3½h.p., 1912 model, with Triumph free engine clutch, shop-soiled; list £55, accept £50.—Bailey's Garage, Stafford. [X1684

MOTOSACOCHE, 1¾h.p., shop-soiled; list £36, accept £25.—Bailey's Garage, Stafford. [X1685

ENFIELD 2¾h.p., late 1910, little used, perfect order, lamp, and spares; £21.—E. Brown, Stretton, Stafford. [X2483

2¾h.p. Zedel, h.b.c., B. and B., mag., Whittle, lamp, 32" low, powerful, reliable; £11.—53, Park St. South, Wolverhampton. [X2484

F.N., 4-cyl., mag., 1910, good running order, would take sidecar easily; £15, or first best offer.—Edwin Smith, Bakewell. [X2497

1912 6h.p. Clyno, excellent condition, £40; Montgomery sidecar, £5; together or separate.—84, Sutton Rd., Walsall. [8800

3½h.p. Rudge Multi, June, 1912, little used, in perfect condition; £42/10 cash.—Jenks, Golthorne Rd., Wolverhampton. [X1984

TRIUMPH, 1911½, T.T., long exhaust, Lucas lamp, Dunlops, whistle; any trial; £29, bargain.—Deane, Matlock Bath, Derbyshire. [X2608

REY

The noted firm. Established in the Motor Trade since **1900**, and known throughout the country for quickest delivery of any Motor Cycle or Cycle Car.

1913 MACHINES FOR IMMEDIATE DELIVERY

DOUGLAS, any model.
BAT, 2-speed and 3-speed.
ZENITH, any model.
MATCHLESS, 2-speed.
BRADBURY, any model.
TRIUMPH, F.E. and 3-sp.
INDIAN, 7 h.p. 2-speed.
SCOTT, 2-speed W.C.
NORTON, T.T. 3½ h.p.
HUMBER, 3-speed.
ROVER.
WILLIAMSON, A.C. 8 h.p.
WILLIAMSON, W.C. 8 h.p.
B.S.A., 2-speed.
B.S.A., chain drive.
CLYNO, 5-6 h.p.
CORAH, 10 days.
RUDGE, 750 c.c. multi.
SINGER, T.T. 3-speed and 4½ h.p.
NEW IMPERIAL, 6 h.p. 3-speed.
ENFIELD, 6 h.p. 2-speed.
NEW HUDSON, 3½ h.p. 3-speed.
LINCOLN-ELK, 2-speed.
LEVIS, 2½ and 2¾ h.p.
ZENITH-GREEN.
JAMES.
F.N., any model.

Cycle Cars for Immediate Delivery:

MORGANS in Stock.
G.W.K. ,,
A.C. ,,
HUMBERETTES.
FORD CARS.
SINGER.

SPECIAL THIS WEEK.
Brand New P. & M. £53

The "REY" Sidecars

Wicker .. £5 5 0 to £7 0 0
Coach-built £9 10 0
Cane (2 models) £10 10 0

TRADE SUPPLIED WITH VARIOUS MAKES, AT LIBERAL DISCOUNTS.

SECOND-HAND.

£25. F.N. 4-cylinder 1910
£28. F.N. 4-cylinder 1911
£6. Montgomery Sc. 1912
£38. Scott 1911
£23. std. **Douglas** ... 1910
£30. Triumph std. .. 1909
£22. twin **Moto-Reve** (lady's) 1910
£45. 6 h.p. **Zenith** and Sidecar 1911
£35. 3½ h.p. **Zenith**.. 1912
£34. 2-speed **Douglas** 1912
£33. 4½ h.p. **Lincoln-Elk** 1913
£42. 3-speed **Rover**.. 1912
£33. 5-6 h.p. T.T. **Bat,** overhead valves
£30. std. **Triumph** .. 1910
£33. F.E. **Rudge** 1912
£28. F.E. **Singer** 1911
£17. std. **Triumph** .. 1909
£23. 5 h.p. **V.S.** 1911
£32. Rex-Jap 1912
£33. 3½ h.p. **Trump-Jap** 1912
£40. 6 h.p. **Zenith** .. 1911
£34. 3½ T.T. **Corah**.. 1912
£65. 8 h.p. **Zenith** and Millford coachbuilt Sidecar 1913
£63. 3½ h.p. **P. & M.** and Montgomery Sc. 1913
£50. 3½ h.p. twin **Matchless** 1913
£54. 4h.p. **Singer,** new 1912

£125 8-10 Marlborough Chassis 1913, Racing Body.

Deferred Payments on New or Second-hand Cars, Cycle Cars, Motor Cycles, or Sidecars.

Sole London Agents for—

Canoelet Sidecars from.. .. £12 12
Swan Sidecars from £13 13
Also Folding Sidecars for Immediate Delivery.

EASY PAYMENTS. FROM **2%** EXTRA.

5, Heath St., Hampstead, N.W.; and 173, Gt. Portland St., W.

Telephones: 2678, P.O., Hampstead; and 1970, Regent.

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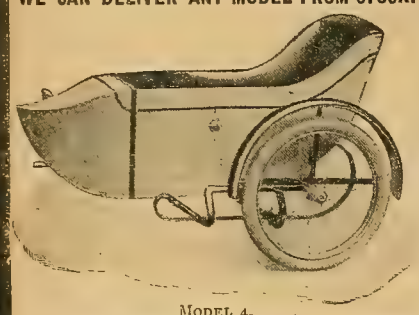
MAKE NO MISTAKE

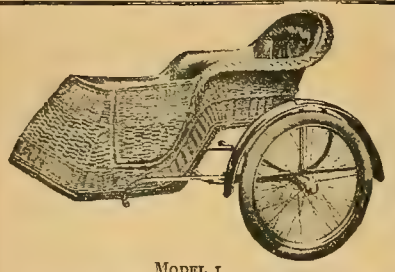
Be sure you get the genuine

FARLOW SIDECARS

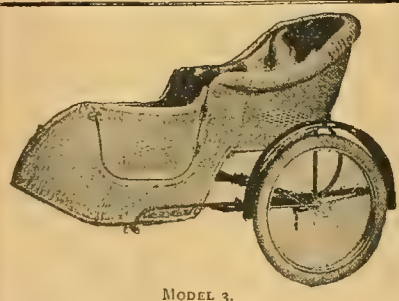
Your agent will supply.
If not, we will send direct.
WE CAN DELIVER ANY MODEL FROM STOCK.



MODEL 4.
Underslung chassis (patent 5070), light coachbuilt body, spring cushion, two tool boxes fitted.
10 guineas.



MODEL 1.
Wicker body, canoe front, side door, upholstered and lined inside right down to the toe.
£6 5s. 0d.



MODEL 3.
Reed cane body with roll top, thickly upholstered and lined right down to the toe.
£8 10s. 0d.

Models Nos. 1 and 3 can be fitted with our underslung chassis (patent 5070/12) for **10s.** extra.

All Carriage Paid, and complete with mat, stand, quick detachable joints, and Michelin **Motor Cycle** Tyres. Trade supplied.

MOTOR CYCLE FRAMES.

We have a quantity of frames by well-known maker. Two styles to choose from.
PRICE 32/6 EACH.
Rigid forks, **7/6** extra. Druid forks, **45/-** extra.
Enamelled and plated in first-class style.

ODD BARGAINS.

Cowey Speedometer, done 3,000	£3 0
Sidecar Aprons	7/6
Cowey Speedometer, done 100, perfect	£3 10
New Rubber-studded Covers, 26 × 2¼, beaded	17/6
Triumph Pattern Handle-bar, new	6/6
New Pressed Trembler Coil	15/-

Farrar's Motor Exchange

19, 21, 23, 25, Hopwood Lane,

Telephone 910. **HALIFAX** (Two minutes from G.P.O.)

MOTOR BICYCLES FOR SALE.

PHELON-MOORE, late 1911, 2 speeds, free, fine sidecar machine, complete, splendid condition; £40 or near.—Shone, 70, Watergate St., Chester. [8881

1912 F.E. Triumph, lamp, horn, tools, not ridden winter, splendid condition; owner bought 6h.p.; £42, bargain.—Pierce, Bryngwran, Anglesey. [X2680

1911 2¼h.p. Enfield Twin Lightweight, perfect condition, just overhauled by makers, Palmer tyres, new Whittle belt; £18; buying car.—Standeven, Swan Bank, Congleton. [X2595

ROVER, 3½h.p., clutch model, new Xmas, 1912, only done 800 miles, Lucas lamp, horn, tools, etc., everything as new; £39, or nearest, cash.—Pilkington, 110, Wolverhampton Rd., Stafford. [X2649

A.J.S. Motor Cycles.—We are one of the largest contracting agents for these famous machines and can give immediate delivery of either models; exchanges considered.—The Walsall Garage, Walsall. [X1773

PHELON and Moore, 1911, colonial model, delivered 1912, Jan., in brand new condition, 1912 improvements; only wants seeing; £42 lowest, or exchange Sunbeam or 1912 clutch Triumph.—Rhosville, Rhos Rd., Rhos-on-Sea. [X2582

B.S.A., 1912¾, 2-speed, free engine, P. and H. King of the Road lamp, Lucas (18/6) horn, and back ruby reflector, new last November, complete, and ready for immediate use, in perfect condition.—Pierce, Briar Villa, Grove Park, Colwyn Bay. [X2401

A.J.S., 2½h.p., new September, 1912, not yet done 3,000 miles, carefully kept and ridden, in perfect condition, chain drive, 2-speed gear, kick start, horn, 3 gn. Lucas King of the Road lamp, Jones trip speedometer; price £35; any reasonable trial.—Ferndale, Upton Heath, Chester. [X2555

YELLOW Peril.—1913 3½h.p. T.T. New Hudson, 3 speeds, free engine, kick-starter, big Lucas lamp set and horn, new Kempshall tyres, complete with Montgomery sporting sidecar, combination new April, finished yellow, winner several competitions, perfect condition; £65.—Gilbert Hall, Dale Rd., Matlock. [X2584

IMMEDIATE Delivery, Phelon and Moore, Triumphs, B.S.A., Rudge Multi, Enfield 6h.p. Douglas, sidecars; torpedo, side door, £6/17/6; best value yet offered; also £5/5 models; Auto-Wheels; several second-hand machines; largest stock spare parts, tyres, belts, lamps, etc.—William Jones, Anglesey Motor Mart, Llanfairpwllgwyngyll. [X1983

ACTUALLY in Stock.—We can deliver immediately the following machines: 1913 Douglas, model O, £48; 1913 2¾h.p. A.J.S., £48/6; 1913 Bradbury, F.E., £55; 1913 A.S.L., £45; 1913 Excelsior, 3-speed, £65; 1913 3½h.p. N.S.U., 2-speed, and kick starter, £55; 1913 2½h.p. Singer, £39; 2-stroke Connaught, £33/10; 1913 F.E. Rudge, £55; Humberette, complete, £125. Second-hand bargains: 1912 F.N., 2-speed, clutch model, beautiful order, £40; 1912 Zenith and Mills-Fulford sidecar, £45; 1912 T.T. Corah, 3½h.p., red, £35; 1910 Douglas, overhauled, £20; 1912 3h.p. N.S.U., 2-speed, and sidecar, £35; 1911 7-9h.p. Indian, F.E., just been overhauled, very fast, £40; 1912 F.E. Rudge and sidecar, speedometer, and lamps, £45; 1912 Clyno and sidecar, complete, with Lucas lamps, Jones speedometer, and horn, cost over £100, had very little wear, a sacrifice, £65, or exchange; 1908 Rover (cream), hood, screen, and Stepney, tyres like new, car in perfect condition, 6h.p., lamps and accessories, a gift at the price, 50 miles trial, £45; 3½h.p. Centaur, mag., B.B., footboards, £16; exchanges a speciality.—The North Wales Motor Exchange, Holt St., Wrexham. Tel.: 283. [X2664

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

GREAT Bargains.

ZENITH-GRADUA, 1912, 6h.p., shop-soiled; £56.—Below

N.S.U., 1912, 3½h.p., 2-speed, shop-soiled; £40.—Below.

SCOTT, latest 1913 model in stock; discount for cash.—Below

TRIUMPHS.—1913 3½h.p. 3-speed £55, 1913 3½h.p. T.T. Roadster £45; used few times for demonstration, carry full guarantee.—Below

TRIUMPHS.—Brand new 1913 models, 3-speed, free engine, and T.T. Roadster, in stock, for immediate delivery.—Official agents for Birmingham district, The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0316

BIRMINGHAM and Leicester.

COLMORE Depots, 31, Colmore Row, Birmingham; 49, John Bright St., Birmingham; and 62, High St., Leicester.

NEW and 2nd-hand at the leading depots for the Midlands; agents for Douglas, Scott, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, Birmingham and Leicester. [X6047

3h.p. Lincoln-Elk, 1913, free engine, in perfect order; £26.—Baily, Kirkgate, Newark. [X2426

TRIUMPH, free engine, 1913 model, only run 50 miles; £50.—Robbins' Garage, Rugby. [8634

PREMIER, 3-speed, 1913 model, not yet run 100 miles; £50.—Robbins' Garage, Rugby. [8635

FARRAR'S

ANNUAL SALE

By discount to cash buyers.

The following are complete with sidecars:—

1913 8 h.p. **ZENITH** and 15 guineas Sidecar	£65	0
1910 3½ h.p. **P. & M.,** 2 speeds, and sidecar	£33	0
8 h.p. **BLUMFIELD** Cycle Car, 2 speeds	£40	0
1912 6 h.p. **CLYNO** and Sidecar	£45	0
1912 6 h.p. **REX** and Sidette Sidecar	£45	0
1911 8 h.p. **MATCHLESS** 2-speeds, and Sc.	£50	0
1912 3½ h.p. 3-speed **SINGER** and Sidecar	£48	0
1911 4 h.p. 2-sp. **QUADRANT** and Sidecar	£33	0
1911 5 h.p. **REX** de Luxe and Sidecar	£33	0
1909 5 h.p. **REX** de Luxe and Sidecar	£30	0
1908 5 h.p. **REX** de Luxe and Sidecar	£28	0
1908 5 h.p. **REX,** Roc, 2 speeds, and S'car	£25	0
1910 5 h.p. 2-speed **VINDEC** and Sidecar	£30	0
1910 3¾ h.p. 2-speed **SCOTT** and Sidecar	£30	0
4 h.p. 2-speed **N.S.U.** and Sidecar	£23	0
1908 5 h.p. **REX,** clutch model, and Sidecar	£23	0

All have variable gears except the last-named.
We will sell any machine without sidecar.

We have the following New 1913 Machines in Stock:

6 h.p. **A.J.S.,** 3 speeds, kick starter	69 Gns	
3½ h.p. **PHELON & MOORE,** kick starter	£65	0
1913 3½ h.p. 3-speed **HUMBER**	£53	0
1913 3½ h.p. **RUDGE,** standard model	£45	0
1913 2¾ h.p. **SUNBEAM,** 2 speeds	£63	0
1913 4½ h.p. **SINGER,** 2 speeds	60 Gns	
1913 3½ h.p. **NEW HUDSON,** 3 speeds	58 Gns	

Easy terms quoted. Discount for Cash.

MORGAN CYCLE CARS.

8 h.p. J.A.P. engine, best of everything.
85 guineas.

—— Delivery from stock. ——

THIS WEEK'S BARGAINS.

1911 3½ h.p. **ARIEL SWIFT,** free engine	£24	0
1912 6 h.p. **CLYNO,** 2 speeds, kick starter	£42	0
1912 6 h.p. **REX** Sidette, 2 speeds	£45	0
1910 5-6 h.p. **VINDEC,** 2 speeds	£27	0
1909 5-6 h.p. **REX** de Luxe	£28	0
5-6 h.p. **REX** de Luxe, 2 speeds, etc.	£27	0
4 h.p. **N.S.U.,** Bosch, N.S.U. two speeds	£20	0
3½ h.p. 1912 **SINGER,** 3 speeds	£45	0
3½ h.p. 1907 **TRIUMPH,** magneto, spring fks.	£23	0
One Ditto, very good	£24	0
One Ditto, extra good	£25	0
4 h.p. 1911 **QUADRANT,** Roc 2 speeds	£30	0
5-6 h.p. Twin **REX,** magneto and clutch	£19	0
3½ h.p. 1909 **REX** Tourist, good	£21	0
3½ h.p. 1908 **REX** Tourist, 1909 engine	£19	0
3½ h.p. 1910 **REX,** fine goer	£23	0
5-6 h.p. **REX** de Luxe, 1908, 2-speed model	£25	0

We have a few Brand New Clearance Clincher Rubber-studded 26 × 2¼ Covers to fit 26 × 2¼ Rims.
Usual price **45/6** each.

Our price 25/- each.

Approval willingly.

£7 DOWN SECURES ANY OF THESE. BALANCE £1 MONTH.

3½ h.p. 1908 **REX £19**	4 h.p. 2-speed **N.S.U. £20**
3½ h.p. 1909 **REX £21**	3½ h.p. 1910 **REX £23**

MISCELLANEOUS BARGAINS.

Clincher Clearance 26 × 2¼in. Rubstud Covers	25/-
New Bosch Twin Magnetos D.A.V., any angle or rotation, fully guaranteed	£2 19 6
New Bosch magneto, suit V. twin engine	59/6
New Bosch magneto, suit single-cyl. engine	£3 0
A1 Mudscreen, good	7/6
Farlow Sidecar, good	£3 10
Wicker Sidecar Body	7/6
26 × 2¼ Rub-stud Continental Cover, new	30/-
Rex Pattern Foot Brake, new	7/6
New Motor Cycle Frame	32/6

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MOTOR BICYCLES FOR SALE.

1913 2-speed B.S.A., used 4 days only, with large head light and horn, cost £64, absolutely equal to new; £53, wonderful bargain.—Parker and Son.

1913 3-speed Triumph, used 4 days only, head light and horn, cost £63, equal to new; sacrifice, £53, first cheque secures.—Parker and Son, St. Ives, Hunts. [8956

LEAVIS.—The best house for motor cycles.—Immediate delivery all motor cycles and cycle cars; exchanges; enquiries invited.—Leavis, Downham. 'Phone: 33. [8930

MOTOR Bargains.—Clutch Triumphs from £30 upwards; 1913 3-speed Rover, as new, £50; 1913 3-speed Humber, mileage 300, complete with all accessories, £48; 1912 Calcott, £18; standard and T.T Triumphs from £20, upwards. — Leavis, Downham. Phone: 33. [8929

DOUGLAS, Douglas, Douglas.—All 1913 models in stock for immediate delivery. Let me book your order at once.—Flanders' Motor Cycle Depots, Norwich and Yarmouth. [0308

CLEARANCE Sale. 1912 free engine Bradbury, 1910, 1911, and 1912 Triumphs, 1911 and 1912 B.S.A., 3h.p. Jimmy Jap, Bedford flier, 1912 and 1913 Rovers, 7h.p. Indian.—Murkett Bros., Motor Cycle Garage, Bedford. [8487

£34, Alldays-Matchless, 1912½, 2 speeds and free, like new, perfect condition; £14, Lloyds, 2¾h.p., very smart, B.B., up-to-date model; £18, 4-cyl. F.N., covers nearly new, fast, 1913 B. and B.; £22, 6h.p. Peugeot, marvellous, machine faultless, engine, fine sidecar tool; £7 7, Montgomery, No. 5, cost £13 13, very good order.—Dawsons', 197, Mill Rd., Cambridge. [X1981

SECTION VI.
Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

1913 Scott, uncrated, delivered too late for customer; price £63.—Jenks, Bewdley. [9021

1912 Free Engine B.S.A., just overhauled by makers; price £35.—Jenks, Bewdley. [9022

1913 Sunbeam, ridden 10 miles only, otherwise as new; £57.—Weale, Leominster. [X2647

3h.p. Motor Cycle, 1912; £25 or near offer.—Alsop, Exeter Rd., Maindee, Newport, Mon. [X2502

1913 Humber, 3½h.p., 3-speed, very slightly shop-soiled; bargain, £47/10.—Howell, Hereford. [X849

TRIUMPH, 1912, F.E., perfect condition, complete with accessories; £39/10.—Eldridge, 93, Ryelands St., Hereford. [X2511

B.S.A., 3½h.p., free engine, lamp, horn, spare tyre, belt, tube, sundries, splendid condition; bargain, £35.—Huins, Montrose, Redditch. [X2659

SUNBEAM, 1913, new, only ridden 20 miles for demonstration, 2-speed; £63, offered 50 gns., bargain; exchange entertained.—Tilley, Motors, Ledbury [X2318

TRIUMPH, free engine, late 1911, in perfect condition, lamp, generator, horn, tools, N'all saddle; £32/10, or nearest offer.—Owain Thomas, Haverford west. [8863

F.N. Lightweight, 1913 model, used few short runs only, completely equipped, Stewart speedometer, head lamp, horn, watch, not stretched; £45, complete.—Box No. 3,652, *The Motor Cycle* Offices, Coventry. [X1986

1913 2¾ Rover, 3-speed, brand new, cash offers and exchanges entertained; lightweight, fitted with J.A.P. twin 3h.p., Druid forks, Dunlops, Bosch mag., etc., very fast, £22.—Trigg, Crumlin, Mon. [9023

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

SCOTT, 1913, brand new, shop-soiled only; £60, bargain.—Ginger, Motors, Banbury. [X2552

ZENITH Gradua, 6h.p.; £38; any examination and trial run.—J. J. Edney, Fareham. [8909

PHELON and Moore, Aug., 1912, as new, done under 1,000; £45, lowest.—Burns, Newbury. [8954

MATCHLESS, 1912, free engine, 2-speed, 6h.p., little used, £55.—Stanley Wilce, Cinderford. [X2317

TRIUMPH, 1910, standard, new cyl., good order; £25/10, no offer.—Henderson, Wantage. [8862

QUADRANT, 3h.p., Bosch, B. and B., tyres good; £13, or exchange.—Perden, Berkeley, Glos. [X2575

1912 3½h.p. Triumph, free engine, good order, spares; £38.—Parsons, 35, Castle St., Salisbury. [X2527

1913 Douglas, model O, 2-speed and free, new 6 weeks, perfect; £41.—Browne, 10, York Rd., Maiden head. [8841

3-4h.p. Peugeot, twin, B.B., 1913, Bosch, perfect condition; £25.—Tapin, "Gazette" Office, Basingstoke. [X2683

LAYTONS'.—Douglas, model O, 2-speed, 1913; delivery from stock; £48; exchanges, easy payments.—Laytons', Bicester, Oxon. [8987

LAYTONS'.—Triumph 1913, 3-speed model, used 20 miles only, and is new in every respect; cost £59/15, price £54.—Laytons', Bicester, Oxon [8988

ROBBIALAC

COULD YOU DO WITH A 6 H.P. 3 SPEEDS 1913 MODEL "CLYNO" MOTOR CYCLE £75 CASH VALUE

? ? ?

We are offering 10 OF THEM

in one of the easiest, simplest, and fairest competitions yet devised. This is worth investigating.

Write, Robbialac Competition Dept. COUNTY CHEMICAL CO., Ltd., — Chemico Works, Birmingham. —

ROBBIALAC

MOTOR BICYCLES FOR SALE.

PHELON and Moore, 1913 models for immediate delivery.—Sole district agent, The Morris Garages, Oxford. [0203

WILLIAMSON, 1913, 8h.p., 2-speed, air-cooled, absolutely as new, not run 50 miles, lamp, generator, and horn; £62.—The Morris Garages, Oxford. [0205

MATCHLESS, 1913 models for immediate delivery.—Sole Oxfordshire agents, The Morris Garages, Oxford. [0313

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford [0314

T. BAKER and Sons, Friar St., Reading, have the following high-grade motor cycles in stock, all ready to ride away:

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EAGLES.—F.N., 2¼h.p., 1910, 2 speeds, free engine, shaft drive, little used; £19/10.

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EAGLES and Co., High St., Acton.—N.S.U. West London District Agency. Tel.: 556 Chiswick [X2611

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4h.p., mag., free engine, variable speeds; £25.—19, Deerbrook Rd., Herne Hill. [9040

MOTO-REVE, 2½h.p. twin engine, in good condition; £12.—Bastone's (see below)

TRIUMPH, 1912¾, free engine, not done 500 miles, hardly soiled; £46.—Bastone's.

REX de Luxe, 1913, 4 h.p., free engine, 2 speeds, soiled; £47.—Bastone's.

REX de Luxe, brand new, 1913, 4h.p. free engine, 2 speeds; £56; any make taken in part payment.—Bastone's.

REX de Luxe, 1913, brand new, 6h.p. twin, 2 speeds; £62.—Bastone's, 228, Pentonville Rd., King's Cross, London, N. 'Phone: 2481. [X2748

TRIUMPH, in good condition; £20, bargain.—Turner, 2, High St., Harlesden, N.W. [X2477

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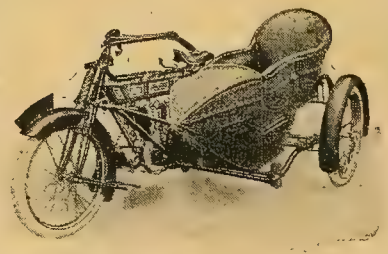

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MORGAN and Maxwell.—Triumph, 1913, standard, 3-speed, uncrated; list price.

MORGAN and Maxwell.—Matchless, 6h.p., 1913, Hutchinsons, Gradua; £62.

MORGAN and Maxwell.—Ivy-Precision, 3¾h.p., 1911, free engine, Dunlops, Bosch; £28.

MORGAN and Maxwell.—Two 1911 Rudges and Montgomeries, free engines both; £35.

MORGAN and Maxwell.—Two 1910 standard Triumphs, fine condition; £28

MORGAN and Maxwell.—Humber, 3½h.p., 1911½ Roc 2-speed, Bosch, spares; £30.

MORGAN and Maxwell.—L.M.C., 3½h.p., late 1912, Hutchinsons, Sturmey-Archer 3-speed, lamps; £50.

MORGAN and Maxwell.—Two 1911 Motosacoches, 2½h.p.; £20.

COME Over Here! To Morgan and Maxwell, 80, High Rd., Streatham, for J.A.P.'s, Rexes, Bradburys, Indians, speedometers, lamps, new and used accessories; cheapest house in the trade. [X2553

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£8/10, offer.—3½h.p. De Dion-Chater; trial.—140, Becklow Rd., Shepherd's Bush. [8968

BROWN, 3½h.p., B. and B., h.b.c., spring forks; £12.—71, Coleridge Rd., Crouch End. [8989

3h.p. Bradbury; £5, or nearest offer.—D. Slade, 51, Cobham Rd., Kingston-on-Thames. [9017

TRIUMPH, 1909, N.S.U. 2-speed, free engine, excellent condition, spares; trial; £26.

SIDECAR, Mills-Fulford, castor wheel, canoe front, waterproof apron, new Hutchinson tyre, very comfy, new August, 1912; £6.—Davies and Son, Sandy Hill Rd., Plumstead. [9036

2h.p. Singer, brand new; £22 to clear, no offers.—57, Lakedale Rd., Plumstead, Kent. [9037

REX, 5-6h.p., mag., handle starting, Whittle belt; £18/10.—51, Stanton St., Peckham. [8942

2h.p. Clement, recently overhauled; £5/5, bargain.—King, c/o Barnes, engineer, Godalming. [8837

3½h.p. Rex, h.b.c., ready drive away; £8/10, or offer; must sell.—116, Major Rd., Stratford. [9033

3h.p. Werner, fine machine, fast and powerful; £6/15, bargain.—Speechley, 45, Church Rd., Acton. [9018

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JAMES, all models, from £48, or 50/- monthly; deferred payments, no extra; exchanges.—Lamb's, below.

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NEW Hudson, 1912, 4h.p., 3-speed, shop-soiled only; with Canoelet sidecar; £65; deferred payments.—Lamb's, below.

HUMBER, 1913, 2¾h.p., 3-speed, shop-soiled only; £47.—Lamb's, below.

ARIEL, 1913, 3½h.p., 3-speed, spring seat, decompressor, shop-soiled only; £56.—Lamb's, below.

ROYAL Enfield, 1912½, 2-speed, F.E., footboards, French grey finish; £38/10; deferred payments.—Lamb's, below.

SINGER, 1912½, 2½h.p., smart machine; £35; deferred payments.—Lamb's, 151, High St., Walthamstow. 'Phone: 169 Walthamstow. [8846

JULY 24TH, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

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FIVE HUNDRED AND THIRTY-NINTH CONSECUTIVE ISSUE.

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Motor Omnibus Services.

IN the daily papers last week there appeared prospectuses of a company entitled Greater Omnibus Services, Ltd., which is to be founded with the idea of running motor omnibus services in different parts of England. The map issued with the prospectus shows the whole of the country divided up into circles of which large towns form the centres. It is proposed that these services should be run to the seaside, on populous routes, and between big towns, and it is anticipated that London to Manchester, or London to Brighton, will be possible by easy stages when the scheme is in working order. Now the motor omnibus is a very excellent vehicle. At the present stage of its existence it is as mechanically perfect as the motor car, it is no obstructor of traffic like the tram, nor does it run over greasy lines dealing death or destruction to riders of two-wheeled vehicles; it is in consequence an altogether desirable means of transport for the masses. It has, however, a very serious fault which all who have made its acquaintance on country roads know full well, and that is, it is a terrible destroyer of road surface. The reason for this is the weight of the vehicle, which causes tremendous pressure on the surface of the road. The pressure is more than the foundation of the road can stand, and soon numerous depressions are made. These cause the vehicle to rise and fall, and the result is that curious regular series of waves so frequently seen on a motor 'bus route, which correspond exactly to the periodicity of the springs. Unless steps are taken by those in authority the roads of England, which are now the best in the world, will be ruined, the motor car and motor cycle trades will dwindle and possibly almost vanish, as no self-respecting private individual will drive his car continually over bad surfaces. The question is one of the most vital importance to the motor cycle industry, as motor cycles are more susceptible to bumps than other mechanically-propelled vehicles, and the motor cycle more than the well sprung car needs good roads. The motor omnibus at present runs on cheap petrol and pays a reduced petrol tax, and all else it pays is the registration and local taxation licences, and perhaps also a licence to ply for hire. It is the local taxation licence which is inadequate, and in the case of vehicles of such weight as to cause serious damage to the roads the taxation should be arranged on a ton mileage basis, as this appears to be the only fair method. The present state of affairs is quite unjust, and it is quite unreasonable that vehicles which do excessive damage to the road surface should not pay their fair share towards road upkeep.

Racing Conditions.

IN pondering over our descriptions of the Grand Prix Race and the Six Hours' Race at Brooklands, the novice may be led to believe that motor cycles have not reached the state of perfection to which he has been led to imagine, and he may be pardoned for such a belief in view of the extraordinary amount of trouble experienced, especially in the Six Hours' Race aforesaid. Such a strenuous test, however, has not been held for some considerable time, and when it is considered that the race itself extended over a longer period than the memorable Tourist Trophy Race, the arduous nature of the test may be imagined. Brooklands stands out pre-eminently as the most gruelling test to which an engine may be put, and especially does this apply to an event extending over such a long period as six hours. It became tedious to the spectators to watch, but what it was to the engines which were forced along at their utmost speed from the moment of the start can best be imagined. In other words, the test was an abnormal one, and consequently what might be termed abnormal design and devices were pressed into service to obtain the maximum possible speed. It was largely in connection with this abnormal design that trouble was experienced. We refer to the extremely high compression ratios used on racing engines, which accounted for cylinder troubles in one or two cases, and plug troubles in others. Again, the retirement of one or two was due to the breakage of a piston ring. It is well-known that on racing machines in order to reduce friction to a minimum seldom more than a single ring is used, and the strain upon that ring becomes very great. The more one considers racing results from an instructive standpoint, the more one is convinced that an engine which can stand a long-distance record-breaking test, on Brooklands in particular, is one of absolutely proven reliability. Those who entered and were not successful will undoubtedly have learned a great deal by their experience. It is a remarkable fact that an engine which will continue to give satisfactory service under ordinary touring conditions for thousands of miles will not stand up under the strain of a long-distance race at Brooklands.

Fighting Consumption with Motor Cycles.

AS a result of an experiment made in Wisconsin last summer by the Wisconsin Anti-tuberculosis Association, motor cycles are employed in that State to good advantage in the crusade against the Great White Plague. A rural campaign has been started by the use of a motor cycle which is perhaps the most novel venture of its kind ever attempted.

Two health crusaders, a lecturer and an assistant, work together. They would compare with a knight and his squire of olden times, except that they both ride on one steed—a petrol-fed steed—and differ from the knight of old in that they are independent of the hospitality of castles or monasteries, for they carry a complete camping equipment, and do their own cooking.

The work consists of placarding the country with health signs and giving talks at creameries, country cross roads, and small villages; in fact, wherever a crowd can be assembled. A village is usually chosen for an illustrated lecture in the evening. Stereopticon views are a feature of this talk, which is usually given out of doors. The stereopticon is operated from the luggage carrier of the motor cycle, being connected with the generator which supplies the head light. The expense of this work is comparatively small, since hotel bills are eliminated. The ground can be covered rapidly, and no time is wasted waiting for trains. As many people can be reached in the country in this manner as by the ordinary lecture tour through cities.

The lecturers mounted on their Harley-Davidson machines. Note the amount of camping outfit on the carriers.

Scene in camp.

POINTS ABOUT CYCLE CARS AND FURTHER HINTS FOR BUYERS.

FIRST we may divide cycle cars into two classes irrespective of the number of wheels: (1) the motor-cycle-car (to coin a word) and (2) the small car, for that is really what the more ambitious vehicles of this class are.

Now in my opinion and experience, if a man has graduated on a motor bicycle, he can buy with safety and successfully run one of the former class or the motor-cycle-car. In construction and method of handling it resembles a motor bicycle, with its belt drive, air-cooled engine, etc. It requires careful driving and looking after, and though it provides more comfort in position and weatherproofing than a motor cycle, yet it is not so nice to drive on rough roads as the latter, nor will it stand careless handling and constant speed work. My experience of a good make of this class was that, after a time, vibration loosened everything on the machine, and the amount of tinkering and overhauling necessary to keep it in safe condition was very great indeed. This is partly due to the light weight.

The second class of vehicle, or what I have called "small car" type, is a vast improvement on the other, but, and here is the rub, if makers turn out a vehicle costing up to £160 to £180, surely it is quite wrong to class this with cars costing £125 at the outside? There are several small cars on the market, with engines under 1,100 c.c., but the A.C.U. do not recognise them all as cycle cars since they base their definition partly on weight. This weight question is very important. A vehicle weighing 7 cwts., *e.g.*, is very much more comfortable to ride in than one of 4 cwts., but is naturally more expensive to run, petrol and tyre bills being heavier.

It comes to this, then. A man when buying a cycle car has to decide whether he wants luxury with more expense but far less time spent in tinkering, etc., or whether he will be content with an elaborated motor bicycle in which he can keep clean, but which will not give him the average speed of a sidecar combination. As regards the number of wheels: four means big tax but low tyre upkeep; three means big tyre upkeep and small tax. If his yearly mileage is small, a three-wheeler will serve him well, and he will save on it. If his mileage is big he will have a big tyre bill. I drive a 7 cwt. three-wheeler, and my back tyre gives up the ghost at 1,000 miles, but can be retreaded. Two more points for buyers: for preference do not have a sheet iron body, it rattles; nor external contracting brakes.

MUGWUMP, M.B.

REFLECTIONS on the GRAND PRIX.

PRACTICALLY everyone who crossed the Channel to witness the Grand Prix saw both the car and motor cycle races, the two events being arranged so conveniently on successive days. There is no doubt that racing, particularly motor racing, is taken up most thoroughly by the French. Hundreds of pounds must have been spent on the stands, the barricading of villages, the special sheds, and the building of special roads, to say nothing of the treatment of the whole of the road surface with calcium chloride to prevent dust. No time is taken up in swearing in the police; the troops are simply ordered out, and they guard the course with fixed bayonets—and they do it thoroughly, as the writer can testify. French roads are ideal for speed work, and probably better adapted for the purpose than Brooklands even. At any rate, the waves which set up the Brooklands wobble are non-existent. But why do they start races so early on the other side? Closing the roads at 4 a.m. meant rising before three o'clock to those quartered in Amiens. The *cafés* and restaurants kept open all night for those who did not relish the idea of paying twenty francs for three or four hours in bed. Sleep was almost out of the question, for there was a continual stream of cars passing through Amiens, and the favourite car in France is a sporting model of about 40 h.p., and a silencer is a thing almost unknown. To add to the din, the noisiest of electric horns and syrens contribute their part. Strangely enough, exhaust whistles do not appear to be favoured. The official enclosure for cars cost ten francs, and by the time the race commenced there was a collection of cars probably never equalled. There was a goodly number of motor cyclists among the procession, which formed one long line of five miles from Longneau to Amiens, but they were not happy on their machines, for the ride entailed 200 of 300 restarts. A great many car owners slept in the backs of their cars; I was told that there were dozens of fires burning all night at different points of the course.

It was generally agreed that the car races were the more exciting, most probably on account of the high speeds attained and the lurid corner work. As a cycle car owner, I was most particularly interested in the Sunbeams with their solid rear axles, and I must confess that from my observations on corner work the absence of a differential does not appeal to me strongly. It was patent to the eye that the Sunbeams skidded round the corners more violently than any of the other competing cars, excepting, perhaps, the Italas, which were obviously too lightly sprung. It will be interesting to see if the Sunbeam Co. continue to dispense with the use of differentials on their racing cars.

The Motor Cycle Race.

One would have liked to have seen a Scott among the motor cycles, for, with ordinary luck, its pleasing running would have created a lasting impression on the spectators, representing many nationalities, who witnessed the racing. Besides, the long straight stretches gave a chance to the fleetest machines, there being far fewer corners than in the Isle of Man. The French competitors generally favoured overhead valves, and I noticed that each time a stop was made for petrol and oil a handful of grease was applied to the outside valve mechanism. Still we find leather belts favoured, and as for mudguards, stands, and luggage carriers, they are not the staunch and rigid kind which Englishmen would demand. The M.A.G. engines were admittedly the fleetest on the course; their riders' only fear was as to their ability to stand up for so long a distance at full speed.

Towards the end of the motor cycle race one could have imagined one was in the Isle of Man, so strong was the British element in noting down the leaders. The Rudge, Triumph, and B.S.A. contingents had a magnificent three-cornered duel, with an occasional anxious glance at Fenton on the marvellous 350 c.c. Clement-M.A.G., which could hold its own with any machine on the course. It must be said that the Rudge victory was a popular one, despite that it was

Reflections on the Grand Prix.—

accomplished on foreign soil. By the way, the A.C.U. might well copy the idea of having a slip road for the finishers; this would stop the attendants running on to the course, and the temptation to press photographers to rush out and take snapshots. Now I come to think of it, Wood and Abbott automatically made the straight at the top of Bray Hill the slip road in this year's T.T.; and I doubt if a better spot could be found.

M. Bourbeau, maker and driver of the winning Bedelia in the Grand Prix Race.

Another point is the arrangement of a single depot in front of the grandstand. If spectators can see all that is happening, and can follow the race closely, they do not object to paying a good price for a comfortable seat in the stand.

The scoring board was very neatly arranged. Instead of a painter obscuring figures whilst he put others up, the Frenchmen slipped cardboard numbers into slots, and merely spun the board round on its spindle as each new lap time was known.

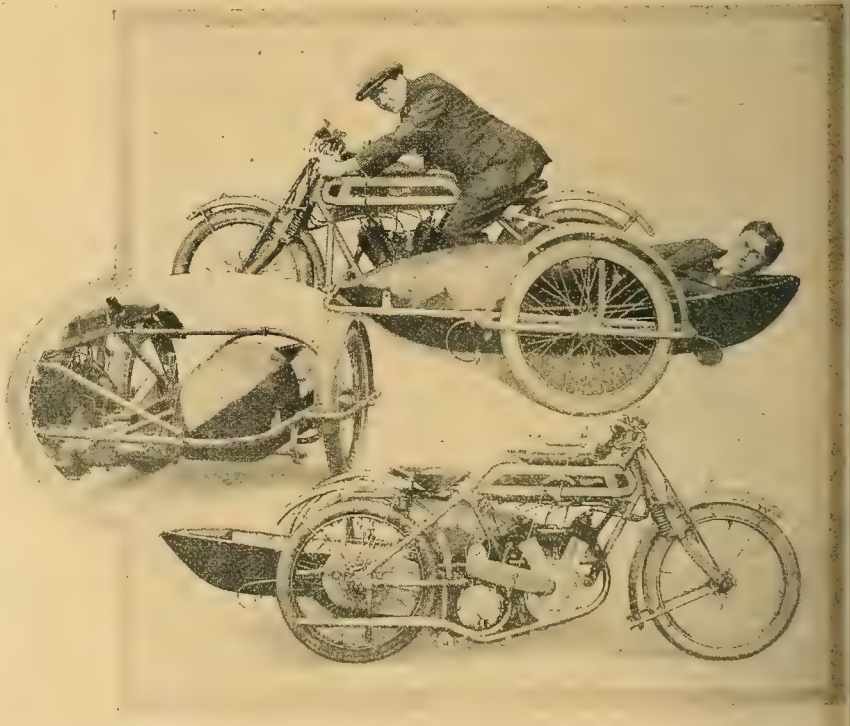
The Cycle Cars.

The fun there was when the long, low spit-firers set off! Strangely enough, none were quick off the mark, but after turning the corner they disappeared at a rattling pace. Mundy had very hard luck in crumpling up a front wheel; Harry Reed was his passenger, and they both thought they were going to make history, as the twin Green engine was going great guns. Morgan himself put in a lot of time and trouble for nothing; the brilliant success of McMinnies consoled him, however. Nash, in setting up second fastest lap on his G.N., did wonderfully well; as he had no knowledge of the course, for he crossed with us only two days before the race. I liked the Mathis and the Rontéix in particular. The former had a four-cylinder *monobloc* engine with valves all on one side, their heads no bigger than a shilling. The detachable wheels came in handily when tyre troubles occurred. The Bedelias with their 90° engines were the real surprise packet, for when Bonville caught fire Bourbeau was ready to take his place. The Violet friction-driven car had a fine turn of speed; but what a lesson it will be to attendants not to jump about and wave their arms as if they had gone dotty, for it may be recollected that the long-bearded Violet on his last lap stopped to enquire what was wrong, and thereby lost first place by eight seconds. He was, however, the moral winner of the race. Both the Violet and the Rontéix had solid axles and chain drive, but they were inclined to skid on corners.

A Representative British Entry Wanted.

I have never been a firm believer in belt drive on passenger machines, but it must be confessed that the belts stood up remarkably well in the Grand Prix. It would not, however, do to say that the strain could have been borne much longer. I saw one leading car at the finish with a belt missing, and the other had turned over in the pulleys and had long whiskers of rubber, so evidently another lap would have spelt trouble.

Let us hope that next year the entry will be more representative, as British victories abroad cannot fail to do good. In particular we should like to see some of our speedy sidecar men. The sidecarists did very badly. After the Regal-Green's ridiculous disqualification owing to a missing mudguard, and Barnes' wretched luck, the sidecars were "out of it," though two, a René-Gillet and an N.S.U., did succeed in completing the course. Of course, officially, the Morgan ran as a sidecar, but all the same the great mass of spectators refused to look upon it as belonging to that category; and certainly there was very little of the sidecar, as usually understood, about these speedy little runabouts. G.S.



The Grand Prix Clyno which Frank Smith was to have driven on the Picardie Circuit, but could not do so owing to illness. The sidecar is arranged for the passenger to lie flat. The machine has been specially lightened where possible and is very fleet. We should not be surprised if records were attempted on it very shortly.

OCCASIONAL COMMENTS ::

By IXION

The Future of Counter-shaft Drive.

Some of my readers have been enquiring whether ave lost my enthusiasm for the counter-shaft drive. ey say that a few years ago it played King Charles's id to my Mr. Dick, and that lately I have been nt about it. Well, I have not been false to my e. The plain fact is that the two-step chain-cum-t drive reduces belt troubles and increases the belt as much as ever it did; but it was a little rash imagine that it could be transferred from the hori-ital twin-cylinders of 350 c.c. (which created the nand for it) to the 500 c.c. single without necessitat-modifications. Well as this drive serves on the ittle twins, it is inconceivably harsh on a 500 c.c. gle unless a slipping device is fitted on the crank-ft. In view of its undoubted advantages, one may pardoned for expecting the 500 c.c. single-cylinder gade to produce cushioned engine sprockets with all ssible speed, but they seem to find the difficulties her more prodigious than one would imagine. How-r, some of them are taking to the two-step, and we e the others will toe the line one by one. In the antime, why do not they do the next best thing, and p the 7/8in. belt in favour of the 1in.? The 1in. t has no obvious drawbacks, barring a fractional rease in cost, and the contrast between it and the n. is quite ridiculously large in use.

Factory Repairs versus Agency Tinkerings.

The average amateur does not seem to have sense ough to comprehend that in ordinary cases an agency y be a good place whereat to purchase easily fitted ares—exhaust valves, for instance, but that the tory is *par excellence* the right location for real pairs. An agency probably keeps one or two chanics, who in some cases have no special know-lge of the machine they must handle; they repre-nt floating labour—here to-day and gone to-morrow. it if a repair job is sent to the factory, it is dealt th by men who are permanently employed on that rticular make, and it is tested before despatch by en who live on similar machines; moreover, the tory take a permanent interest in their clients, ereas an agent may change his contract every year less he has got hold of something very first-class. his reasoning actually applies to some of the London depots" as well. A friend of mine took s machine to the London depot of quite a decent m. He left it with them for no more than eight urs, and the only material they used cost about 2s. holesale, but the bill was 28s., and the machine re-veloped its old faults within fifty miles of town. hen I was called to the rescue I found it possible to dismantle the faulty portion of the mechanism in ten minutes—it took me more than that the first time, by a good margin, but as soon as I knew how it dove-tailed together, I could whip it on and off in a very few minutes. Certain new parts were obviously advisable, and so I detached the mechanism for him, and this time he sent it by post to the factory. Riders find themselves in rather a cruel dilemma when the entire machine has to be sent somewhere, and the agency is down the street, while the factory is anything from 100 to 5,000 miles away—pity the poor colonial. But when recourse to the factory is possible, I vote for the factory every time; and in most cases the factory charges will be lower than the agent's, which is a genuine consideration.

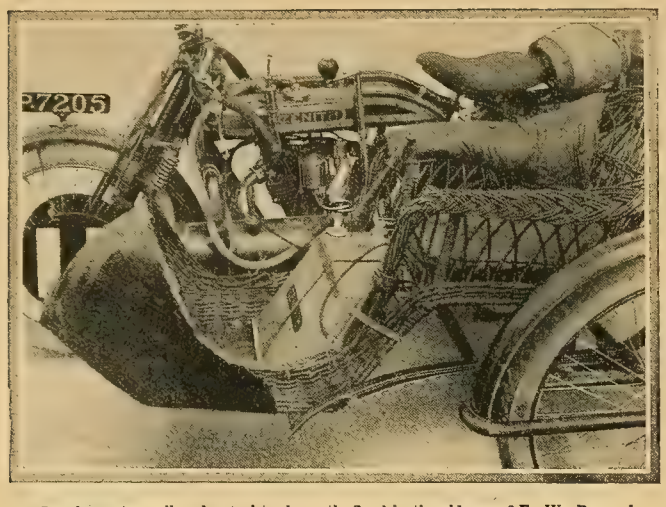
Belt-driven Speedometers.

The Stewart speedometer people wish me to explain that the belt-driven model, to which I referred recently, is made for the American market only, and is not imported into Great Britain. I drew attention to it simply as a remarkable innovation of some public interest, and am glad to make this explanation. I suspect it owes its origin to the well known difficulty of fitting shaft-driven speedometers to certain types of spring forks which are very popular in the States, but this solution of its origin only occurred to me last week, when I happened to study the complex mountings necessary to adapt a well known British instrument to an Indian machine.

Motor Bicycle Footrests.

The trade are not too pleased with my strictures on sundry types of footrests, which struck me as far from perfect, but the resulting correspondence only contained one statement of any real defensive value. One designer told me that the outer section of his two-piece adjustable rest was made tough to prevent more vital portions of the mechanism receiving serious injury in the event of a fall. I think I can answer him. A friend of mine put one of these machines in one of those strenuous trials where a bent footrest at the finish spells a loss of "condition" marks. He is one of those clumsy individuals who takes a toss at one of every ten unfamiliar blind corners, and whose footrests are invariably in a bent and twisted condition. As there are four footrests on the machine in question, he foresaw that he would lose twenty "condition" marks in the trial in question, and that his gold medal was past praying for unless he took some strenuous action, so he made one outer section for each of his four rests prior to the start of the trial, and he saw that each rest was made of specially bendable steel. He took about his usual percentage of tosses in the course

Occasional Comments.—



Supplementary oil and petrol tank neatly fixed in the sidecar of F. W. Barnes's Grand Prix Zenith. Pressure is supplied by two tyre pumps situated one on each side of the sidecar and operated by the passenger.

of the event, but was able to kick the rests sufficiently straight to pass the judges without penalty. I think the facts are really as follows: In the case of a genuinely serious tumble, the strongest rests will scarcely avail to reduce the injuries the machine is likely to receive, but at least 75% of our tumbles are of the very gentle and minor order; in these a very light and bendable end to the footrest will suffice admirably to defend more vital parts, and retain the advantage of being easily straightened. Hence I continue to plump for a strong central footrest carrier with good frame bearing, and to clamour for light outer extensions of a very simple design, carried out in flexible steel; by "flexible," I mean, of course, "flexible cold."

The Lubrication of Three-speed Hubs.

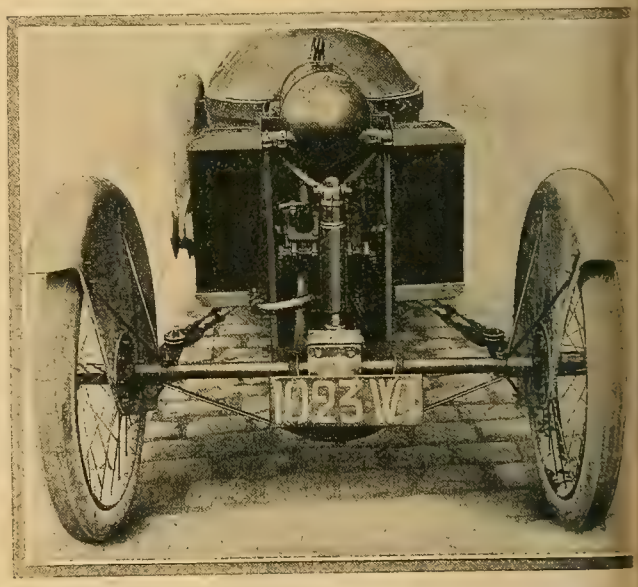
Makers of three-speed hubs are insistent in their warnings that only a thin push-bicycle lubricant should be used for oiling their gears; but many riders and mechanics, who ought to know better, are in the habit of squirting in a dose of the first oil that comes to hand. It is a sound notion to oil these hubs with the engine running and the clutch out. It ensures the oil penetrating into all the corners of the mechanism, and avoids those subsequent drippings which disfigure the rear part of a machine, and are so destructive to tyres. The thing to remember in oiling these gears is that the maxim, "little and often" is the ideal policy, a teaspoonful daily is the right dose.

The Three-inch Tyre.

I have received some letters which I regard as rather nonsensical, alleging that a 3in. tyre sustains many more punctures in a given mileage than a 2¼in. because it covers more of the road, and so mops up more tacks and nails and bits of wire. Although the correspondents in question claim more road experience with 3in. tyres on bicycles than I can boast, I venture to question their conclusions. A 3in. tyre covers very little more road than a 2¼in., and this extra contact area should be more than cancelled by the additional thickness of the covers. Let us put it this way. Car practice has proved beyond question that the larger the tyres the fewer the punctures. (I know a car which suffered horribly from punctures on 90 mm tyres for its first two years; it was then put on 100 mm. tyres, and has not sustained a puncture for two years.) Well, the 7 h.p. Indian was not peculiarly susceptible to punctures in the days when it was shod with 2½in. tyres; and it is counter to all experience to suppose that it could conceivably be more liable to punctures now that it has 3in. tyres. My correspondents must form a very tiny percentage of Indian users: the probability is that they are drawn from the unlucky percentage whose tyre luck happens to be dead out this year; or that they have got hold of a dud set of tyres. At any rate, I will guarantee that the increase in tyre sizes has nothing whatever to do with the frequent punctures of which they complain.

Holes Splitting under Tyre Patches.

I alluded recently to a suspicion that modern patches and solutions were almost too good for the type of rider who is a "tramp on tyres," and rides a pair to destruction. An experienced informant tells me that he found the original hole widened and split beneath the patch, and that it was next to impossible to remove the patch. I retorted that it was hard to see why the hole should widen if the patch were made to adhere over its whole surface. I have had a lark and confusing medley of opinions on the point from many correspondents, and it is clear to my mind that it all depends on the quality of the tube. Several readers say that I have exactly voiced their own experiences: while one tells me of a Rich tube which bore the honourable scars of no less than thirty-nine patches after 20,000 miles, all of which were successfully removed, and revealed the fact that the original holes still retained their pristine dimensions. Evidently if the rubber is cooked to a turn in manufacture, it does not evince this tendency to split. I doubt whether the average private rider resorts to heat for the removal of old patches; heat, of course, is commonly employed for the purpose in tyre repairing works.



One of the Bedelias in the Grand Prix had a water-cooled engine, though an air-cooled car won. Our photographer shows the neat method of mounting the radiators, pannier fashion.

PAY AS YOU RIDE.

How Running Expenses are Increased in North Wales.

THE motor cyclist in the Mersey district is well advised to see that his outfit of spare parts includes an assortment of copper and silver coin of the realm, and that the supply is carried in an accessible place, unless he wishes to be continually undoing his overalls to produce that necessity for the safe passage of toll bridges and ferries which abound in this neighbourhood.

Should he decide that a run to Holyhead and back is his objective he will very soon begin the distribution of his small change. We recently had occasion to journey over this route with a sidecar outfit, and for a start we were mulcted 8d. for the sidecar's conveyance to Birkenhead by the ferry. We proceeded without further outlay till we reached Queensferry bridge, where we were bereft of 9d., after which the mere 3d. demanded by the toll authorities at Conway bridge seemed a trifle of no consequence, but we were reminded of the existence of costs on the higher scale on our arrival at the Menai Straits suspension bridge, where 6d. more of our capital was collected.

This brought our little run to Holyhead to a cost of 2s. 2d., in addition to usual running expenses. If one returns to Liverpool the same day free passage on the return journey is allowed at the various tolls and bridges, but if, as in our case, the night is spent at Holyhead, a fresh disbursement on the morrow is demanded. We also committed the financial indiscretion of returning *via* the Marine Drive at Colwyn Bay, for which pleasure we were charged 6d. By the time, therefore, we had returned to Liverpool our little journey had cost us 4s. 8d. in tolls and ferries.

No one would object to paying a reasonable sum towards the upkeep of these bridges, but as a motor cycle certainly does as little damage to their structure as a cycle, more leniency in the charges might reasonably be expected. In addition, the majority of the roads in this part of North Wales are in a shocking condition, and about the only satisfaction the motor cyclist wayfarer gets hereabouts for his money is a magnificent view. Though it is possible that one may pay too dearly for even this privilege.

Praise for Military Motor Cyclists.

THE motor scouts of the Sherwood Rangers Yeomanry have just finished their annual training with the regiment at Coddington Camp, Newark. They are a comparatively new feature of a Yeomanry regiment, but experience has already set the question of their utility beyond all doubt. Capt. J. D. F. Wodehouse, in writing of their services subsequently, says: "Since we have now become used to motor cyclist scouts we feel them to be absolutely indispensable."

Several extended field days were carried out, notably one in a scheme against the South Notts Hussars in the Southwell direction, and another in conjunction with the South Notts. Hussars against the Derbyshire Yeomanry; and there were other regimental days. On all these occasions the available motor cyclists were jealously divided up between the regimental and various squadron commanders and were made use of to the very fullest extent. Behind the screen of horsemen of patrols and covering troops, motor cyclists hummed backwards and forwards between the Commanders, carrying messages and orders. The Regimental Commander could keep in touch with his farthest squadron, and knew what was happening to it almost as soon as the squadron leader himself. It was described as being almost like sitting at a desk with a telephone receiver at the ear.

This service of despatch riding was carried out very well indeed. The motor scouts seldom seemed to take a wrong road or lose their way, and the capture of one of them by the enemy was a very exceptional occurrence. If they were ever captured it was due to the misuse of them, for though we have gone a long way towards understanding what is their proper sphere, the lesson that they cannot be used for purely scouting purposes has not yet been quite perfectly learned.

Apart from the field days the motor scouts were most useful at camp, one being always detailed for duty at Orderly Room, to take messages and telegrams, etc., and plenty of use was made of them in this way.

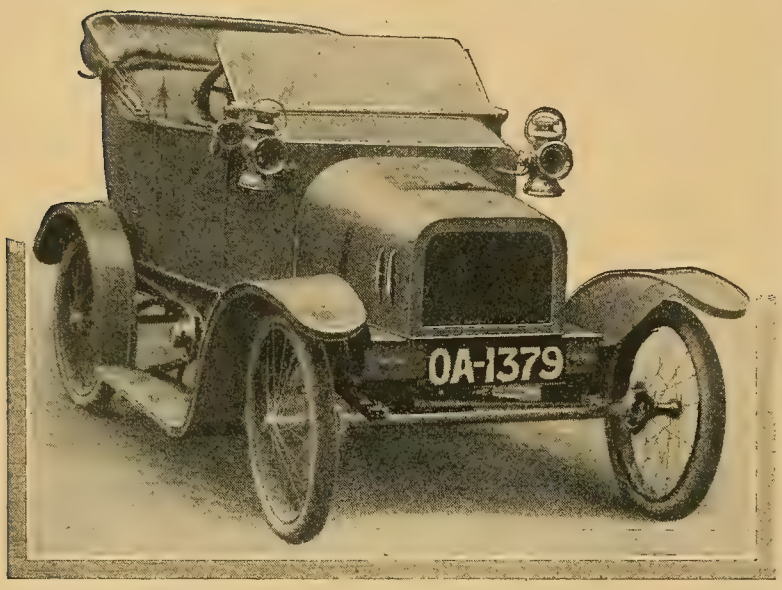
Corporal Allison Clark is to be congratulated on the Sherwood Rangers Motor Scout Section.

A 3½ h.p. Bradbury and sidecar which proved very useful at the Yeomanry camp at Folkestone recently.

Motor cyclists of the Sherwood Rangers Yeomanry. Left to right: Cpl. Allison Clark (B.S.A.), Pte. Jackson (Douglas), Pte. Richmond (Bradbury), Pte. Ford (N.S.U.), Pte. Wordsworth (Triumph), Pte. Broadburry (Enfield), and Pte. Coney (Enfield).

THREE NEW LIGHT CARS.

THE ARMSTRONG, THE WINCO, AND THE GORDON.



The 8 h.p. Armstrong, a belt driven cycle car from Birmingham.

A NEW cycle car of the belt-driven variety has lately made its appearance on the market, and is known as the Armstrong. The power is supplied by an 8 h.p. twin-cylinder air-cooled Precision engine of 964 c.c., and the drive is transmitted to a two-speed Chater-Lea gear box by chain, and thence to the back wheels by two belts of the usual V section. A plate clutch, self-lubricated from the engine, is fitted, and the mixture is fired by a Bosch magneto, while a choice is given of either a B. and B. or Amac carburetter. Quarter elliptic springing is utilised fore and aft, and the makers claim a speed on the level of about 40 m.p.h. and a petrol consumption of about 48 m.p.g.

In our opinion, the first of these little vehicles is rather overbodied, and although it is well to offer the purchaser as much comfort and protection as possible, it is highly desirable that vehicles of this description should have as light a load as possible thrust upon them. The mudguards are excellent, being stiffly built and fitted with lips and valances. The price is £95.

The 8 h.p. Water-cooled Winco.

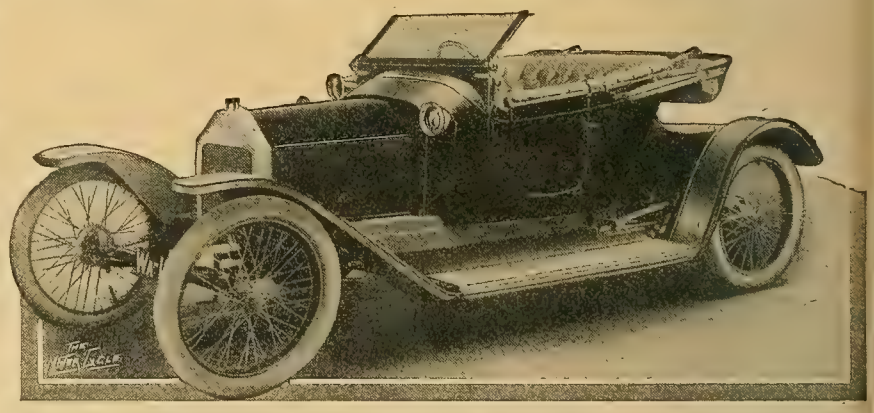
MESSRS. Stringer and Co. (Sheffield), Ltd., who have for many years specialised in the production of crankshafts, connecting rods, and other steel parts used in the construction of cars and motor cycles, have now turned their attention to the production of a cycle car on car lines. Our illustration gives an excellent idea of the lines of this little machine, the *carrosserie* of which is quite admirably carried out, particularly sound mudguarding being furnished, a point which is well worth mention, as the low build of most little cars of this type renders it imperative that the passengers should be well protected from splashes. The presence of long footboards, between which and the frame valances are fitted, will be appreciated.

The power unit is a twin-cylinder vertical water-cooled motor, 85 mm. bore × 93 mm. stroke (1,080 c.c.). The crankshaft runs in phosphor bronze bearings, and the solid camshaft is chain-driven from the crankshaft, as in the latest car practice.

Automatic lubrication by pump, driven from the camshaft, is employed, and an automatic carburetter is fitted, which is claimed to afford about forty-five miles per gallon of petrol. Thermo-syphon circulation of the water is relied upon.

The three-speed and reverse gear box is bolted direct to the rear axle casing, as is now the case with several other cars, both large and small. The makers claim that their gears are absolutely to be relied on, even under the hardest tests, and as the firm have been producing gear wheels for the trade for a number of years, their great experience in this branch of manufacture should stand them in good stead. Ball bearings are employed throughout the transmission system.

The steering is of the irreversible worm and nut type. The springing of this little car has been very



The new Winco light car, which is being manufactured in Sheffield. It is particularly well turned out as regards equipment.

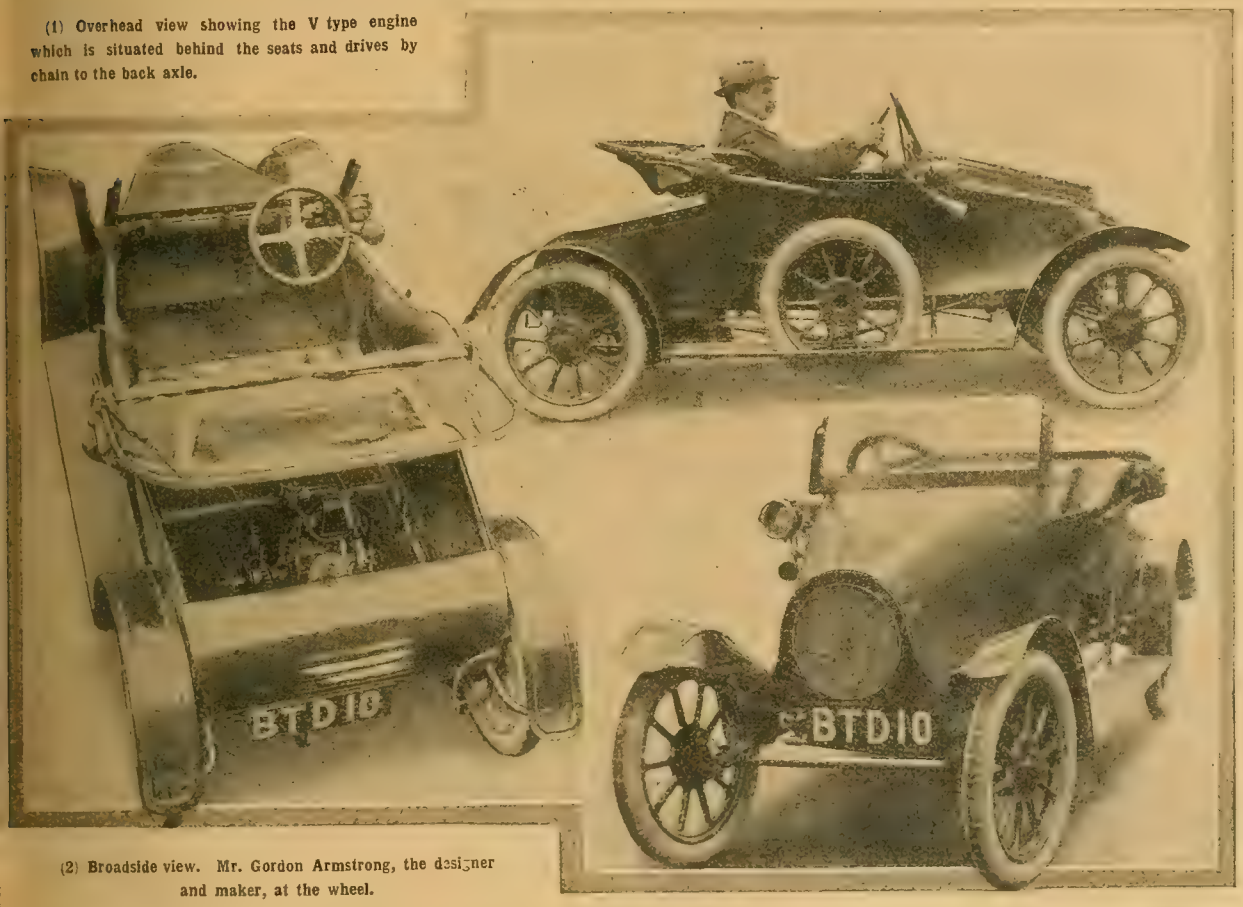
ıree New Light Cars.—

ırefully thought out, and this is a most important ɔint, for it is difficult to make cycle cars keep the road ɔmfortably at their best speeds owing to their light eight and speed. With this idea in view the esigners of the Winco have employed semi-elliptic ɔrings. Both front and rear axles slide on the ıds of the spring, which are pivoted centrally on ıe steel-strengthened ash frame, while at the other end of the springs shackles are fitted. Radius rods are utilised for both front and rear axles.

Altogether the design has been carefully studied, and although not among the cheapest in its class, for it costs £165 completely equipped as illustrated, with the addition of two head lamps, it should prove excellent value. We have not yet had the opportunity of trying the "Winco" on the road, but look forward to putting it through its paces.

The Air-cooled 90° Gordon.

(1) Overhead view showing the V type engine which is situated behind the seats and drives by chain to the back axle.



(2) Broadside view. Mr. Gordon Armstrong, the designer and maker, at the wheel.

(3) Front view showing distinctive appearance.

EFFICIENCY in transmission has been the aim of the designer of the new model Gordon 100 guinea cycle car, manufactured by the East Riding Engineering Works, Beverley, Yorkshire. With this end in view, the makers have placed the power unit, which consists of a 90° twin 9 h.p. J.A.P. engine, close to the rear axle, the drive being carried by a single chain to the live axle through a two-speed and reverse epicyclic gear. This arrangement has the further advantage of keeping the weight well on the back wheels, a highly desirable trait in these light vehicles, as it reduces tyre wear and increases comfort by preventing bouncing. Both brakes operate upon the rear wheel drums.

In one way this little vehicle is aiming at being very up-to-date, in that it is fitted with a self-starter, or, more strictly speaking, a device is fitted by which the engine may be started from the driver's seat. This should prove a great boon, especially in wet weather. Speeds of 45 m.p.h. are claimed, and the directness of the drive is stated to produce great fuel economy, as much as sixty miles on one gallon being possible, the makers inform us. One of these machines is competing in the Scottish Trials this week.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected manuscript, drawings, and photographs will only be returned provided a stamped addressed envelope is enclosed for the purpose.

LETTERS To The EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Cycle Cars v. Sidecars.

Sir,—Some time ago a contributor to your paper playfully remarked that he did not wish to be cruel, but he would like to know how the Morgans fancied competing against the sidecars in the Grand Prix. We could have replied that we were perfectly satisfied and not at all alarmed at the prospect. Now that the race is over we certainly have no reason to be dissatisfied, for, apart from the fact that we made faster time than any cycle car, we won the race over a course which not a single sidecar was able to survive. Our answer to your contributor is late, but we trust conclusive. We waited for results.

MORGAN MOTOR CO., LTD.

Climbing Branscombe Hill.

Sir,—Referring to Mr. H. Mellor Jameson's letter in your issue of July 10th, in the first place the paragraph referred to by him does not state that I claim to be the first to climb Vicarage Hill. I am not very well acquainted with the part of the country in which this hill is situate, and have therefore communicated with the member of the Exeter Motor Club who was my passenger on the occasion when I climbed Branscombe Lane, and he informs me that Vicarage Hill is not the same as the one I refer to. I understand that Vicarage Hill is on the lower road, whilst Branscombe Lane is a very steep, narrow, stony lane on the upper road, farthest from the coast. The date I climbed the hill was Saturday, June 21st, of this year.

WILLIAM H. CARSON.

How I Made a New Engine "Rev."

Sir,—It is with great fear and trembling that I dare to offer slight criticism on the article by "Road Rider" in your issue of the 10th inst., and may I be forgiven for asking the following questions:

Won't "Road Rider," after so much second gear work and liberal oiling, clean away the accumulation of carbon before 2,000 miles are covered? And won't the big and little ends, etc., after taking the opportunity provided by every secluded mile of straight road to drive the engine all out on a 6.6 to 1 gear, be run *out* instead of run in, under the present system of splash or *splosh* lubrication?

I have generally found that, after carefully tuning up to this mileage, it is getting perilously near the time to upset many of my adjustments by having the whole contraption down for replacements; and twins—oh, my word!—the front cylinder gudgeon pin goes home in—well, the less said about it the better.

It is positively awful to the mechanical mind that such a splendid piece of engineering as an up-to-date motor cycle engine should be lubricated by such a dot-and-carry-one method with enclosed flywheels.

Mechanical force feed to all main bearings is what is wanted, such as the W.D. (for whom I hold no brief), *not* mechanical to crank case and then by *splosh*.

When this day arrives, which will not be general until motor cycles stop selling like hot cakes, one motor cyclist will be able to say to another: "My bearings are in lovely condition—just run in."

No. 2: "Oh! What's the mileage?"

No. 1: "2,000."

H.U.

Lady Motor Cyclists.

Sir,—I shall be grateful if you will allow me to seek through your columns the advice of your readers who have had experience in riding a lady's motor cycle.

As school nurse, spending five or six hours per day in visiting over an extensive district (one quarter of Cheshire) on a pedal cycle, almost daily, five days per week, eleven months of the year, I feel impelled to get a motor cycle but I want first to get some idea of the probable cost of upkeep, etc.

I have less than £30 per annum to cover cost of motor cycle and upkeep. I lead a busy life, and have neither time, ability, nor inclination to keep the machine in order, so even small repairs and cleaning would have to be reckoned in.

I am not keen on speed, but want to cover the ground and face nearly all kinds of weather with the least amount of trouble and expense. If any readers will give experience of annual cost of upkeep, and any hints likely to be useful they will have the gratitude of

A WOULD-BE LADY MOTOR CYCLIST.

The Motor Cycle for Business Purposes.

Sir,—Although I agree with your correspondent, Mr. C. E. Turner, that "T.H.B.A." has considerably underestimated the tyre expenditure on a 6 h.p. sidecar combination, I cannot but think that his (Mr. Turner's) unfortunate experience with tyres is largely due to his choice of the wrong makes. I have covered 10,000 miles, over every kind of road, on my 6 h.p. Zenith, used practically always with a sidecar, and have tried numerous makes of tyres. Some of them have given very satisfactory results. For example I am still using a 26×2½ T.T. Hutchinson cover on my front wheel which has covered 5,350 miles and cost 37s. On the sidecar, I have just taken off a 16s. Michelin which has done almost 5,000 miles. The driving wheel naturally uses up tyres sooner, but a 2½in. Michelin-Semelle cover costing 45s., gave a mileage of nearly 3,000. At present I am running a Stelastic cover, costing 56s., on this wheel and it looks little worn after nearly 1,800 miles. I hope an intending recruit to the ranks of motor cyclists who has been alarmed by Mr. Turner's letter will be reassured by my more fortunate experience. There is no doubt that the best of makers sometimes turn out a faulty tyre, but my experience is that they are usually quite willing to "make good." Since I am so impartial in my choice of tyres, I need hardly add the usual disclaimer.

LA 1877.

Fair Treatment.

Sir,—One hears and reads so much nowadays about delay in execution of repairs or despatch of spare parts when a machine has the misfortune to require attention at the hands of the makers that I am prompted to relate my latest experience in this direction for the benefit of the large number of other Rudge riders.

Briefly, the facts are as follows: I purchased a 3½ h.p. multi-speed model from the Rudge depot in Liverpool on September 17th last, and the machine ran with the greatest possible satisfaction until a fortnight ago, when the outer flange of belt rim suddenly refused either to open or to close properly, although correctly coupled to the gate change lever on the left side of the tank. I therefore ran home

Votes for Victor are votes for efficiency.

The efficient motor cycle tyre of to-day must combine qualities of endurance, speed, strength of wall and bead, with—economy.

By any test Victor wins in every department. Victor is the thousand mile better tyre. It presents the motor cyclist with a thousand miles of tyre life free.

Test it once. Victor has revolutionised motor cycle tyre practice.

Test it once. You cannot lose. More miles in a sovereign's worth of Victor than in any other tyre. More satisfaction in every mile of Victor than in any other tyre mile.

The Victor Tyre Co., Ltd.,

Proprietors of The Challenge Rubber Mills, Eagle Wharf Rd., City Rd., London, N.

Telegrams: "Signature, Hox, London." Telephone: 3497 North (3 lines).

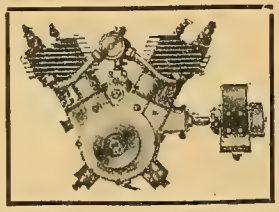
Another Grand Victory !

Machines fitted with M.A.G. ENGINES

finished 1st, 2nd, and 3rd in

THE GRAND PRIX OF FRANCE

(350 c.c. Class).



An M.A.G.-engined machine also won the Grand Prix of Fontainebleau last month.

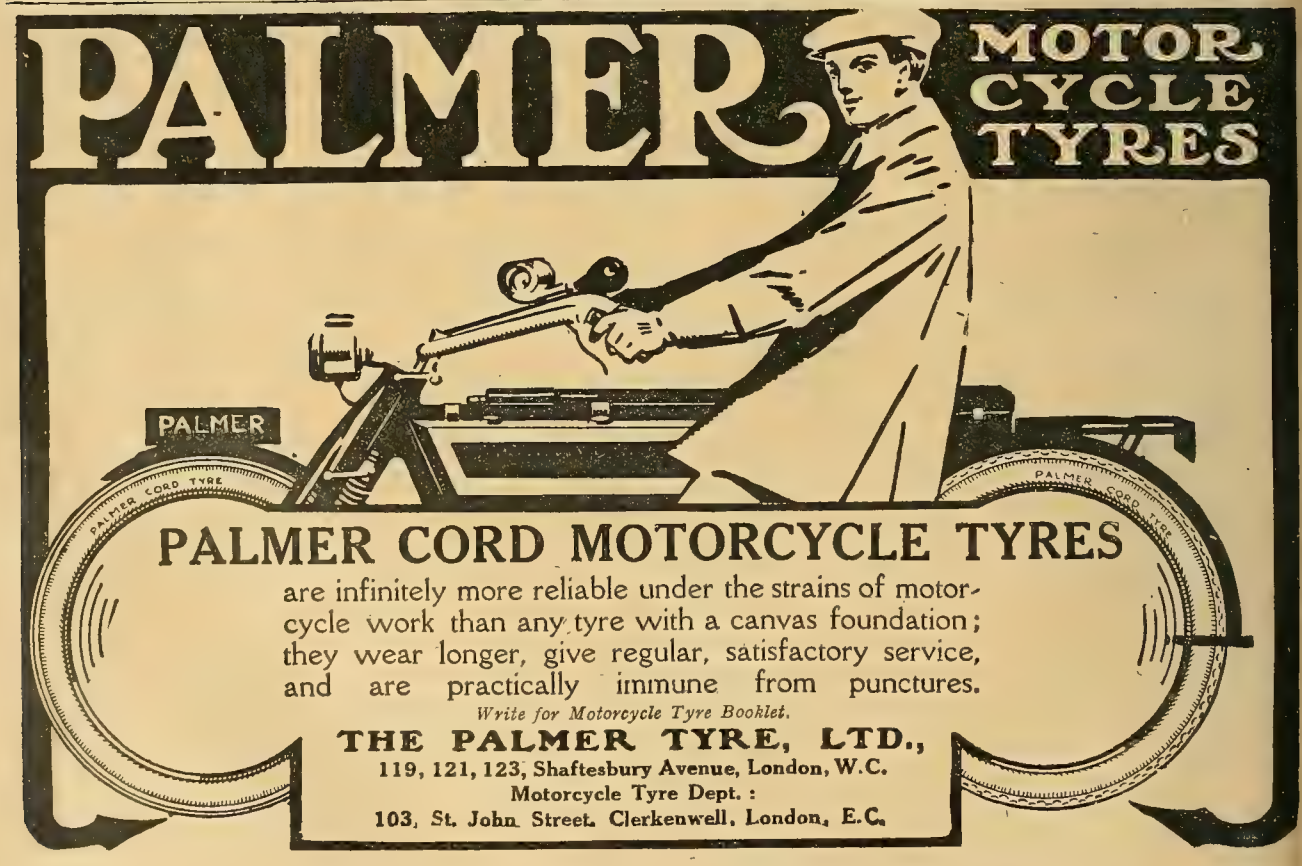
Comment is needless, but they are the

BEST IN THE WORLD.

— M.A.G. ENGINE CO., —

M.A.G. Works, Harrow Rd., Willesden Junction, London, N.W.

PALMER MOTOR CYCLE TYRES



PALMER CORD MOTORCYCLE TYRES

are infinitely more reliable under the strains of motor-cycle work than any tyre with a canvas foundation; they wear longer, give regular, satisfactory service, and are practically immune from punctures.

Write for Motorcycle Tyre Booklet.

THE PALMER TYRE, LTD.,

119, 121, 123, Shaftesbury Avenue, London, W.C.

Motorcycle Tyre Dept. :

103, St. John Street, Clerkenwell, London, E.C.

on fixed gear without difficulty, and on dismantling the back wheel later, found that the sliding carrier had become jammed on the spindle, causing the movable telescopic sleeve in the hub to remain stationary.

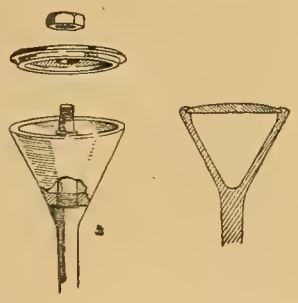
The defective parts were forwarded to the works at Coventry late one Monday evening, and by first post on the following Wednesday a letter was received from Messrs. Rudge-Whitworth, Ltd., that the defects would be remedied and returned same day entirely free of charge, although the usual three months' period of guarantee had expired last December. On enquiry at their Liverpool depot two days later, I found that the defective parts had not merely been returned as advised, but a brand new complete back wheel had been forwarded; which is, I believe, priced in the catalogue at about £4 5s. This was built into the machine in less than five minutes, and all assembled again ready for the road within five working days.

I might also add that I have for some months past been regularly running on about 33% petrol and 66% paraffin for solo riding and, say, 50% of each for sidecar work; and, provided one is content to ride for "pleasure" on slightly retarded ignition at not over 25 m.p.h., this mixture, with a Senspray carburetter, seems to be quite satisfactory in every respect. Benzole and paraffin in approximately the same proportions appear to give similar results, but I cannot speak from sufficiently lengthy experience thereof.

F. J. KELSHAW CONWAY.

A Revolutionary Suggestion.

Sir,—I have read with interest the wordy warfare between "Ixion" and "L.M.M.J." on the subject of trumpet shaped valves. The idea has always appealed to me, and, in 1911, I constructed a modified form of trumpet valve and used it for a considerable distance. I was puzzled for some time by the constant necessity of filing bits off the stem, which appeared to lengthen indefinitely, but I subsequently found this was due to the valve curling up at the edges. It was in use in the inlet pocket, so the presumption is that if it had been used as an exhaust valve the results would have been less satisfactory. Furthermore, the cone was not nearly deep enough, the depth being about 1in. for a valve diameter of 1⅜in. It is quite possible that if a longer cone was used the closing-up effect would be less pronounced. The obvious disadvantages are: (1.) The compression is lowered. (2.) Difficulty of providing means of grinding in. (3.) Increased heating surface. I believe this type of valve would be successful if the top could be closed in with a disc either "spun" in or screwed to an extension of the valve stem (see sketch). The advantages of this type of valve are so obvious that it seems worthy of a thorough trial.



JOHN KENNEDY, Jun.

Carburetter Experiments.

Sir,—Some of your readers may be interested in the following improvements to a 1910 standard Douglas. As I was not satisfied with the original carburetter, I fitted a 1913 Amac, which had to be fixed with the air inlet pointing sideways. After this, misfiring in the back cylinder at slow speeds stopped. During a 750 miles tour in Dorset and South Devon the machine averaged 104 m.p.g. of Shell II. spirit with a 24 jet. I may here mention that the only objection I have to the Amac carburetter is that the jets are not always by any means the size they are stamped, but usually larger, so that my 24 jet was really more like 27 or 28. I noticed that petrol blew back considerably, and finding the inlet valves opened too far I reduced the lift to a bare ⅛in. Though an improvement, it was not a cure, and I therefore lowered the petrol level, and made the jet smaller, so that a strand of Bowden cable would be a loose fit. I then made an extra air pipe 6in. long, which was bent at right angles close to the carburetter so as to point forward on the injector principle. It was slightly funnel shaped, and had coarse gauze over the end, covered by two layers of linen. The air gauze in the carburetter was removed. On a trial run of seventy-three miles on Shell II. I averaged 128 m.p.g., at an average speed of 18-23 m.p.h.

I next tried 90% benzole, and with the same setting of the carburetter as before I now average just 160 m.p.g., which is as good as one can expect. Since using benzole I find the engine starts and runs as easily as with petrol, and a previous frequent knock on steep hills has been cured. I have not taken the engine down since using benzole so cannot say anything about deposit.

A. J. K. DREW.

Tyre Holes under Patches.

Sir,—Responding to "Ixion's" invitation of July 3rd, I am one of those riders who habitually run tyres, etc., to destruction, and experience the difficulty of so affixing the patch as to prevent the puncture splitting. I use one of the best-known patches, together with the special solution recommended, but time after time the puncture has split until it reaches the edge of the patch.

The best remedy I have found as yet is to cut a perfectly circular hole, at each end of the split, with a small punch, such as is used by experimenting chemists for punching holes in corks, but even this is not altogether satisfactory.

I have been recommended to make a cut across each end at right angles to the split, and shall try this next time.

I have always found it easy to remove the old patch with benzoline. In 1,500 miles I have had only one puncture and at least a dozen splits as described above.

H. DARLINGTON.

Automatic Carburetters.

Sir,—I was somewhat taken aback to find in your issue of July 10th a combined pæan of glorification of the automatic carburetter on the part of the writer of your leading article, "Road Rider," and "Ixion," as my own experience has pointed strongly in favour of the non-automatic instrument if power, coupled with flexibility and extreme economy, is desired. Personally, for the last two seasons, I have used the new variable jet B. and B., and the experience has been so satisfactory that it is hard to understand why this model has failed to "catch on," unless it be from mere ignorance of the users. It may be for this reason that the makers have been compelled to alter some of its best features.

This type has all the advantages of the fixed two-jet carburetter, and can do all that an automatic vaporiser can. As regards flexibility I find no difficulty in running from seven to fifty-seven or sixty by speedometer on a fixed gear of 4¼ to 1; for the former speed all that is necessary is to close the jet lever a trifle, and close up the bottom air holes by the sliding shutter provided in the 1912 model. Of course the tiny jet opening thus obtained in conjunction with the absence of bottom air really acts as a pilot jet when the throttle and air pistons are nearly shut; hence extreme flexibility and remarkably easy and gentle starting. In traffic it is quite easy to attain the much-belauded automaticity by setting the adjustments (all done from the saddle) in such a manner that speeds from ten to thirty-five are given by moving the throttle alone; the actual setting depends on what gunnery experts would call the "error of the day."

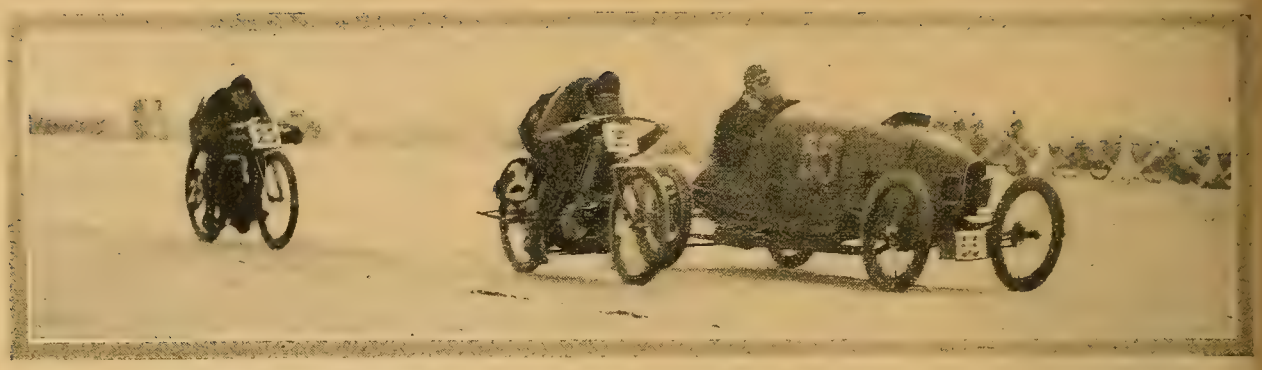
Economy. My own machine (a T.T. James), without any special adjustments, regularly covers 130 to 140 on the gallon on good roads, averaging about 25 m.p.h., and I am convinced that even 160-170 could be done under favourable conditions, provided speed were no object. (Benzole has not been tried yet.) Such results could not possibly be achieved by a fixed jet carburetter unless power were sacrificed; with the universal B. and B. the rider merely moves the jet lever a shade when a hill comes into sight, closing it off as he clears the top. In coasting the jet can be shut right off, thus further saving fuel; and if the exhaust lever be dropped, and the air and throttle levers opened wide, cold air is sucked through the engine, plus a useful braking effect unaccompanied by explosions in the silencer.

The sole defect in the two-lever variable jet type is naturally that it demands more skilled and "sympathetic" handling, but this "defect" adds enormously to the pleasure of driving, especially as all adjustments are affected from the saddle, even at fairly high speeds.

Finally, its simplicity is its great feature: it certainly comes nearest the ideal "hole in a pipe"—which is all a good carburetter need be.

I add the usual disclaimer.

AUTOBORE.



SIX HOURS' RACE AT BROOKLANDS. H. O. Wood (Scott), winner of the T.T. and O. C. Godfrey (Indian), passing A. Francis (Duo).

Belfast v. Dublin.

Sir,—With reference to the letter of Mr. R. G. Lindsay, the president of the Ulster Centre of the Motor Cycle Union of Ireland, regarding the result of the inter-centre contest between the Ulster and Southern Centres, which appeared in your issue of the 10th inst., I would like, in justice to myself, to say that the figures were given to me by the acting hon. secretary of the Southern Centre with permission to publish them. He mentioned they were subject to confirmation by the Ulster Centre of the Union, and this fact was stated in the manuscript sent to you, but owing, I presume, to the exigencies of space, the paragraph was deleted. YOUR CORRESPONDENT.

Is the Three-wheeler a Cycle Car?

Sir,—With reference to the letter in your issue of July 17th from Mr. H. F. S. Morgan, in which he says, "The C.C.C. in its hill-climb excluded them (three-wheeled cycle cars)." If by these initials he intends to refer to the Cyclecar Club, permit me to point out that three-wheelers were not debarred, but that, on the other hand, in two classes gained awards. If, further, he implies that the Morgan cycle car had not an opportunity of demonstrating its superiority over every other type of machine, he has apparently overlooked the special prize for the best figure of merit irrespective of class, which was won by Mr. Parnacott on his three-wheeled Cycar.

A. C. ARMSTRONG,
For the Hon. Secretary, Cyclecar Club.

[Mr. Morgan's letter was not intended to go into details, but apparently he was excluded from Classes III. and V. This is probably what he means. Is the Cycar a three-wheeler as the writer states? We believe not.—ED.]

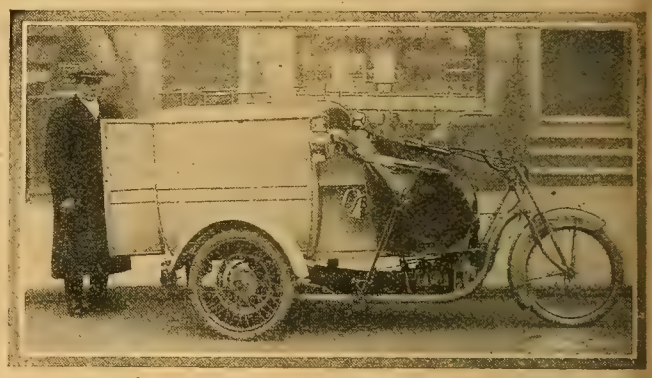
Wear of Big End Bearings.

Sir,—Our friend "Ubique," on page 898, appears to be "flogging a dead horse." There certainly are very few 85 mm. bore engines having big ends of 1in. × 1¼in., the more popular size being ⅞in. (or even a little less diameter) by 1in. wide, but why worry about plain bearings and forced lubrication when a roller bearing gets you out of all this trouble, "killing two birds with one stone," for not only does the roller bearing revolve far more freely than a plain one, but it is absolutely self-lubricating. Every drop of oil which gets in contact with a roller is immediately transferred to the neighbouring rollers, and also to the crank pin and the big end.

It is this automatic lubrication which makes it advisable to fit roller bearings to the small end also, and the rollers seem to behave quite as well with the oscillating movement of the connecting rod at small end as they do with full rotation of the crank pin.

As to the oil reaching the big end, the idea of the connecting rod dipping in a pool of oil has been put to sleep long since, but modern motor cycle engines usually have the feed pipe so arranged that the oil falls between the flywheels immediately on to the connecting rod, which, therefore, gets the first pull at the oil.

One leading firm of engineers who have developed very high revolutions (and consequent horse-power) by experiments against the air brake, which have extended over years, find that the roller bearing connecting rods are absolutely the last thing to give any trouble. They will stand full load without appreciable wear longer than the ball bearings to the main shaft, which is saying a good deal, while the plain bushes have seized up repeatedly with less than one hour's continuous run. MOBIQUE.



The latest model Wall tricarriage with business body. The fact that Wall three-wheelers may be obtained with interchangeable bodies adaptable either for pleasure or business purposes is responsible for a brisk demand.

A double-seated sidecar described by Mr. W. J. Walter.

A Two-seated Sidecar.

Sir,—I am sending you photographs of my double-seated sidecar. It is locally made, being built with three-ply birch and bound with aluminium. The child's seat folds up under the front of car when not in use. This body is quite as light as a good many cane ones.

The machine is an 8 h.p. Bat, 1911, which, combined with the P. and M. gear, is ideal for sidecar work. The sidecar chassis is, I believe, a Chater-Lea. It has five connections, which gives a feeling of safety to the driver.

I shall be pleased to give the name of the maker of this body to any reader who desired it. W. J. WALTER.

The C.A.V.-Ruthardt Magneto
for Motor Cycles.

Totally enclosed.
Waterproof.
Dustproof.
Foolproof.
Minimum weight.
Maximum efficiency.

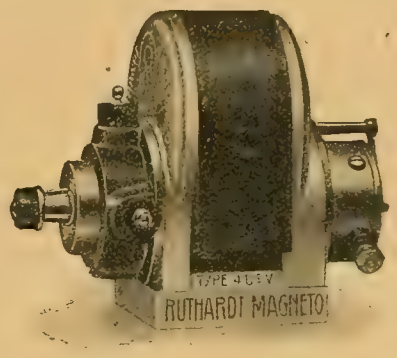
Another Sweeping Success.

At Colwyn Bay, Stanley on his Singer machine fitted with the C.A.V.-Ruthardt Magneto, secures in one day *five* 1st and one 2nd and Special Cup.

Facts speak for themselves.

Grand Prix, July 13th.

Cycle Car Race, 'Bedelia,' 1st
Motor Bicycle „ 'Rudge,' 1st
Both machines were fitted with "C.A.V.-Ruthardt Magnetos."



Booklet and full particulars gratis.

C. A. VANDERVELL & CO.,
Electrical Engineers
WARPLE WAY, ACTON VALE, LONDON, W.
Telegrams: "Vanteria, London." Telephone: 1234 Chiswick (5 lines).
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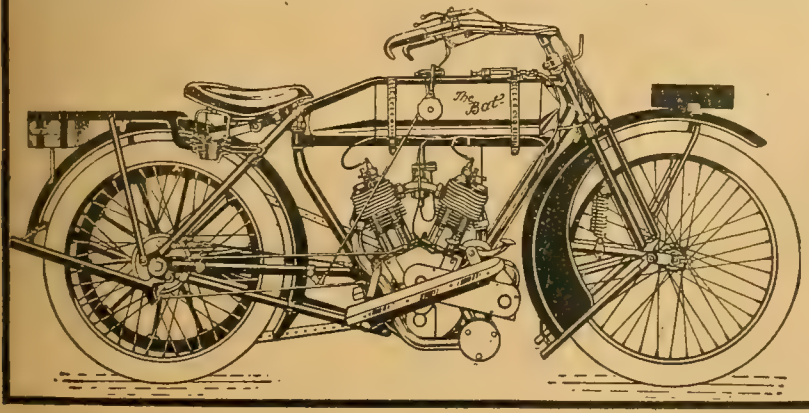
BAT
BEST AFTER TESTS

Both Sides of the Game

Brief Specification of B.A.T.

Model 2 (Light Roadster), J.A.P. Engine 5-6 h.p., low built frame, ball bearing spring forks, Kempshall 26 x 2½ Tyres, foot-operated clutch, Armstrong Mark VI. gear, Bosch high tension magneto, Amac carburetter, handle-bars as illustrated, T.T., a roadster type to order, finished in superior French grey enamel.



Practically every follower of motor cycling, without being essentially a speedman, desires at various times to participate in club competitions and open trials.

The Bat model No. 2 has been specially designed to meet the demand of the all-round rider.

It is a machine which he can use with every confidence in hill-climbing and speed tests, and for sidecar and solo work on the road.

Designed on speedy, graceful lines, a good looking racy mount in every respect.

A postcard will bring you the latest edition of the Book of the Bat, post free.

BAT MANUFACTURING CO.,
PENGE, LONDON, S.E.

ANOTHER IMPORTANT SUCCESS.

In the
Irish End-to-End Reliability Trial
the

won outright the
PALMER TROPHY
and
GOLD MEDAL
also
the two ARIEL riders received
SILVER MEDALS.

Write for Art Catalogue to
ARIEL WORKS (Dept. 2), BOURNBROOK, BIRMINGHAM.

In answering this advertisement it is desirable to mention "The Motor Cycle."

Carburetters and Flexibility.

Sir,—I was very glad to see your leading article on "Automatic Carburetters," and particularly in reference to the pilot jet, and I am quite sure that the pilot jet is an absolute essential in an automatic carburetter if really slow flexible pulling is to be obtained with great economy. Many carburetters will pull slowly and flexibly, and be automatic, but at the expense of fuel; the tiny pilot jet gives you a very little mixture, but of the right sort.

Regarding your suggestion for a trial for flexibility, speed, and economy, I sincerely trust that this will be arranged. I quite agree with you that there is no reason whatever why a motor bicycle should not be driven like a car with practically the same amount of flexibility without having two levers to fiddle about.

Referring to Mr. Robinson's statement that he can obtain 120 miles to the gallon with my carburetter on benzole, I am quite sure he can do this, as I am constantly hearing from clients who say they get more than this.

The real difficulty in getting automatic two-jet carburetters adopted by the trade largely is the price. They cannot be sold at the same price as an ordinary carburetter, because there is more work in them, and they require much more accurate making. The fitting and grinding in of the throttle of my two-jet automatic carburetters costs more than making the rest of the carburetter, and if the throttle is not a good fit, then the efficiency is impaired, and the petrol consumption increases, and where a manufacturer can sell the whole of his output with carburetters which cost half as much money he is not likely to change. Several manufacturers whom I have called on have told me they quite recognise my claims, but as long as the price was twice as much as they were paying they were not interested.

When the supply of motor cycles is well equal to the demand, and purchasers a little more particular, and insist on certain conditions of flexibility, speed, and economy, then will the manufacturer of the automatic carburetter come into his own. One of the last manufacturers I called on said, "I am making 3,000 motor bicycles during this year. The price you are asking for your carburetters is exactly 15s. more than what I am paying, consequently, I should make an actual loss of £2,250." I suggested that customers would probably be willing to pay the 15s. extra, and he told me in some cases they might, but it would cause disorganisation and all kinds of worries and delays.

No! It is up to the rider to insist on a certain guaranteed performance, and if he sees a carburetter advertised with this he has a right to have it. I do not think it will be long before the manufacturers recognise this, as it is certainly a hardship for a man to pay £50 or £60 for a machine and then immediately to have to buy another carburetter which will give him what he requires. CHARLES BINKS.

Wear of Bearings.

Sir,—A correspondent in your issue of July 17th comments on my article under the above heading appearing in the issue of June 26th.

I should like to say that I was perfectly serious when I stated that common lead made a satisfactory bearing metal and had a low friction coefficient. No technical communication is of any value if it is not to be taken seriously, so that it is rather peculiar that "A.M.I.M.E." should give the article credit for being of interest and yet doubt whether it can be taken as serious.

The point I wished to make was that there was nothing to choose between common lead or any alloy of lead in the form of any of the well-known bearing metals. As "A.M.I.M.E." points out, it is important that the alloy be chosen to give a close homogeneous metal, but beyond this, provided that proper lubrication is maintained, no one alloy can be got to give results materially superior to others.

In Goodman's tests of bearing metals, up to 1,500 r.p.m. and 10 tons load on a 6in. axle, it was found that "ordinary commercial lead gave excellent results under moderate pressure": the friction was lower than that of any other metal tested, and, provided the pressure did not greatly exceed 300 lbs. per square inch, the wear was not excessive.

Of course, the heavy bearing pressures and inadequate lubrication prevailing on almost all motor cycle engines preclude the possibility of using anything but hard metal for the bushes—*with the result that both the pins and the bushes wear*. The adoption of ball and roller bearings does not go to the root of the trouble, and adds further objections. Motor car designers have abandoned them owing to their noisy and harsh running; they show a slight saving in weight and space, and do not require much lubrication, but in these days when the width of engines is not limited by the old conventions, it would be far preferable to have *plain bearings and adequate lubrication*.

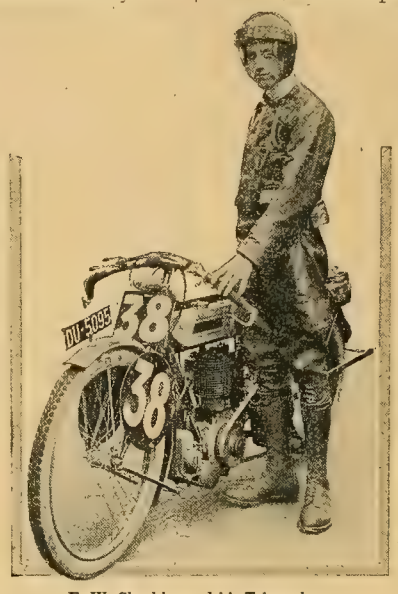
It is certainly astonishing, when we consider the progress that has been made in motor car construction, to find the ordinary motor cycle engine as noisy and as crudely lubricated as it was ten years ago. The best place for ball and roller bearings is under conditions of steady load—as in the gear box. A.M.I.C.E.

Sketches by our artist at the Brooklands Six Hours' Race.

J.R. Haswell & Hugh Mason Keep company lap after lap.
J.R. Haswell replenishes himself while assistants replenish machine
Taking advantage of a stop to acquaint Hugh Mason that he had broken records.
Refreshments
M. Heinzel throws his spare belt behind him while going at high speed.
Mr Scott helps with adjustments.
Calthorpe at speed.

Racing without Spare Parts.

WE had a chat last week with E. W. Cheshire, the Triumph rider, who, it will be remembered, finished second in the motor cycle Grand Prix Race, less than four minutes behind T. E. Greene. The Grand Prix was Cheshire's first road race, and, seeing that the Triumph riders were very much handicapped by not having practised on the course, Cheshire and Clayton can be said to have performed extremely well by finishing second and fourth respectively. The only chance they had of seeing the corners was on push bicycles, and one afternoon the Triumph team (consisting of Cheshire, Clayton, and Newsome) thoroughly enjoyed themselves racing round the track on push-bicycles—but one lap was quite enough! It was a fact well known on the Picardie Circuit that the Triumph riders had no spares whatever; the supply which had been sent over by the firm having been detained in the Customs. This would not have caused the riders so much concern had they not been using a new valve. It says something for the reliability of their engines that no spares were required. Young Clayton had chronic toothache all night before the race, and two hours before the start had his gums lanced; his face was terribly swollen, the poor fellow being in great agony throughout the race.



E. W. Cheshire and his Triumph.

The Triumphs were geared 4 to 1, and Cheshire and Clayton used ordinary Clincher beaded-edge touring tyres 26in. × 2⅜in. The Triumph Co. wisely stipulated that their riders should use security bolts and should wear pneumatic helmets. It will be remembered that we urged the desirability of this becoming an A.C.U. rule in future T.T. Races.

Cheshire had five stops; two for replenishments, another because he imagined he had a puncture, another due to an air lock in the petrol supply, and the last because the compression momentarily disappeared, no doubt due to a particle of carbon under the valve seating. Cheshire considers that a foot-oiler on a racing machine is practically indispensable. He could not, for instance, have left hold of the handle-bars when passing over the uneven road in Boves to oil the engine. He used a Silvertown rubber and canvas belt, which was untouched throughout and was quite taut at the finish. Incidentally, this belt may shortly be fitted to Triumph machines as standard under their own name.

CYCLE CAR CLUB'S OPEN HILL-CLIMB AT SOUTH HARTING.

REVISED OFFICIAL RESULTS.

WE are now able to publish the revised official results of the South Harting Hill-climb, which took place on June 28th. It will be observed that these differ from the original figures—to the inaccuracies in which we at once drew attention—in no less than twenty-three places. The order of merit is altered in two cases, and we offer our sympathy to those who find themselves displaced from positions which they had reason to think they had won. The original Chota figure was as high as 2.096.

Entrant.	Machine.	Capacity.	Weight.	Time.	Figure of Merit.	Place on Merit.	Place on Time.	Award.
CLASS I.		c.c.	lbs.	m. s.				
A. W. Lambert	Morgan	1082	693	1 33⅖	.3174	1	–	Silver plaque
CLASS III.								
J. F. Buckingham	Chota	746	1004	2 29⅖	.5275	2	1	Silver plaque
A. E. Parnacott	Cycar	494	1060	4 4⅗	.8106	1	2	Silver plaque and special cup*
K. Kreitmeyer	Zebra	644	1392	5 26⅗	.2817	3	3	—
CLASS IV.								
W. G. McMinnies	G.P. Morgan	986	956	1 43	.4647	1	1	Silver plaque
A. W. Lambert	Morgan	965	875	2 6⅕	.3147	2	2	Bronze medal
L. W. Spencer	Morgan	1082	970	2 7⅕	.2588	3	3	—
CLASS V.								
A. G. F. Nash	G.N.	1085	962½	1 50⅘	.3247	2	1	Silver plaque
L. Martin	Singer	1097	1555	2 14	.3662	–	–	Disqualified
J. T. Wood	G.W.K.	1069	1372	2 14⅘	.3407	1	2	Silver plaque
C. M. Whitehead	G.N.	1085	1021	2 41	.1791	7	3	—
G. N. Higgs	G.N.	1085	1194½	2 56⅖	.1786	8	4	—
E. H. Armstrong	Armstrong	965	1008	2 56⅗	.2013	5	5	—
H. Naylor	G.N.	985	1019	2 58⅘	.1891	6	6	—
J. Chater Lea	Chater-Lea	965	1261½	3 0	.2437	3	7	—
A. P. Bradley	Duo	965	1409	3 19⅕	.2280	4	8	—

* Offered by Hon. Trials Secretary, Mr. A. H. Selwyn, for highest figure of merit.

OPEN HALF-DAY TRIAL.

THIRD OF THE HERTFORDSHIRE M.C.C. SERIES.

SATURDAY last was the date fixed for the third open half-day trial organised by the Hertfordshire M.C.C., but the morning was so wet that at one time the event was in danger of postponement. However, at 1.30, just an hour before the start, the rain cleared off, and competitors began to assemble at the George Hotel, Enfield. Among the earliest arrivals was S. Crawley, the energetic Triumph rider, who had ridden down from Coventry, and was to return by road the same evening. Miss Walker (2½ Hobart) and Miss Mary Ellis, handling a big 8 Matchless and sidecar, formed the ladies' brigade, for Miss Cooke, though entered, was unable to turn up. The entry of thirty-seven was considerably spoiled by the weather, and only about thirty started.

The First Speed Trial.

The route led through Potters Bar and South Mimms to North Mimms, where a speed trial was held over a short stretch of road in a private park. The test was somewhat marred by the loose surface, which made it almost impossible for the faster machines to keep on the road, and D. W. Perry (Rudge) and C. C. Cooke (Triumph), who were very fast in the early stretches, both fell. Miss Mary Ellis made a fine performance, and Miss Walker, H. W. Vernon (3½ twin Matchless), F. Abbiss (3½ Triumph), S. Hall (6 Rex), A. H. Wright (6 A.J.S. sc.), S. Crawley, (Triumph), and F. A. McNab (5 Trump) were all going well, Crawley and McNab seeming to be the fastest pair. A. H. Wright nearly left the road while at speed. Bedford (5 Hazlewood) was very quiet. The little Wilton cycle car, driven by C. F. Halsall, arrived very late at the start, but was running splendidly. Shortly after the start it picked up a stranded motor cyclist, and continued with three up. The course led through Hatfield and Welwyn to Hitchin, where competitors checked in at the post office, thence *viâ* Lilley, Hesiton and Barton to Sundon.

Loose Surface.

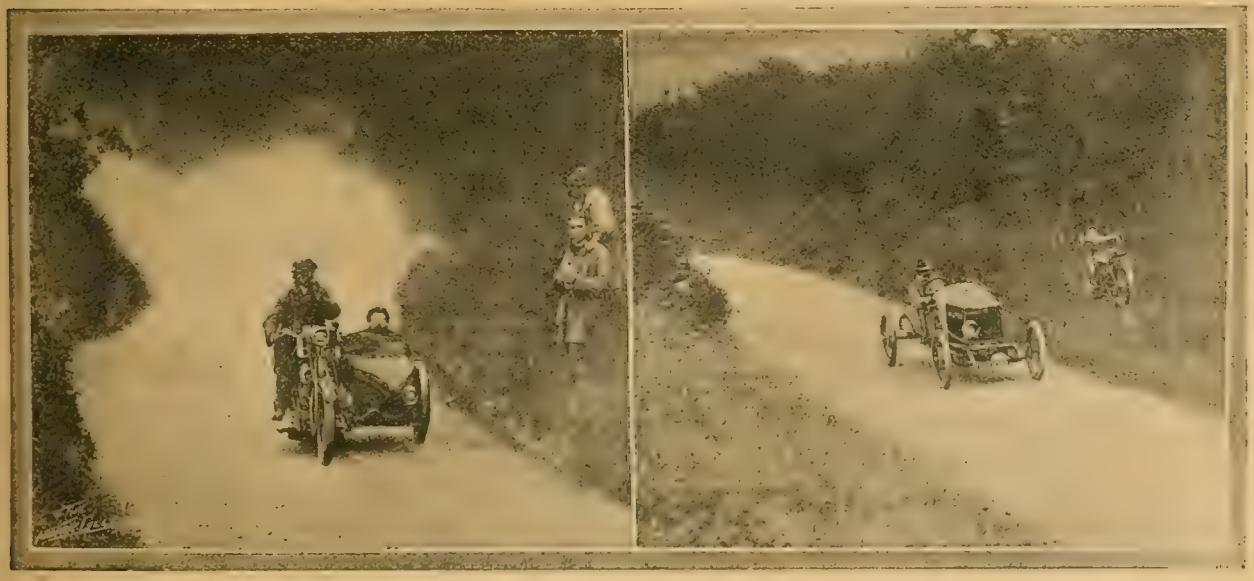
The roads in places were treacherous. The surface of Sundon Hill was too bad to allow of many fast ascents, but there were few failures. The road from Sundon to Dunstable is uninteresting, but shortly after the last-mentioned town Crawley took a wrong road.

The Tring Road was followed over the Ivinghoe Downs, but avoiding Tring Town. Competitors were led into the Aylesbury Road, and thence to Aston Clinton Hill. This hill is too well-known and too easy to cause much trouble, and A. E. Walker was the only rider who had to dismount. G. Berry (3½ Precision) had a slipping belt owing to his pulley flange unscrewing, but got up by using his foot as a jockey pulley. As this was not a timed hill there were no really fast climbs. D. W. Perry, C. C. Cooke, H. W. Vernon, S. Hall, and F. A. McNab all came up very well. A. H. Wright was driving his A.J.S. and sidecar sitting side saddle, being apparently tired of the more usual position. The first arrival at the hill was E. C. Jarvis (3½ Singer), who made a good ascent, but seemed to be in a hurry, for he was some way ahead of the rest. Narrow, twisty lanes followed, leading through St. Leonards and Bellingden to Chesham, where a fifteen minutes' stop was allowed for tea. Now came a short section, which was rather sparsely arrowed, leading to a little known hill near Chesham Bois.

Miss May Walker (2½ h.p. Hobart) negotiating the sharp bend on Sundon Hill. Miss Walker obtained second place in Class A.

A Tricky Hill.

Fortunately, most of the competitors knew their way, and all the survivors safely reached the rather tricky little hill. A right-hand bend brings one on to the steepest part of the



CLIMBING SUNDON HILL IN THE HERTFORDSHIRE M.C.C. OPEN TRIAL.

A. R. Hare (6 h.p. Enfield sidecar) passing the timekeeper. C. F. Halsall (8-10 h.p. Wilton cycle car) on the same hill.

Open Half-day Trial.—

hill, the surface of which was rather greasy. However, all those who reached the hill made clean ascents except T. Smith and G. Berry, whose belt failed him. F. Abbiss (3½ Triumph) is reported to have failed near the bottom, but we saw him finish in good form, apparently after a restart. Good climbs were made by Miss Mary Ellis, C. C. Cooke, H. W. Vernon, S. Hall, A. H. Wright, A. R. Hare (6 Enfield sc.), H. Haines (3½ Premier) sc.), S. Halsall (2¾ Veloce), C. F. Halsall (Wilton cycle car), and Bedford (5 Hazlewood). The route continued through Amersham, Rickmansworth, Croxley Green, Watford, to St Albans, by Holywell Hill, which, though a favourite local test, is not steep enough to worry a machine in good trim.

The Second Speed Test.

The London Road was followed to Bell Lane, where a left-hand turn leads to North Mimms and the second speed test. The surface in this test is much better and some good speeds were made, the most conspicuous performances being those of D. W. Perry, R. T. and H. W. Vernon, S. Halsall and C. F. Halsall, G. Berry and Miss Mary Ellis. Thence through the park till the main road is reached and on to Barnet there is little of interest to record.

C. C. Cooke, being the secretary of the event, is unable to take the prize in Class B; it therefore goes to D. W. Perry. Both the winners in the passenger class made meritorious performances. The following made non-stop runs:

R. T. Vernon (6 Matchless)
C. F. Halsall (10 Wilton cycle car)
S. Halsall (2½ Veloce)
F. Wolfe (3½ Rudge Multi)
E. C. Jarvis (3½ Singer)
H. Haines (3½ Premier sc.)
A. H. Wright (6 A.J.S. sc.)
Arthur Ellis (3½ Rudge)
Miss Walker (2½ Hobart)
S. F. Nickolds (3½ Kerry-Abingdon)
W. H. Bedford (5 Hazlewood)

Final results:

CLASS A. Up to 350 c.c.

Rider and machine.	Non-stop 30.	Non-stop 40.	Speed test 30.	Hill-climb Position.	Total
S. Halsall (2½ Veloce) ...	30	39	30	1	99
Miss Walker (2½ Hobart) ...	30	36	24	2	90

CLASS B. Between 350 and 517 c.c.

C. C. Cooke (3½ Triumph)	20	38	25	1	83
D. W. Perry (3½ Rudge) ...	20	40	20	2	80
E. C. Jarvis (3½ Singer) ...	30	11	4	3	45

CLASS C. Up to 1,000 c.c.

F. A. McNab (5 Trump-Jap)	20	40	30	1	90
S. Hall (6 Rex)	20	38	19	2	77
W. H. Bedford (5 Hazlewood)	30	23	21	3	74

CLASS D. Passenger machines.

C. F. Halsall (10 Wilton) ...	30	40	27	1	97
H. Haines (3½ Premier) ...	30	32	21	2	83

Results of Irish End-to-End Run.

Group of competitors in the annual Irish End-to-End Run for the Palmer trophy. (See page 939 last week).

The results of the End-to-end of Ireland Reliability Trial, under the auspices of the Ulster Centre of the Motor Cycle Union of Ireland, have been announced as under.

The scores given below represent the net figures after deducting marks where such penalty was imposed in consequence of the ascent of either hill not being clean at the first attempt:

1. L. Newey, Birmingham (3½ Ariel), open controls, 120 marks; secret controls, 220 seconds variation.
2. J. Thompson, Belfast (3½ B.S.A.), open, 120 marks; secret variation, 240 seconds.
3. H. Gibson, Southport (3½ Bradbury sc.), open, 120 marks; secret variation, 330 seconds.
4. T. De la Hay, Stourbridge (2¾ Sunbeam), open, 118 marks.
5. W. J. Chambers, Belfast (3½ B.S.A.), open, 115 marks; secret variation, 5 seconds.
6. James Stewart, Belfast (2¾ Douglas), open, 115 marks; secret variation, 7 seconds.
7. D. H. Noble, Coventry (3½ Rover), open, 115 marks; secret variation, 230 seconds.
8. T. Woods, Dublin (3½ P. and M.), open, 115 marks; secret variation, 235 seconds.

The following are also entitled to silver medals: C. E. Murphy, F. C. Wasley, R. S. Russell, J. A. McCann, R. Fenn, J. Brown, J. Lavery, D. Lucy, V. J. Farrell, C. Martin, W. O. Callaghan, T. Mallon, B. M'Manus, and F. L. Dooley.

The Palmer Tyre trophy goes to L. Newey, the Motor Traders' prize to J. R. Thompson, the four guinea prize and special prize to Hugh Gibson, the two guinea prize to T. De la Hay, and the one guinea prize to W. J. Chambers.

The team prize goes to the Sunbeam team—Messrs. De la Hay, Mallon, and M'Manus—whose point total exceeded any of the other teams finishing.

HOLIDAY HILL-CLIMBING TRIAL.

The Motor Cycling Club will hold a standard reliability and hill-climbing trial, open to all types of standard touring bicycles, sidecar machines, and cycle cars, on August 2nd and 4th. The start will be at 8.30 a.m. Route—Outwards: Newbury, Marlborough, Radstock, Wells, Bridgwater, Minehead, Porlock, Lynton, Barbrook Mill, Watersmeet, and Lynmouth, 135 miles (approx.), Homewards: Lynmouth, Porlock, and route as above, but in the reverse direction, 129 miles (approx.).

For the purpose of the hill-climb machines will be divided into three classes, with certain set minimum speeds.

Scottish Six Days Reliability Trials

Perth, Sunday.

WE are writing on the eve of the Scottish Six Days' Trials, which promise to be by far the greatest success of any of the series. The entries constitute a record in point of numbers, over one hundred being on the spot, and among them are three ladies. Opinions seem divided as to whether they will get through, but everyone admires their sporting spirit in making the effort to do so. Mrs. Mabel Hardee will ride a 3½ P. and M., Miss Reid a 3½ Brough, and Miss R. Hammett will again try her luck in a long distance trial on her 2¾ Douglas. Everyone hopes she will get better fortune with tyres than she had last year.

Perth was absolutely congested on Saturday night when we arrived, and the presence of so many motor cyclists seemed of great interest to the populace. Not only was hotel accommodation at a premium, but it was rather like solving a jig-saw puzzle to get our machine into a garage. However, the proprietor of the Royal George Hotel, directly he knew we were connected with *The Motor Cycle*, set to work and cleared a space in the packed hotel garage for our machine, and turned the billiard room into a bedroom.

A Strenuous Trial.

We were met almost the moment we arrived by Geo. Brough, anxious to have our seals fixed to his machine, for he purposes to ride a further twenty miles at the conclusion of the trials under our observation, so as to complete 1,000 miles in all on his single-geared 6 h.p. Brough without using a tool. He is very cheery and will not hear of defeat, and is quite confident that he can repeat last year's successful journey.

Rex Mundy, who was entered to drive a Morgan, changed his mind at the last moment, and is riding an 8 h.p. Williamson, air-cooled, as a solo mount. A good many critics aver he will find such a large and heavy mount very difficult to manage on some of the twisty mountain roads, but the maker of the machine is confident that this motor cycle, heavy as it is, is quite a manageable solo mount.

Roads and the Weather.

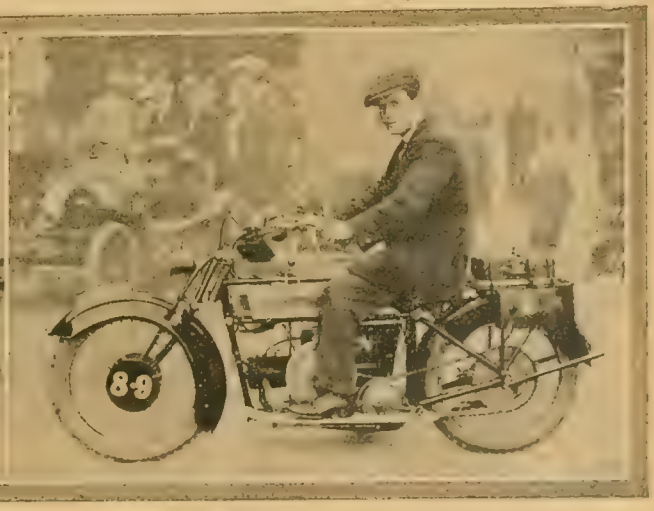
Conflicting reports as to the state of the roads reach us—some saying that they are bad, others that they are good, especially in the extreme North. Anyway, there has been practically no rain in this part of Britain for nearly a month, and at the moment of writing the weather is glorious, but as barometric conditions in the Highlands vary with startling rapidity, we must not bargain on too sunny a trip. A large number of competitors who arrived early spent Saturday in trying out their machines on Amulree, twenty miles from the start, and, as far as we can hear, everyone got up, but several attempts were necessary in some cases. Generally speaking, the lighter machines seem to have acquitted themselves to the most advantage in this informal trial, owing to their handiness at the corners. Our photographer made two clean and easy ascents on his Douglas, so we may take it that if there are any failures to-morrow at this spot they will be due to bad driving. We assume that all machines entered are fit, so the motors should not be blamed if they do not succeed.

We are informed that one of the side-car combinations contain a young couple on their honeymoon!

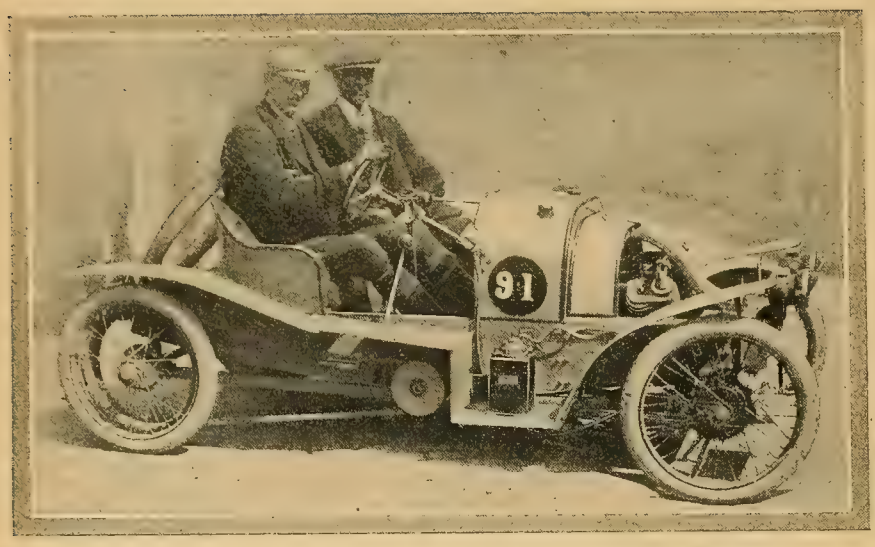
A good number of machines new to six days' events are making their *début* in this competition, and the Armstrong and Summers and Harding cycle cars are also new-comers.

The Edmund, Williamson, Sunbeam, Enfield, Sun-Villiers, and Lea-Francis are notable new-comers to this class of work. Special gear ratios of 6 to 1 and 12 to 1 are fitted to the Lea-Francis machines, and the one ridden by G. I. Francis, No. 35, is fitted with an interesting new carburetter—the Everest. This is an automatic one-lever carburetter, and is a miniature replica of the carburetter fitted to the Maudslay cars. It has seven jets, and great economy in fuel consumption is claimed for it. It is stated that a six-cylinder car, 90×130 mm., has been driven at 30 m.p.h. on a consumption of sixteen miles to the gallon with a heavy body and four passengers, and the results, when the instrument is transferred to a motor cycle, are said to be equally satisfactory. A very neat little lever is fitted at the top of the carburetter at the point where the Bowden wire control enters to vary the amount of air; but this is not moved in running, and is only used to get the correct setting for any violent atmospheric change. A curious point about the 3¼ h.p. Lea-Francis machines is, so we are informed by Francis, that they are actually faster on the average when fitted with the lower ratios of gearing than with the standard 5 to 1 top. It is evident that the J.A.P. engines, with which they are fitted, are designed for a high number of r.p.m. They are very workmanlike machines, and each carries a spare cover fixed very neatly to the side of the machine, a block of wood curved to fit the inside curve of the cover being fitted on the side of the carrier and the cover secured over it and then strapped tightly to the back stays.

"The Motor Cycle" representative sealing the 6 h.p. single geared Brough which George Brough is endeavouring to ride 1,000 miles without making any adjustment.



An 8 h.p. air-cooled Williamson which is being ridden by Rex G. Mundy.



The air-cooled Summers and Harding Cycle car which is being driven by P. D. Walker.

The Sealing.

At eleven o'clock on Sunday the competitors presented themselves at the garage of Messrs. Fergusson. The garage, spacious as it is, was absolutely congested, and the proceedings of checking the spaces, sealing, etc., were strung out to an interminable degree. This was partly due to the way in which entirely unauthorised persons were allowed to roam about the garage at their own sweet will, and half the juvenile population of Perth seemed to be treating themselves to a miniature Olympia Show, with the result that it was a matter of acrobatic agility to find one's way between the closely packed machines. Our first duty was to seal up Geo. Brough's machine on behalf of *The Motor Cycle*, and this was done very thoroughly, even the tool-bag being sealed. Brough came in for a lot of chaff from other riders while his machine was in our hands, and a wag caused much amusement by asking us to seal the rider's feet to the footrests! A threat to go on in advance and seal the doors of the bars at the luncheon and night stops was the only thing to cause Brough consternation, for, in the event of any hill being too much for his single gear of 4 to 1, he imagined the thirst he would develop would cause such seals to be rudely broken!

Mr. Victor Holroyd put in an unexpected visit, and explained that he had started on a holiday trip to Norway, but was unable to get there as the ship on which he had booked his berth had been wrecked, so he decided that a 'busman's holiday was evidently destined for him by fate, so here he is on a 750 c.c. Rudge and sidecar, and he will accompany the riders round part of the course.

A Few Details.

The majority of the machines were workmanlike looking productions, and departures from standard were conspicuous by their absence, but C. R. Collier's sidecar combination was fitted with a new type of gear box giving three speeds. The drive from the engine to the gear box is by enclosed Renold silent chain and thence to the rear wheel, which is shod with a 3in. Palmer, by ¾in. pitch roller chain. Attached to the gear box is a massive kick starter on the Douglas principle, but Collier explained to us that the adoption of this gear will not be decided upon for 1914 until after the trials, and that it is now undergoing its first severe public test.

A great many riders have attached "wire cooling" devices to their cylinder heads, and this idea may be a good one, but it looks ugly.

T. Knowles's T.T. 2¾ Humber attracted a great deal of attention, and it was enamelled bright red with spick and span black and gold lining, and plated silencer. We should imagine that he will find dropped handle-bars rather fatiguing, especially on long descents.

W. Pratt, who always has some 'cute ideas on his P. and M., has fitted large mesh chain nail catchers on his tyres, as has also Mrs. Hardee, and Pratt hopes that his proverbial good luck with tyres will be his lot again this year.

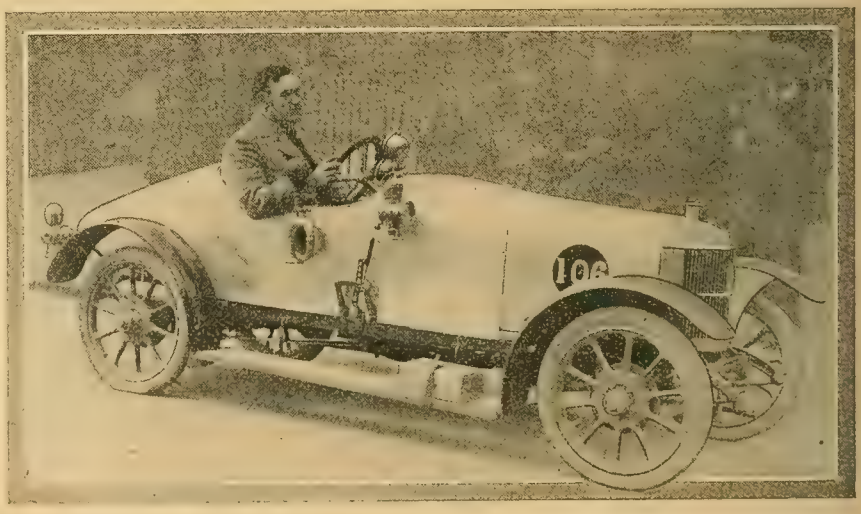
A neat little machine, making its first essay in a big trial, is the 2½ Connaught two stroke. It is fitted with a G.H. two-speed gear and very heavy driving chains, and a perfect bunch of wire round the cylinder head for extra cooling effect. We were rather taken with the rear springing of the Edmund, ridden by a private rider, R. G. MacGibbon. Some of the competitors were very sparsely supplied with spares, and although it is well on a trial of this description to ride as light as possible, we fear some of these men will have cause to rue their optimism before many days are over.

The Cycle Cars.

Taken altogether, the cycle cars did not attract a vast deal of attention, but the Singer is practically a racing model with a fish-tail body and pointed radiator.

A curious looking four-wheeler is the Summers and Harding cycle car. It is fitted with a 90° J.A.P. engine and fixed Eisemann ignition, and, sloping from the dashboard to the front of the car, is a broad wooden board, giving it the appearance something like a Renault. On the board is painted a big Golly-wog. The change-speed lever is mounted by the steering column very much in the manner of the early De Dion quads, and the drive is by shaft from the engine to the three-speed sliding type gear box, and thence to the back wheels by belts. All four wheels are sprung on vertical coiled springs. P. D. Walker, the driver, assured us that it was very fast and would climb anything.

Everyone is hoping for a continuation of the present fine weather, as to-morrow's run is a severe one, a start being made at 8 a.m., the lunch stop being fixed at Braemar, where we are due at 12.41. A certain amount of grumbling has been caused by several of the sidecars being started early in the list, as it is feared that some of them may fail on Amulree and block the narrow road, but we believe that these fears will prove groundless, in the great majority of cases at all events. Fifteen minutes each morning are allowed for work on machines.



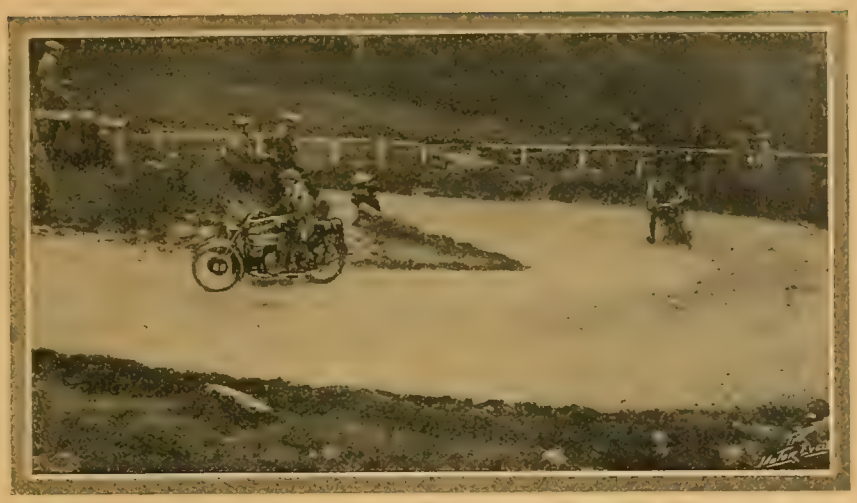
The Singer cycle car driven by L. Martin. As may be seen it is fitted with a new type of fish-tailed body and special wedge-shaped radiator.

FIRST DAY.—Perth, Amulree, Glenquaich, Kenmore, Aberfeldy Ballinluig, Pitlochry, Kirkmichael, Spital of Glenshee, Braemar, Cockbridge, Tomintoul, Grantown, Carr Bridge, Inverness. 173 miles.

The start of the Trial was made in lovely weather on Monday, the first competitor being despatched at 8 a.m. The non-starters included G. E. Cuffe (Premier), C D. Wright (Humber), F. G. Boddington (Morgan), A. D. Scott (Triumph), E. M. Oliver (Hazlewood), Miss Reid (Brough), and T. Silver (Quadrant). Oliver was prevented from starting owing to illness. There was a great crowd at the start, and the ladies in particular came in for much cheering as they were given the word "Go" at the commencement of their long and strenuous trip.

Amulree the First Test.

The first real test was the notorious Amulree with its S bend. Observations thereon were as under: Following good—Thomson (Bat sc.), Morrison (Bat), Downie (A.J.S. sc.); Fletcher (Douglas), Tessier (Bat), and Gibson (Bradbury) splendid; Pratt (P. and M.) failed; Keiller and Wilberforce (G.W.K.'s), both excellent; Wood (G.W.K.), good; Mrs. Baxter (Rex), failed at the second bend. Chisholm (Ariel), failed. Beveridge (Rudge) took the ditch, but recovered finely; Wade (New Imperial sc.), Warren (Premier), and Hands (Williamson sc.), good; Proctor, poor; Chater-Lea, good. J. R. Blackburn (Morgan) punctured a front tyre near Aberfeldy, but soon repaired it. Cramb (Elswick) broke his pulley in avoiding another competitor, and was obliged to retire.



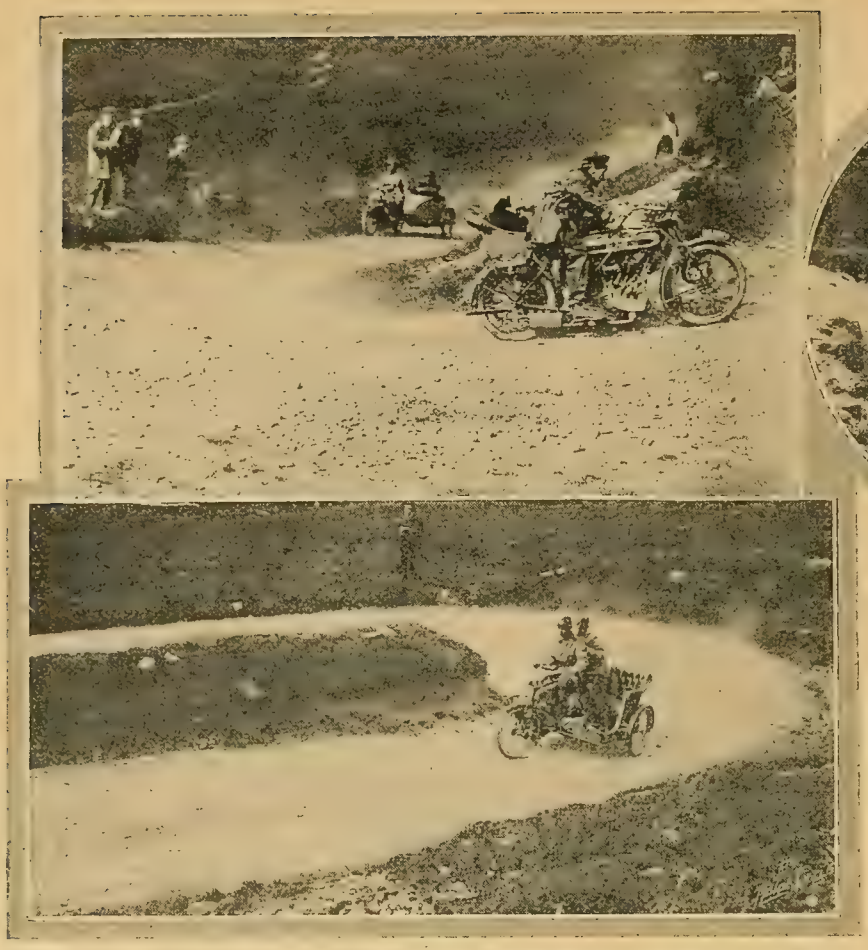
Rex Mundy (8 h.p. Williamson) and an Ariel rider rounding the Devil's Eltow.

The ascent of the Devil's Elbow on the Spital of Glenshee provided a number of sensations. Our observations on the Elbow were as follows: Heath, good; S. Wright (Humberette), very good. Chisholm (Ariel) ran into the gutter and fell heavily without injury. Begg (Rudge) came a cropper at the same spot; but Colliver, on the 7 Indian, made a beautiful ascent. The Rover and Lea-Francis teams to a man were excellent, as also Berwick (3½ Humber) and Beveridge (Rudge). Brough, on his single geared 6 h.p. Brough, climbed the hill with ridiculous ease, but the P. and M. team were not happy, though Mrs.

LIST OF STARTERS WITH OFFICIAL NUMBERS AND DETAILS OF COMPETING MACHINES.

No.	Name of Rider and Machine, and No. of Cylinders.	Variable Gear.	Bore and Stroke.	No.	Name of Rider and Machine, and No. of Cylinders.	Variable Gear.	Bore and Stroke.
			mm.				mm.
1	C. W. Meredith (3½ Bradbury, 1-cyl.)	S.-A. 3-sp. hub	89 × 89	54	*H. Berwick (3½ Humber, 1-cyl.)	S.-A. 3-sp. hub	84 × 90
2	W. Westwood (3½ Triumph, 1-cyl.)	S.-A. 3-sp. hub	85 × 88	55	*F. C. North (3½ Ariel, 1-cyl.)	Armst'g 3-sp. hub	86.4 × 85
3	Hal Harrison (3½ Swift, 1-cyl.)	Armst'g 3-sp. hub	86 × 85	56	*T. T. Laker (3½ Elswick, 1-cyl.)	Armst'g 3-sp. hub	85 × 88
4	*N. W. Downie (3½ Lea-Francis, 2-cyl.)	†Lea-Francis 2-sp.	60 × 76	57	*V. Busby (3½ Ariel, 1-cyl.)	Armst'g 3-sp. hub	86.4 × 85
5	J. E. Chisholm (3½ Ariel, 1-cyl.)	Armst'g 3-sp. hub	86.4 × 85	58	*H. Thompson (3½ Kynoch, 1-cyl.)	S.-A. 3-sp. hub	85 × 85
6	S. J. K. Thomson (7-8 Bat sc., 2-cyl.)	†Bat 2-sp.	85 × 85	59	G. Nott (5-6 Clyno sc., 2-cyl.)	Clyno 3-sp.	76 × 82
7	*R. S. Morrison (5-6 Bat, 2-cyl.)	‡Armst'g 3-sp hub	76 × 85	60	W. Cramb (3½ Elswick, 1-cyl.)	Armst'g 3-sp. hub	85 × 88
8	*J. Chater-Lea, jun. (8 Chater-Lea sc., 2-cyl.)	Chater-Lea 3-sp.	85 × 85	61	*D. Bell (6 A.J.S. sc., 2-cyl.)	A.J.S. 3-sp.	74 × 81
9	*A. F. Downie (6 A.J.S. sc., 2-cyl.)	A.J.S. 3-sp.	74 × 81	62	J. B. Robertson (2¾ Douglas, 2-cyl.)	†Douglas 2-sp.	60 × 60.5
10	*G. L. Fletcher (2¾ Douglas, 2-cyl.)	†Douglas 2-sp.	60.5 × 60	63	*B. A. Hill (7 Indian, 2-cyl.)	Indian 2-sp.	82.5 × 93
11	*S. T. Tessier (5-6 Bat, 2-cyl.)	Armst'g 3-sp. hub	76 × 85	65	Mrs. Hardee (3½ P. & M., 1-cyl.)	P. & M. 2-sp.	85 × 88
12	*C. H. Ingall (3½ Lea-Francis, 2-cyl.)	†Lea-Francis 2-sp.	60 × 76	66	J. R. Blackburn (8 Morgan c.c., 2-cyl.)	Morgan 4-sp.	85 × 85
14	*D. H. Noble (3½ Rover, 1-cyl.)	Armst'g 3-sp. hub	85 × 88	67	*N. A. Ayres (2¾ Sun-Villiers, 1-cyl.)	†Villiers 2-sp.	74.5 × 80
15	*Hugh Gibson (3½ Bradbury sc., 1-cyl.)	S.-A. 3-sp. hub	89 × 89	68	*Gordon Armstrong (Gordon c.c., 2-cyl.)	Gordon 2-sp.	85 × 95
16	*A. U. R. Downie (2¾ A.J.S., 1-cyl.)	A.J.S. 3-sp.	74 × 81	69	*A. G. Fenn (3½ B.S.A., 1-cyl.)	Bat 2-sp.	85 × 88
17	J. F. Morrison (2¾ Douglas, 2-cyl.)	†Douglas 2-sp.	60 × 61	70	*D. Alexander (8 Williamson sc., 2-cyl.)	†Douglas 2-sp.	85 × 85
18	*G. Featherstonhaugh (3½ Rover, 1-cyl.)	Armst'g 3-sp. hub	85 × 88	71	*G. T. Gray (5 Rudge, 1-cyl.)	Rudge Multi var.	85 × 132
19	J. H. Begg (3½ Rudge, 1-cyl.)	Rudge Multi var.	85 × 88	72	W. J. K. Gulland (3½ B.S.A., 1-cyl.)	Bat 2-sp.	85 × 85
20	*E. A. Colliver (7-9 Indian, 2-cyl.)	†Indian 2-sp.	82.5 × 93	73	J. Donaldson	—	—
21	E. B. Keiller (3½ Rudge, 1-cyl.)	S.-A. 3-sp. hub	85 × 88	74	*J. Oliphant (3½ Premier, 1-cyl.)	Armst'g 3-sp. hub	85 × 88
22	*C. M. Keiller (9.2 G.W.K. c.c., 2-cyl.)	G.W.K. var.	86 × 92	75	*J. R. Alexander (7 Indian, 2-cyl.)	Indian 2-sp.	82.5 × 93
23	*Victor Wilberforce (9.2 G.W.K. c.c., 2-cyl.)	G.W.K. var.	86 × 92	76	*A. G. Cocks (2½ Connaught, 1-cyl.)	G. & H. 2-sp.	73 × 70
24	*C. T. Newsome (3½ Rover, 1-cyl.)	S.-A. 3-sp. hub	85 × 88	77	C. Q. Roberts (8 Zenith, 2-cyl.)	Zenith-Gradua va.	85 × 85
25	Mrs. Baxter (6 Rex, 2-cyl.)	Roc 2-speed	77.5 × 95	78	J. A. Hoult (3½ Matchless, 2-cyl.)	Armst'g 3-sp. hub	70 × 91.5
26	*J. T. Wood (9.2 G.W.K. c.c., 2-syl.)	G.W.K. var.	86 × 92	79	A. J. Dixon (3½ Singer, 1-cyl.)	Singer 2-sp.	85 × 88
27	A. W. Brittain (3½ Bradbury, 1-cyl.)	S.-A. 3-sp. hub	89 × 89	80	*L. Sealey (3½ B.S.A., 1-cyl.)	B.S.A. 2-sp.	85 × 88
28	*W. Pratt (3½ P. & M., 1-cyl.)	P. & M. 2-sp.	84.5 × 88.9	82	*T. Pollock (3½ James sc., 1-cyl.)	James 3-sp.	86 × 103
29	T. A. M'Creadie (2¾ Sunbeam, 1 cyl.)	Sunbeam 2 sp.	75 × 79	83	*F. G. Edmond (2¾ Humber, 2-cyl.)	Armst'g 3-sp. hub	60 × 60
30	E. F. Baxter (6 Rex, 2 cyl.)	‡N.S.U. 2 sp.	77.5 × 95	84	H. M. Jameson (3 Royal Enfield, 2-cyl.)	†Enfield 2-sp.	60 × 75
31	K. A. MacDonald (3½ Singer, 1 cyl.)	S. A. 3 sp. hub	85 × 88	85	G. Taylor (3½ Rudge, 1-cyl.)	Rudge Multi var.	85 × 88
33	*W. B. Gibb (2¾ Douglas, 2 cyl.)	†Douglas 2 sp.	61 × 60	86	J. F. Selous Jones (2¾ Douglas, 2-cyl.)	Douglas 2-sp.	60.5 × 60
35	*G. I. Francis (3½ Lea Francis, 2 cyl.)	†Lea Francis 2 sp.	60 × 76	87	*G. Wray (5-6 Clyno sc., 1-cyl.)	Clyno 3-sp.	76 × 82
36	Rev. R. M. Bankes Jones (3½ P. & M., 1 cyl.)	P. & M. 2 sp.	84.5 × 88.9	88	T. Finlay (3½ James sc., 1-cyl.)	James 3-sp.	86 × 90
37	*Cyril Walden (7 Premier sc., 2-cyl.)	Premier 2 sp.	85 × 88	89	*R. G. Mundy (8 Morgan c.c., 2-cyl.)	Morgan 4-sp.	85 × 85
38	*H. W. Hands (8 Williamson sc., 1-cyl.)	†Douglas 2 sp.	85 × 85	90	W. C. Brandauer (7-9 Indian, 2-cyl.)	†Indian 2-sp.	82.5 × 93
39	*G. C. Proctor	—	—	91	P. D. Walker (10 Summers & Harding c.c., 2-cyl.)	French make	85 × 95
40	*A. B. Wade (8 New Imperial sc., 2-cyl.)	Jardine 2 sp.	90 × 77.5				
41	*L. E. Cass (6 Trump-Jap, 2-cyl.)	Jardine 2 speed	76 × 85	92	*T. Heath (5-6 Clyno sc., 1-cyl.)	Clyno 3-sp.	76 × 82
42	E. H. Littledale (3½ Ariel, 1-cyl.)	Armst'g 3-sp. hub	86.4 × 85	93	*S. Tubb (3½ Humber, 1-cyl.)	S.-A. 3-sp. hub	84 × 90
43	R. M. Stallebrass (6½ N.S.U. sc., 2-cyl.)	†N.S.U. 2-sp. and Armst'g 3-sp. hub	75 × 94	94	*L. Newey (3½ Ariel, 1-cyl.)	Armst'g 3-sp. hub	86.4 × 85
				95	J. Steel (3½ B.S.A., 1-cyl.)	—	85 × 88
44	*R. S. Macrae (3½ L.M.C., 1-cyl.)	S.-A. 3-sp. hub	85 × 88	96	Miss R. Hammett (2¾ Douglas, 2-cyl.)	†Douglas 2-sp.	60.5 × 60
45	*R. Pearsons (5-6 Clyno sc., 2-cyl.)	Clyno 3-sp.	76 × 82	97	R. E. Guest (7-8 Matchless sc., 2-cyl.)	Matchless 3-sp.	85 × 85
46	*C. Freeman (5-6 Clyno sc., 2-cyl.)	Clyno 3-sp.	76 × 82	99	*S. Wright (8 Humberette c.c., 2 cyl.)	†Humber 3-sp.	84 × 90
47	F. L. Bassett (2¾ Sun Villiers, 1-cyl.)	Villiers 2-sp.	74.5 × 80	100	*C. R. Collier (7-8 Matchless sc., 2-cyl.)	Matchless 3-sp.	85 × 85
48	*G. Brough (6 Brough, 2-cyl.)	Fixed	77 × 88	101	T. Knowles (2¾ Humber, 2-cyl.)	Armst'g 3-sp. hub	60 × 60
50	*J. Cocker (3½ Singer, 1-cyl.)	Singer 2-sp.	85 × 88	103	R. G. MacGibbon (3½ Edmund, 2-cyl.)	Armst'g 3-sp. hub	70 × 64.5
51	G. A. Gregson (5-6 Bat, 2-cyl.)	Armst'g 3-sp. hub	76 × 85	104	*H. F. S. Morgan (8 Morgan c.c., 2-cyl.)	Matchless 4-sp.	85 × 85
52	*A. W. Walden (3½ Premier, 2-cyl.)	Premier 2-sp.	85 × 88	105	*G. A. Lovegrove (3½ Raglan, 1-cyl.)	S.-A. 3-sp. hub	85 × 88
53	J. G. Beveridge (3½ Rudge, 1-cyl.)	Rudge Multi var.	85 × 88	106	*L. Martin (10 Singer c.c., 4-cyl.)	†Singer 3-sp.	63 × 88

* Denotes trade rider. † Lower than standard. ‡ Higher than standard. § Not standard.



AMULREE, THE FIRST TEST HILL.

(1) At the second bend. A. W. Walden (8 h.p. Premier sidecar) and H. W. Hands (Williamson sidecar).

(2) C. T. Newsome (5½ h.p. Rover).

(3) S. J. K. Thomson (7-8 h.p. Bat sidecar) rounding the first acute bend, his passenger on the carrier.

Hardee did well. Miss Hammett (Douglas) fell, luckily without serious damage. The Villiers machines made beautiful climbs. Mrs. Baxter (Rex) was loudly cheered as she managed her heavy twin magnificently. Hoult (Matchless) made an extraordinary recovery. He charged the bank, climbed up 1 in 2, slid down backwards, and went on without dismounting. Naturally, he was loudly cheered for his exhibition. The best performance among the sidecarists was easily that of Hands, whose passenger came up smoking comfortably in quite his normal position in contradistinction to the other sidecar passengers, who mostly performed acrobatic feats over the carriers.

Charles R. Collier (Matchless sc.) was very good, Guest (Matchless) fast, and Cocks (Connaught) made a fine climb. Pollock (James sc.) was good, with passenger leaning well over. Several competitors assisted at the bend by foot slogging, and thereby managed to get round.

The surface of the road was appalling, being inches deep in loose sand and big stones, whilst the descent from the Devil's Elbow to Braemar may be described as the worst road in Britain. Southerners can have no idea of the roughness. On one occasion competitors had to push for half a mile over huge unrolled granite

Great interest was evinced in the trial all along the route, even labourers carrying programmes.

The sensation of the day was the burning, by the Devil's Elbow, of Victor Wilberforce's G.W.K. How the fire originated is a mystery, but the petrol tank burst, and instantly the whole machine burst into flames, and was soon a total wreck. Luckily the driver and passenger jumped clear. Gulland (B.S.A.) had to retire at Braemar. His back tyre was wrenched off in climbing Amulree, and a bad fall gashed his head. A doctor refused to allow him to proceed.

After lunch, at Braemar, the roads improved awhile, but at the end of six miles the competitors were suddenly directed off the main Aberdeen Road on to a succession of precipitous ups and downs across the hills towards Cockbridge. Arriving there, we were faced with a terrific climb for several miles over a frightful surface, loose boulders on 1 in 6 gradients being quite usual features of the road. Generally speaking, there were not many failures through inability to climb, but tyre troubles were prevalent. Before reaching Cockbridge the silencer on Thompson's Kynoch hit a projecting rock, and was smashed, causing him to retire, as the machine made a terrible noise. All the ladies made clean ascents of Cockbridge Ladder. The descent to Grantown was the worst piece of the journey. There were deep gulleys every hundred yards, and a great strain was imposed on front forks and brakes. A false move on the part of the rider would have been fatal, as on the left there was a deep precipice, and the road was very narrow and winding. A large number of competitors were missing at Inverness, but up to a late hour no official list of catastrophes was published. It was reported that Taylor (Rudge) had had a bad smash on Amulree. One report says that a car ran into him, another that a stone lodged in his multi gear and threw him heavily. Cocker also had an accident to his Singer, and was brought into Inverness in the official car. The Humberette made splendid performances on all hills. It is now said that the fire on Wilberforce's G.W.K. was caused through using rubber petrol pipes, which came adrift.

Everyone was glad to see Inverness and all agree that it has been an exceptionally heavy day, especially for passenger machines. The Matchless sidecars ran beautifully, the J.A.P. engines being in perfect tune. Brough continued to play with hills, his performance being remarkable, especially on Cockbridge. The following have retired: Keiller (Rudge), Wilberforce (G.W.K.), Stallebrass (N.S.U.), Cramb (Elswick), Bell (A.J.S.), Gulland (B.S.A.), Dixon (Singer), and Martin (Singer c.c.). Also nine men have lost marks.

Friday's and Saturday's Routes.

FIFTH DAY. — Strathpeffer, Beauly, Drumnadrochit, Invermorriston, Cluanie Sheil Inn, Glenelg, Cluanie, Tomdoun, Fort Augustus Craggie Inn, Carr Bridge, Grantown—199 miles.

SIXTH DAY.—Grantown, Cockbridge, Braemar, Spital of Glenshee, Kirkmichael, Pitlochry, Ballinluig, Aberfeldy, Kenmore, Glenquoich, Crieff, Stirling, Falkirk, Edinburgh—184 miles.

TIME TO LIGHT LAMPS.

July 24th	... ...	8.59 p.m.
,, 26th	... ...	8.56 ,,
,, 28th	.. ...	8.53 ,,
,, 30th	... ...	8.50 ,,

English-Dutch Trial.

Additional subscriptions to the fund in connection with the Dutch motor cyclists' visit next month are :

	£	s.	d.
Glyn Rowden		10	6
J. W. G. Brooker ...		10	6
R. R. Fletcher ...		10	6

A Severe Trial.

Fourteen test hills, each having single figure gradients, have been crammed into a one-day reliability trial of the Coventry and Warwickshire Motor Club to be held on Saturday. The course includes the gradients embodied in the open reliability trial in May with several additions, and the chief award is the Manville trophy, valued at forty guineas.

Perry's Private Testing Track.

The makers of the Perry light car are constructing a private testing track at their works at Tyseley, near Birmingham. The track when completed will be about half a mile in circumference, but it is not circular. Last week we inspected the test hill, which is a short ascent and descent of 1 in 5, and saw a Perry car driven over it from a standing start on the second gear; descending the hill and returning over the rough uncompleted track, the little car went over the hill on top gear. All cars, which are now being delivered in regular numbers, have to stop on the 1 in 5 hill and restart on second speed before being passed.

Arbitrary Speed Limits.

We are glad to learn, on the authority of the *Daily Mail*, that the practice of trapping motorists on the open road is to be discouraged by the order of the Home Secretary, Mr. R. McKenna. Speed traps will be set at places only where speed is really dangerous, and at the same time all reckless drivers will be rigorously dealt with. This is as it should be. We have always been of the opinion that an arbitrary speed limit was quite unnecessary, provided that the police used unsparingly, but with due consideration and fairness, the powers they already had for the suppression of dangerous driving of all sorts—not of motors only, for these are not the only offenders. We may say that we entirely agree with the *Daily Mail*, which puts the case very fairly and adequately. Unfortunately the Home Office deny all knowledge of the matter.

A Cycle Car Challenge.

We understand that Violet, the driver of the Violet-Bogey, has issued a challenge against Bourbeau, who came in first in his class in the Grand Prix. He declares himself ready to compete against Bourbeau on the track or on the road, under such conditions as Bourbeau shall fix. The race will be run in two heats, so as to eliminate the element of luck as far as possible.

Bank Holiday Run in Hampshire.

A reliability trial open to Hampshire clubs will take place on the August Bank Holiday. The start will be from the New Inn, Drayton. The luncheon stop will be at Midhurst, where competitors must hand over their machines to the official in charge, and no adjustments will be allowed. There will be two non-stop sections and three observed hills. The machines will be divided into three classes : I., solo machines, any capacity; II., sidecars under 560 c.c.; III., sidecars over 560 c.c. and cycle cars. Entries will be received up to the 26th inst.

A.C.U. Notes.

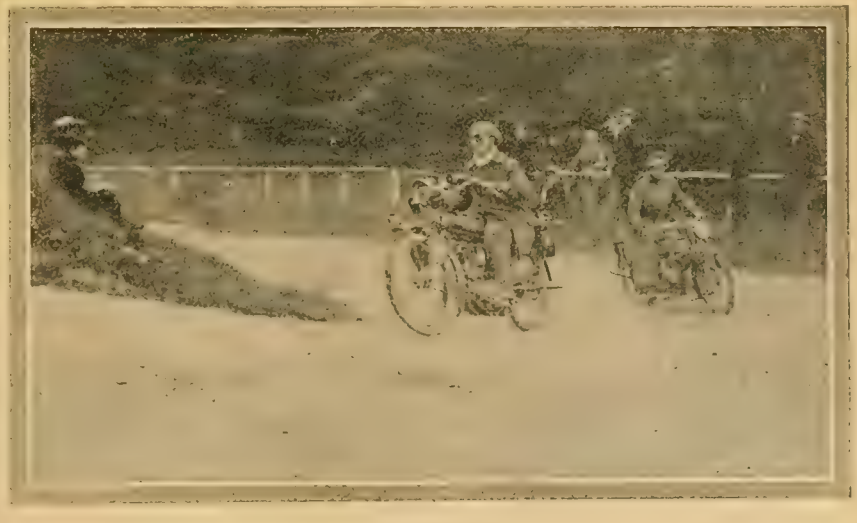
MEMBERSHIP.—The membership of the Auto Cycle Union continues to increase in the most satisfactory manner. During the last four weeks no less than 452 new members were elected.

THE CONFERENCE OF ROAD USERS.—At this conference, at which the Royal Automobile Club and the Auto Cycle Union were represented, the following are a few of the proposals put forward by the R.A.C., which, if they should be ultimately adopted, will prove of inestimable benefit to automobilists and motor cyclists alike : That side roads should be signposted at points just before they join main roads; that the camber of roads should be restricted; that horns and hooters should be the warning signs used on all mechanically-propelled vehicles, and bells should be confined to pedal cycles; that sheep or cattle driven along the highway after dark should be accompanied by a man carrying a light visible in all directions.

A.C.U. CONTRIBUTIONS TO THE ROYAL AUTOMOBILE AND ASSOCIATED CLUBS.—The Auto Cycle Union has decided to give the following donations to the R.A.C. and associated clubs : £150 to the legal department; £100 to the road guides; and £100 to the touring department. It is especially gratifying to note that the A.C.U. is now able to pay its fair share towards the support of those branches of the R.A.C. which confer such valuable benefits on motor cyclists.

SPECIAL FEATURES:

SCOTTISH SIX DAYS' TRIALS.
THE START.
THREE NEW CYCLE CARS.
SIX HOURS' RACE AT BROOKLANDS.



THE SCOTTISH SIX DAYS' TRIALS.
J. R. Alexander (7 h.p. Indian) and Mrs. Hardee (P. and M.) on the Devil's Elbow.

A Sidecar up the Nailsworth Ladder.

A telegram announces that at the beginning of this week, W. H. Carson, of Coventry, driving a 5-6 h.p. Excelsior sidecar, succeeded in climbing the Nailsworth Ladder, the low gear ratio being 13 to 1.

Result of Spanish Road Race.

The Bilbao-San Sebastian-Bilbao Road Race, on Sunday last, was supported by a number of English entrants. The hilly and winding course caused great trouble to the competitors, and falls were frequent. Nevertheless, British victories were again recorded, the result being that in the 350 c.c. class Douglas machines scored a decisive victory, being first, second, and third. In the 500 c.c. class the result was: 1, F. A. Applebee (Scott); 2, Torriegulta (Triumph); 3, T. E. Greene (Rudge).

New Petrol Substitute.

The Petrol Substitutes Joint Committee, which is composed of representatives from the Royal Automobile Club, the Society of Motor Manufacturers and Traders, and the Automobile Association and Motor Union, has lately visited the Frankett works at Acton, and inspected a special plant for the treatment of peat under a process invented and patented by Herr Franke, one of the chief by-products being motor spirit. The members of the Committee had a short run in a F.I.A.T. car driven on the motor spirit thus produced.

La Coupe Internationale.

On the 4th and 5th of August La Coupe Internationale des Motocyclettes et Motorcycles will be competed for over the Circuit du Mans. The course measures 324 kilometres for motor cycles, and 270 kilometres for sidecars and cycle cars. There is already an entry of fourteen well-known French motor cyclists and eight cycle car drivers; the latter include nearly all those who did well in the recent Grand Prix. While at Amiens, many English riders promised their entries, and we have been asked to solicit entries from others. The arrangements, we hear, are excellent, and 1,200 soldiers will be employed to guard the course.

FUTURE EVENTS.

Aug.	2-3.	International Cup Race in France.
"	2.	Hertfordshire M.C.C. Open Half-Day Trial.
"	2-4.	M.C.C. Devon Trial.
"	4.	ENGLISH-DUTCH INTERNATIONAL TRIAL. Starting Point Oxford.
"	4.	B.A.R.C. Meeting at Brooklands.
"	9.	B.M.C.R.C. Race Meeting.
"	9.	Liverpool A.C.C. Open Trial.
"	18-23.	A.C.U. SIX DAY'S TRIALS. Carlisle as Centre.
"	30.	Streatham and District M.C.C. Annual Open Hill Climb.
"	30.	Hertfordshire M.C.C. Open Half-Day Trial.
Sept.	6.	Coventry and Warwickshire M.C. Annual Open Hill Climb.
"	13.	B.M.C.R.C. Race Meeting.

Speed Test in the Six Days' Trial.

The venue of the speed trials in connection with the A.C.U. Six Days' Trials next month has been altered. It was found impossible to secure Lowther Park for the day desired, and it has now been arranged to hold them at Underley Hall, Kirkby-Lonsdale, where there is a good mile stretch of private road available.

A.A. and M.U. and Cycle Cars.

At the annual general meeting of the A.A. and M.U., which was held on the 14th, at the Hotel Cecil, London, Mr. Chas. Jarrott, who occupied the chair, in the absence through illness of the chairman, Mr. W. Joynson-Hicks, M.P., announced that 22,000 motorists had joined the Association during the past year, and that the total membership was now 65,000. A matter of special interest dealt with was the cycle car movement, and the Chairman announced that a cycle car committee is in course of formation to deal with matters particularly affecting this branch of motoring, and nominations for this committee are being invited from those particularly interested in the cycle car movement.

The Grand Prix.

Several readers have called our attention to the fact that two well-known makers of lubricating oil are claiming that their particular oil was used by T. E. Greene on his Rudge when he won the Grand Prix. Our information obtained on the spot was to the effect that Price's oil was used.

Road Race in Italy.

Last week there was run a motor cycle race, called the Circuito Umbro, over a distance of 350 km., over a very mountainous course in Central Italy, organised by the Moto Club Terni. The entries were numerous, and the results are given hereunder:

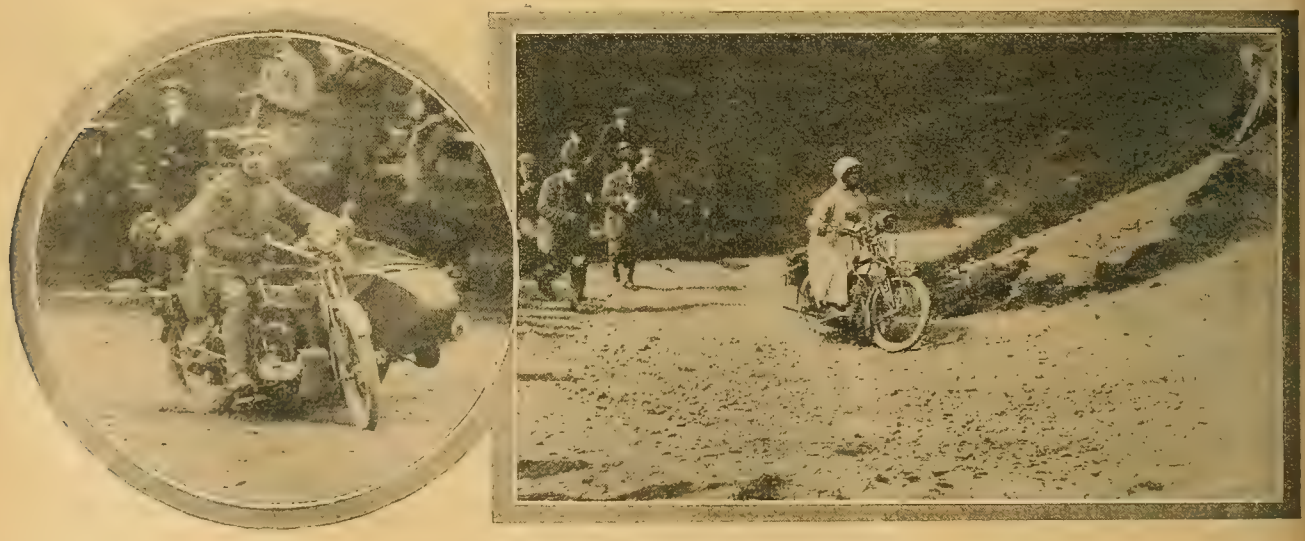
350 c.c. Class.—1, Malvisi (Motosacoche), 6h. 38m. 4s.; 2, Merlo (Frera), 6h. 41m. 9s.; 3, Pozzi (Douglas), 6h. 48m. 41s.

500 c.c. Class.—1, Bordino (Motosacoche), 6h. 11m. 10s.; 2, Feliciani (Ariel), 6h. 24m. 52s.; 3, Gambini (New Hudson), 6h. 43m. 52s.

Not one rider made a non-stop run, punctures being very numerous.

Lightweight and Sidecar Climb Birdlip.

How many lightweights have hauled a sidecar and passenger successfully to the top of Birdlip? The question is prompted by a letter we have received from Mr. W. R. D. Page, Tupsley, Hereford, who states that on the 5th of this month he drove a 2¾ h.p. Douglas, fitted with a sidecar, and carrying a passenger up this well-known Gloucestershire hill. The combined weight is stated to have amounted to 22 stones, and the low gear ratio to have been 12½ to 1. We cannot say that we approve of the practice of thus overloading these small engines, but as an example of what they are capable of doing when put to the test, the feat is interesting.



THE SCOTTISH SIX DAYS' TRIALS.

C. R. Collier (8 h.p. Matchless sidecar) on the first bend of Amulree.

Mrs. Baxter (6 h.p. Rex) at the second corner on Amulree. The first bend may be discerned in the background.

THE OPEN SIX HOURS' RACE.

The Only Event at the Fifth Monthly Meeting of the B.M.C.R.C.

THE RACE IN PROGRESS.—T. Wood (3¾ h.p. Scott), O. C. Godfrey (3½ h.p. Indian), A. Francis (8 h.p. Duo), W. G. Howard (3½ h.p. Matchless), and G. E. Stanley (2¼ h.p. Singer), at full speed.

THE above, which was the only event at last week's meeting, was quite an interesting affair, though, of course, somewhat tedious to watch, especially at the beginning. The entry was wonderfully good, amounting to no less than sixty-four. The rules were simple, and the competition was divided into the usual classes. Division I.—For motor bicycles; Classes A. to E. inclusive. Division 2.—Motor bicycles with sidecars and three-wheeled cycle cars; Classes F. to I. inclusive, *i.e.*, 350 to 1,000 c.c. Division 3.—Cycle cars; Classes J. and K., *i.e.*, 750 and 1,100 c.c. respectively. Replenishment depôts were established near the fork, and at these places only could the machines be filled up. Each competitor was allowed two attendants, which rule, however, was honoured more frequently in the breach than in the observance. The object of the race was to afford the entrants a fair chance of breaking records without going to the expense of special timing, and, as will be seen from the latter part of this report, several important records were broken.

The weather was hot and sultry, and there was no wind. Fifty starters in all, lined up in two rows, faced Major Lloyd at 11.30, and a most imposing group they made. Walking down the lines we noticed several interesting fitments. Applebee and Wood were using special magnetos (Bosch) on their Scotts, exactly like four-cylinder car magnetos. Haswell used a B.S.A. carburetter on his Triumph, and a special pad on the top tube, against which he could lean while lying in racing position, and an extra release valve, consisting of a long pipe issuing from a union fixed in the centre of the timing gear case. Barnes was using his Grand Prix sidecar combination, but fitted with a new and untried engine. He brought the cylinder and piston he used in the French race, and we must say we have never seen anything so badly scored.

Fifty Healthy Engines.

When Major Lloyd gave the word to go at 11.38 a.m. the start was a most impressive one. The two orderly lines of competitors became a confused tangle out of which it seemed no unravelment was possible. The air thundered with the crackle of forty-eight exhausts, and in less time than it takes to write they were all away. Two only failed to start, and these were R. J. Bell (N.S.U.) owing to carburetter trouble, and Riddell (Zenith sc.) In a few minutes the procession came round, Cookson (Matchless) leading by many lengths, while Cocker, Godfrey, Stanley, Howard, and Wood also composed the vanguard. To note the others was an impossibility, and for several hours until the killing speed had weeded out the weaklings there was an endless procession round the track, and the welkin rang with a deafening and ceaseless din. People like Stanley, Wood, Mason, and Cookson could be spotted as travelling well, but in what order the rest were running was beyond the power of man to discern. The first man to stop was Elwell (Douglas) in his fifth lap, which was owing to a stretched valve, which caused him a fair amount of delay. The exhaust of Applebee's Scott emitted a beautiful note. Axford (Martin) had time to glance at the scoring board as he passed. Holden's mechanic was making an adjustment to the engine as his Morgan sped by. Although it was early for trouble to be experienced, several men stopped at this stage. Axford changed his belt in his seventh lap. Bell (N.S.U.) stopped for oil. Newman (Ivy) stopped to fix his silencer and change a belt. Halsall (Veloce) was the first to retire with a burst cylinder, which cracked at the bottom. Newbold (Zenith) stopped with a flat front tyre in his eighth lap, and then Elwell came in again for a brief spell. Barnes, still unfortunate, was the next man to drop out, owing to a cracked cylinder. Sumner (Zenith-Green) was then placed on the retired list owing to the flywheels coming loose.

During a brief respite we had a chance of watching the system some of the rims employed in their depots. Some had none at all and very few spare parts, but by far the most elaborate was the Singer Co., who had a table with three stop-watches and a staff of about four men working a complicated chart, the watches, and making signals to the Singer competitors. The fun was now fast and furious. Knight (Zenith) came in with a rush, violently applied his brake, skidded, and before one had time to realise what had happened his machine was ablaze. Quick as thought, someone applied a powder fire extinguisher, the contents of which were divided equally between the flames and Mr. Albert's coat. The extinguisher, however, got the best of it, and the fire was speedily put out. The machine was then surrounded by willing helpers, who washed away the powder, and in about ten minutes' time the luckless Knight was on the road again. Godfrey retired in his tenth lap owing to a broken piston, and then the Calthorpe came in and changed both rear wheels, which were detachable, and could be removed by undoing three bolts, in remarkably quick time. H. Martin retired in his sixteenth lap owing to a burst cylinder,

E. E. Elwell (Douglas) and F. A. McNab (6 h.p. Trump-Jap) passing De Peyrecave's Duo, which had a broken chain.

The Open Six Hours' Race.—

while his machine had also been on fire near the aeroplane sheds, and there again an extinguisher prevented the motor from being destroyed.

One of the features of the meeting was the announced intention of breaking records, some riders being sufficiently confident to talk openly of annexing all up to six hours. It was, however, anticipated, with the vast improvement in 350 c.c. engines of late, that Sam Wright's long standing twin Humber records would go, and that for the first time on record sixty miles would be covered in sixty minutes on one of these tiny engines. Events proved that the forecasts were not short of the mark, for the wizard engine tuner, G. E. Stanley, covered 62 miles 920 yards in the first hour on a 2¾ h.p. Singer, incidentally annexing the fifty mile record, and Hugh Mason was only a few seconds slower. Robbed by Stanley of the first record, he made amends by collaring the two, three, four, five, and six hours.

Leaders at the End of the First Hour.

CLASS B.—Stanley (Singer), 26 laps; Mason (N.U.T.), 25 laps; Colver and Greaves (Enfields), 24 laps.

CLASS C.—Haswell (Triumph), 27 laps; Wood (Scott) and Pullen (Rudge), 26 laps.

CLASS D.—Axford (Martin), 24 laps; McNab (Trump), 17.

CLASS E.—Cookson (Matchless), 25 laps; Knight (Zenith), 23 laps; Gwynne (Indian), 20 laps.

CLASS G.—Holroyd (Motosacoche sc.), 17 laps; Le Vack (Motosacoche sc.), 16 laps; Riddell (Zenith), 15 laps. In this class Sumner (Zenith) had retired.

CLASS H.—E. B. Ware (Zenith sc.), 20 laps; H. Gibson (Bradbury sc.), 18 laps.

CLASS I.—Holder (Morgan), 21 laps.

CLASS K. (cycle cars).—Hands (Calthorpe), 23 laps; Francis (Duo), 21 laps; De Peyrecave (Duo), 20 laps.

Wood came in with a flat back tyre, and for some moments could not find the tube, which had become tightly wound round the hub. Mr. Scott came to his help. Knight was now going well, but soon his troubles arrived and a burst cylinder put him out of the running. Guest (Matchless sc.) retired owing to a broken inlet valve rocker. The regular running of the little Calthorpe cycle car was now a matter of general talk. Francis (Duo) stopped to have a valve spring replaced, whilst De Peyrecave broke a chain. Newman (Ivy) screwed up a leaky water union, and later Haswell, now leading on his forty-fifth lap, stopped to replace a flat back tyre. Brewster (Norton) broke a piston ring. Stanley gave up after covering fifty-eight laps owing to his tyre being worn down and to having "had enough." The next to retire was Applebee (Scott) in his thirty-sixth lap owing to his petrol tap union coming out of the tank. Baker (Peerless) stopped and wound string round his engine shaft to prevent oil leaking out of the bearing on to his belt. Howard (Matchless) retired owing to his exhaust valve breaking and falling into the cylinder. The leaders at the end of the second hour were :

CLASS B.—Mason (Nut), 43 laps; Stanley (Singer), 43 laps; Greaves (Enfield), 40 laps.

CLASS C.—Haswell (Triumph), 45 laps; Pullen (Rudge), 44 laps; Howard (Matchless), 44 laps.

CLASS D.—Axford (Martin), 41 laps; McNab (Trump), 34.

CLASS E.—Cookson (Matchless), 41 laps; Knight (Zenith), 38 laps; Gwynne (Indian), 37 laps.

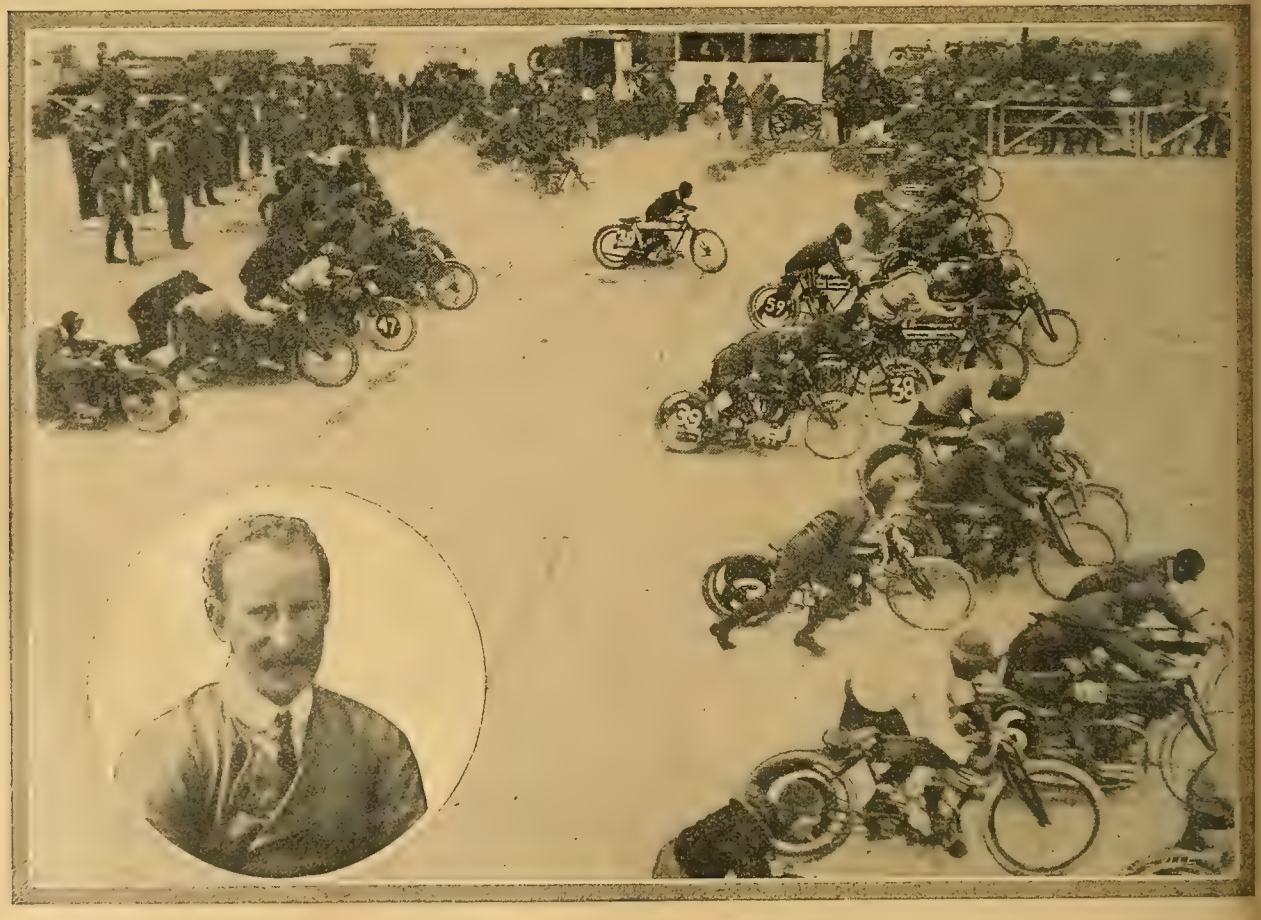
CLASS G.—Holroyd (Motosacoche sc.), 30 laps; Riddell (Zenith sc.), 29 laps; Le Vack (Motosacoche sc.), 19 laps.

CLASS H.—Ware (Zenith sc.), 35 laps; Gibson (Bradbury sc.), 31 laps.

CLASS I.—Holder (Morgan), 35 laps.

CYCLE CARS.

CLASS K.—Hands (Calthorpe), 41 laps; Francis (Duo), 33 laps; De Peyrecave (Duo), 30 laps.



The start of the race. The sight, as may be gathered, was a most impressive one, as the 50 competitors moved off together in two long lines. Inset, J. R. Haswell, the winner.

The Open Six Hours' Race.—

A descriptive headline for the report of this race would be, "Great Battle: Fearful Slaughter." The competition was keen enough, but the number of "killed and wounded" tremendous. Hardly for a moment were the depots empty. True many of the stops were for such trivial adjustments as wiping belts of oil or changing them and replacing valves and plugs, but there were too many of such troubles. After fifty laps pink scoring cards were used. Holder, when dashing down the railway straight, dropped his low speed chain, which wriggled along the track at express speed like a rattle-snake. The Motosacoche driven by Holroyd was going exceedingly well, but the driver was continually raising the valve lifter, probably to get oil on to the rings.

At one point Hugh Mason and his wonderful little N.U.T. led the whole field. The sight of him riding alongside an 8 h.p. mount and holding him for speed was most uncanny. The first to complete fifty laps was C. G. Pullin on a Rudge-multi, who had been closely pressing the leaders all along. Mason followed, and Haswell next. When Mason developed plug trouble he let up Haswell to second position. Edmond's retirement was caused by a stone breaking the glass barrel of his lubricator. Wood, the T.T. winner, was not at all happy, and stopped several times. Haswell took the lead on his fifty-third lap, and thereafter he led the field, though he had to stop to tie his carburetter in position. Thompson's Douglas suffered from overheating, so was withdrawn. Horsman, on the only remaining Singer, was travelling in first-rate style, and was always among the leaders. Cocker had retired owing to a fire. Mason stopped in his seventieth lap to adjust his tappets and fill up, whilst Gwynne took down his carburetter.

Stanley caught up with Mason at the fifty-fifth lap, and kept with him to the fifty-eighth lap. Everyone imagined that there was to be a ding-dong struggle for first place, but when Stanley stopped to replenish he disappointed everybody by stopping for good.

At the end of the third hour the race stood as follows:

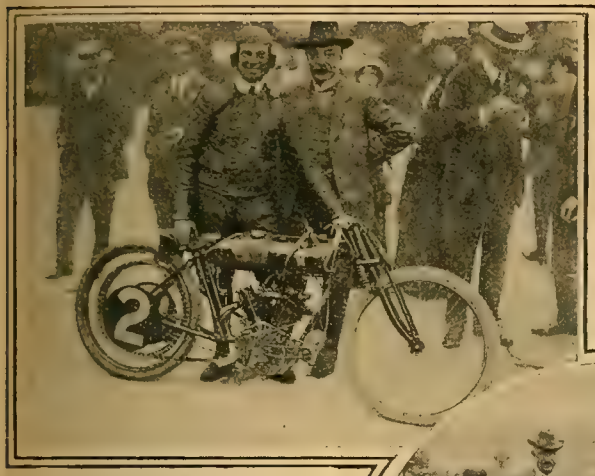
Class B.—Mason (N.U.T.), 64 laps; Colver (Enfield), 58 laps; Greaves (Enfield), 57 laps.

Class C.—Haswell (Triumph), 68 laps; Pullen (Rudge), 68 laps; Horsman (Singer), 63 laps.

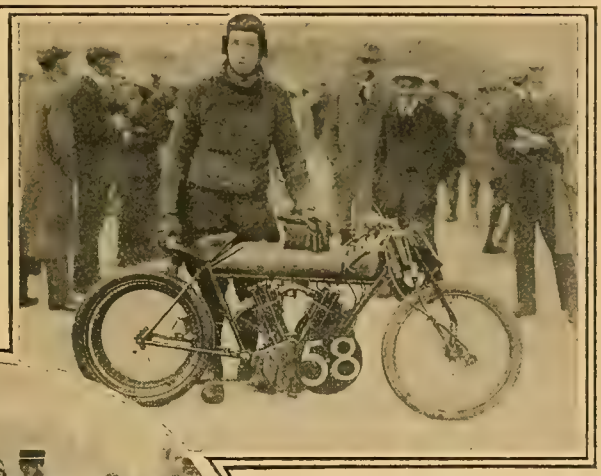
Class D.—Axford (Martin), 61 laps; McNab (Trump), 54 laps.

Class E.—Cookson (Matchless), 56 laps; Gwynne (Indian), 53 laps.

Class G.—Riddell (Zenith sc.), 45 laps; Holroyd (Motosacoche sc.), 43 laps; Le Vack (Motosacoche sc.), 22 laps.

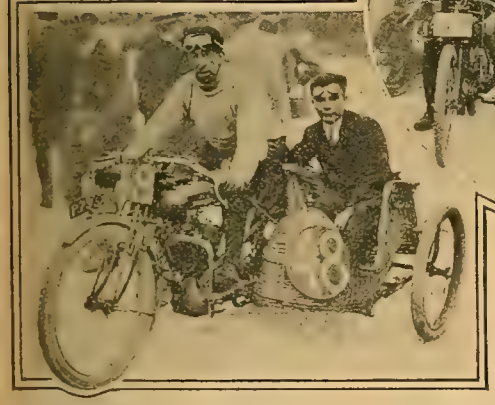


(1) Hugh Mason (2¾ h.p. Nut-Jap), who won the class for 350 c.c. machines, and was third fastest of the day and set up ten new records.



(2) J. J. Cookson (8 h.p. Matchless-Jap), winner of the 1,000 c.c. class with 298 miles 1,180 yards in six hours.

(3) The Enfield team which finished complete, H. V. Colver second, E. Keyte third, and H. Greaves fourth. This photograph is particularly interesting, as it includes Mr. R. W. Smith, managing director; Mr. Patchett, general manager; and Mr. Hare, London manager.



(4) E. B. Ware (6 h.p. Zenith Gradua-Jap sidecar), who won the class for sidecars up to 750 c.c. and incidentally broke nine records.

(5) H. Riddell (3½ h.p. Zenith Green), winner of 500 c.c. sidecar class. In addition he broke three records.

Class H.—Ware (Zenith sc.), 51 laps; Gibson (Bradbury), 48 laps.

Class I.—Holden (Morgan), 53 laps.

Class K. (Cycle Cars).—Hands (Calthorpe), 60 laps; De Peyrecave (Duo), 47 laps; Francis (Duo), 44 laps.

It was now half-time, and the field was considerably thinned.

Riddell's front tyre blew clean off the rim, yet he actually continued to the depot at 20 m.p.h., which appeared to be a risky proceeding.

Horsman got ahead of Mason in the seventy-fourth lap. Newman retired, as he could not prevent oil getting on to the belt, which he had to change several times.

At the end of the fourth hour the positions were:

Class B.—Mason (Nut), 80 laps; Colver (Enfield), 75 laps; Greaves (Enfield), 74 laps; Keyte (Enfield), 70 laps.

The Open Six Hours' Race.—

CLASS C.—Haswell (Triumph), 89 laps; Pullen (Rudge), 86 laps; Victor (Singer), 83 laps.

CLASS D.—Axford (Martin), 72 laps; McNab (Trump), 67.

CLASS E.—Cookson (Matchless), 76 laps; Gwynne (Indian), 60 laps.

CLASS G.—Riddell (Zenith), 59 laps; Holroyd (Motosacoche), 56 laps; Le Vack (Motosacoche sc.), 36 laps.

CLASS H.—Ware (Zenith sc.), 67 laps; Gibson (Bradbury sc.), 58 laps.

CLASS I.—Holden (Morgan), 64 laps.

CYCLE CARS.

CLASS K.—Hands (Calthorpe), 80 laps; De Peyrecave (Duo), 62 laps; Francis (Duo), 51 laps.

It is interesting to note that the Motosacoche driven by Le Vack was fitted with Mr. De Lissa's patent valve. Le Vack had two bursts early in the race, and yet, despite this fact, he was able to pick up lost time, and when the race was over his engine was remarkably cool. After 100 laps the numbers were posted on green cards by the lap scorers. In his sixty-ninth lap Riddell stopped to fill up, and it was noticed that the racing body of his sidecar was coming to pieces. Mason at this stage had several stops owing to the central electrode of the back plug coming loose.

CLASS C.—Haswell (Triumph), 109 laps.
CLASS B.—Mason (N.U.T.), 104 laps.
CLASS C.—Pullen (Rudge), 104 laps.
CLASS K.—Hands (Calthorpe), 97 laps.
CLASS C.—Horsman (Singer), 96 laps.
CLASS E.—Cookson (Matchless), 93 laps.

Mason and Haswell, who, by the way, had accomplished record distances in their respective classes, now stopped for replenishments. Mason was away first, as Haswell had to change a wheel again.

Near the end, Wood thought it advisable to reamer out his jet on the eighty-ninth lap, whilst Haswell pulled up in his 124th lap for a few seconds owing to the carburetter becoming loose again. Mason stopped to replace a missing valve cotter in his 118th lap.

The Six Hours' Race Results.

CLASS B.—Up to 350 c.c.

	Rider and machine.	mm.	c.c.	mls.	yds.
1.	H. Mason (2-cyl. Nut-Jap) ...	60 ×61	350	325	1,092
2.	H. Colver (2 Enfield)	60 ×61	350	301	951
3.	E. Keyte (2 Enfield)	60 ×61	350	285	560
	H. Greaves (2 Enfield)... ...	60 ×61	350	279	648
	P. Newbold (1 Zenith) ...	85 ×60	345	99 laps	
	M. Heinzel (2 N.S.U.)	54 ×75	349	90	,,
	W. R. Steele (1 Sunbeam) ...	75 ×79	350	88	,,

CLASS C.—Up to 500 c.c.

1.	J. R. Haswell (1-cyl. Triumph)	85×88	499	351	1,315
2.	C. G. Pullen (1 Rudge) ...	85×88	499	334	1,660
3.	E. H. Victor (1 Singer) ...	85×88	499	311	1,640
	R. B. Ewen (1 Rudge) ...	85×88	499	298	495
	H. O. Wood (2 Scott) ...	70×63.5	486	297	1,025
	G. Griffith (1 Zenith)			291	485
	L. Cushman (1 N.L.G.) ...	85×85	482	259	430
	G. Baker (1 Peerless)	85×88	499	184	1,440

CLASS D.—Up to 750 c.c.

F. A.	McNab (2-cyl. Trump-Jap)	74.5×85	745	282	725

CLASS E.—Up to 1,000 c.c.

J. J.	Cookson (2-cyl. Matchless) ...	90×77.5	986	298	1,180

CLASS G.—Sidecar combinations up to 500 c.c.

1.	H. Riddell (1-cyl. Zenith-Green-Precision)	85×88	499	247	331
2.	J. Holroyd (2 Motosacoche) ...	64×77	496	220	237
3.	H. Le Vack (2 Motosacoche) ...	64×77	496	178	20

CLASS H.—Sidecar combinations up to 750 c.c.

1.	E. B. Ware (2-cyl. Zenith) ...	76×82	750	265	274
2.	H. Gibson (1 Bradbury) ...	89×89	554	226	1,420

CLASS I.—Up to 1,000 c.c.

1.	N. F. Holder (2-cyl. Morgan cycle car, Blumfield engine)	81.5×95	986	76 laps	

CLASS K.—Cycle cars up to 1,100 c.c.

1.	G. Hands (4 Calthorpe) ...	59×100	1,096	310	1,214
2.	A. Francis (2 Duo)	85× 95	1,075	248	1,577
3.	L de Payrecave (2 Duo) ...	90× 77.5	985	219	790

Records Beaten and New Records.

Records beaten by G. E. Stanley (Singer, Class B).

	mls.	yds.	m.p.h.
One hour	62	920	= 62.52
50 miles	46m. 8s.		= 63.88

Records beaten by H. Mason (Class B).

Two hours	117	1,481	= 58.92
Three hours	173	1,610	= 57.97
Four hours	225	1,423	= 56.48
Five hours	285	1,388	= 57.16
Six hours	325	1,092	= 62.42
100 miles	1h. 36m. 7s.		= 62.42
150 miles	2h. 34m. 51s.		= 58.12
200 miles	3h. 28m. 47⅕s.		= 57.47
250 miles	4h. 24m. 11⅖s.		= 56.78
300 miles	5h. 17m. 46s.		= 56.63

Records beaten by J. R. Haswell (Class C).

	mls.	yds.	m.p.h.
Five hours	296	1,005	= 59.32
Six hours	351	1,315	= 58.62
250 miles	4h. 13m. 28s.		= 59.18
300 miles	5h. 6m. 59⅖s.		= 58.63

New records by H. Riddell (Class G).

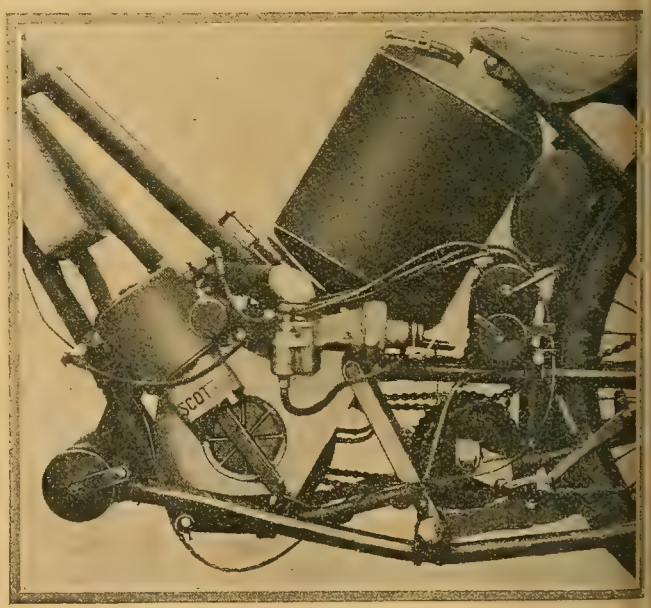
	mls.	yds.	m.p.h.
Five hours	203	962	= 40.71
Six hours	247	331	= 41.20
200 miles	4h. 55m.	6⅘s.	= 40.6

New records by E. B. Ware (Class H).

	mls.	yds.	m.p.h.
Two hours	93	1,120	= 46.82
Three hours	137	1,676	= 45.98
Four hours	179	1,556	= 44.97
Five hours	224	140	= 44.81
Six hours	265	274	= 44.19
100 miles	2h. 9m. 31s.		= 46.33
150 miles	3h. 20m. 25s.		= 44.91
200 miles	4h. 27m. 58⅘s.		= 44.78
250 miles	5h. 37m. 22⅘s.		= 44.46

Records beaten by G. W. Hands (Class K).

	mls.	yds.	m.p.h.
Four hours	214	273	= 53.54
Five hours	263	1,497	= 52.77
Six hours	310	1,214	= 51.78
200 miles	3h. 44m. 53⅕s.		= 53.36
250 miles	4h. 44m. 31⅕s.		= 52.72
300 miles	5h. 46m. 11⅘s.		= 51.99



The racing Scotts, ridden by Wood and Applebee, were fitted with special Bosch magnetos, giving two sparks per cylinder. The wiring arrangement is shown above.

The Public Schools M.C.C.

A hill-climb on Kop Hill, in conjunction with the Herts County open hill-climb, will take place on August 9th.

Bradford M.C.C.

The reliability trial to Edinburgh and back will start on August 9th. The awards will include the P. and M. cup, the George Merrick trophy, and gold medals.

Newcastle and District M.C.

A reliability trial was held last week over a severe course of 179 miles. Results: 1, W. S. Dodds (3½ Singer), error 16s.; 2, G. W. Raper (3½ Ariel), 20s.; first amateur, J. Cooper (3½ Ariel), 61s.; first novice, T. J. Parry (3½ Rudge).

Liverpool A.C.C.

A novel competition was held last week when teams of twins competed against teams of singles. A team of singles scored the greatest number of points, and therefore J. Ball (3½ Meade), H. Marsden (3½ Zenith), W. Sedgewick (3½ Rudge), and J. W. Morland take the club prizes.

The open trial arranged for August has now been postponed to September, owing to the A.C.U. refusing a permit for August 9th.

Oxford M.C.C.

The following competitors have been awarded medals in connection with the reliability trial from Oxford to Llandudno and back.

Gold medals.—C. B. C. Loxley (3½ Triumph), F. L. K. Loxley (3½ Triumph), R. C. Davis (Clyno sc.), and W. A. Mathews (Morris-Oxford light car).

Silver medals for single journey.—J. C. Bellamy.

A special award presented by the B.S.A. Co. was won by H. G. Watson.

A speed-judging competition will take place on the 31st inst.

Inverness and District M.C.C.

A hill-climb took place at Farley Hill, Beauly, on the 12th inst. The hill is about a mile long, exceedingly steep in parts, and, in addition to having two sharp corners, it has no fewer than eight miniature watercourses. The fastest time of the day (83s.) was made by F. H. M. Macintyre (8 R.S.F.-Jap). The results on formula are as follows:

Class I. Machines up to 350.—J. Grant (2¾ Douglas), 169⅖s.

Class II. Over 350 up to 500.—J. Macdonald (3½ B.S.A.), 98⅖s.

Class III. Over 500 up to 1,000.—R. C. Maxwell (8 Matchless-Jap), 88s.

Class IV.—Any machine up to 1,000.—J. Macdonald (3½ B.S.A.), 92⅖s.

Banbury and District M.C.C.

A members' hill-climb recently took place at Irondown Hill, Deddington. Over forty entries were received Results:

Class 1 (any type of motor cycle up to 500 c.c.): Time—1, R. H. Viggers (2½ Calcott); 2, H. S. Askew (3½ Singer); 3, W. H. Fowler (3½ Triumph). Formula—1, R. H. Viggers (2½ Calcott); 2, J. W. Tollody (2½ Singer); 3, H. A. Beard (3½ Premier).

Class 3 (unlimited capacity): 1, F. Wood (2½ Singer); 2, W. H. Tuckey (3 Hazlewood); 3, A. E. Pargeter (3½ Triumph).

Class 4 (sidecars and cycle cars): 1, W. T. Jackson (3½ New Hudson); 2, H. S. Askew (3½ Triumph); 3, H. A. Beard (3½ Premier).

Class 5 (unlimited capacity; award, "Fortescue" Silver Cup for fastest time): 1, A. James (6 Zenith); 2, C. Bidmead (5 Bidmead-Jap); 3, R. H. Viggers (2½ Calcott).

Northallerton and District M.C.C.

This club has just been formed, with headquarters at Northallerton, and arrangements are being made with a view to affiliation with the A.C.U. Full particulars may be obtained from the hon. sec., Mr. W. Y. Stead, High Street, Northallerton.

Leeds M.C.C.

An open gymkhana was held on the 2nd inst. at the Harewood Arms. This was most successful. The results were as follows:

Sidecars.

Adam and Eve Race: R. Cawthorne (3½ Cawthorne).
Balloon-bursting Race: F. K. Langton (4 Bradbury).
Tent-pegging: A. Lees (6 Dot).
Potato Race: V. Gash (3½ P. and M.).

Solo Machines.

Turk's Head: F. K. Langton (2¾ Ariel).
Skilful Driving (obstacles): R. Cawthorne (3½ Cawthorne).
Whistling Competition: J. Izett (2¾ Singer).
About 100 attended.

Mersey (Liverpool) M.C.

The official awards in the open trial to Edinburgh and back are as follows:

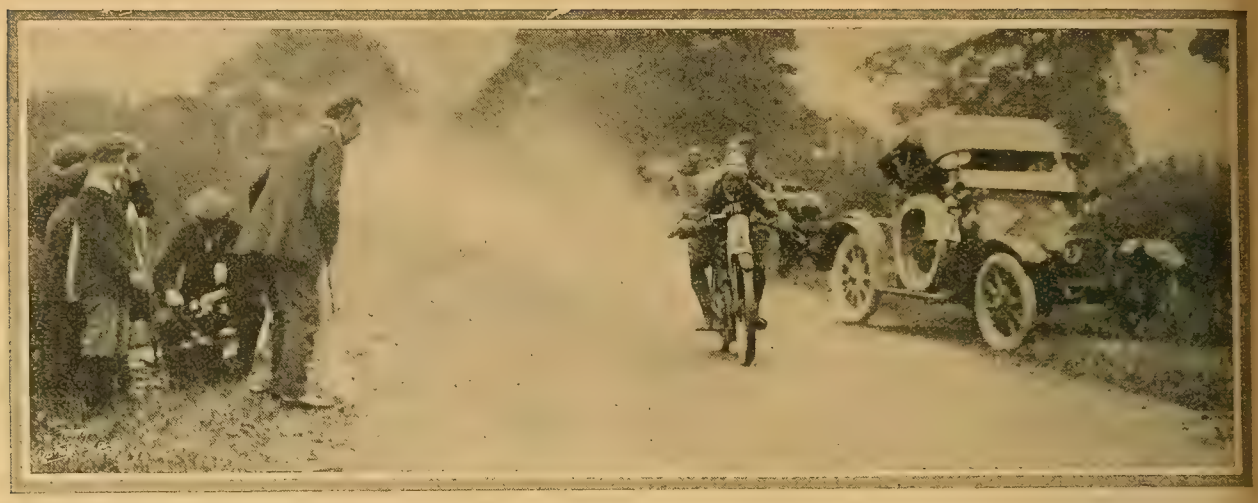
Timson Challenge Cup.—H. Gibson (3½ Bradbury), error 3m. 39s.

Ariel Medal for First Amateur.—S. W. Carty (3½ Ariel), error 5m. 51s.

Gold Medals.—S. W. Carty (3½ Ariel), N. H. Brown (7 Indian), L. Mogridge (3¾ Mead), G. A. Gregson (5 Bat), N. Howarth (3½ Bradbury), H. Gibson (3½ Bradbury), A. C. Naylor (2¾ Douglas), W. H. Youd (3½ Matchless), W. H. Kelly (8 Rex-Jap), C. M. O'Connor (5 Rudge sc.), J. J. Day (3½ Bradbury sc.), W. H. Longton (3½ Alldays sc.), J. McG. Lamb (6 Clyno sc.), L. R. Pearson (6 Clyno sc.), C. V. Freeman (6 Clyno sc.), and F. C. Jones (10 Singer cc.).

Silver Medals.—T. V. Barton (6 Rex), J. Sedgwick (5 Rudge), A. G. Cocks (2½ Connaught), A. Marston (6 Dot), H. J. Beal (4 L.M.C.), M. Rimmer (3½ Zenith), G. Nott (6 Clyno sc.), A. J. Jenkins (3½ New Hudson sc.), J. W. Meredith (6 Clyno sc.), G. Wray (6 Clyno sc.), N. C. Sclater (8 Matchless sc.), and J. A. Yeoman (8 Crouch cc.).

The Crossgate Team,—winners of the invitation shield and standard gold medals in the Bradford M.C.C. Inter team trial to London and back. The three riders are J. Stuart White, H. E. Haswell and J. Tattersall, all of whom rode 3½h.p. Bradburys.



H. R. Davies (2¾ h.p. Sunbeam) first on formula in Class I. for 350 c.c. machines in the Sutton Coldfield A.C. hill-climb. He is about to cross the tape at the start.

Salisbury (Rhodesia) M.C.

A club has now been formed here with title as above. The joint hon. secretaries are Messrs. A. R. W. Davies and B. Wright.

Sutton Coldfield and Mid-Warwickshire A.C.

The members' hill-climb was held near Cropredy, in Oxfordshire, last Saturday, on a gradient of about 1 in 14. The club had been refused permission for a hill in five different counties. Results:

CLASS I.—350 c.c.

F. S. Whitworth (Douglas) ... 43⅖s.
H. R. Davies (Sunbeam) ... 44s. ... First on formula.
H. Newey (Levis) ... ... 45⅗s.

CLASS II.—351 to 520 c.c. Amateurs.

R. H. Edwards (Triumph) ... 43⅖s. ... First on formula.
C. A. Gould (Corah-Jap) ... 48s.

CLASS III.—351 to 520 c.c. Trade or amateur.

D. M. Brown (Rover) ... 41⅗s. ... First on formula.
R. H. Edwards (Triumph) ... 44⅕s.
F. Sangster (Ariel) ... ... 47s.

CLASS IV.—Singles and twins over 521 c.c.

H. R. Lane (8 Rex-Jap) .... 48⅕s. ... First on formula.

CLASSES V. AND VI.—Sidecars.

H. Riddell (3½ Zenith-Green) 57⅕s. ... First on formula.
H. R. Lane (8 Rex-Jap) ... 58s.
F. S. Whitworth (2¾ Douglas) 63⅕s.

CLASS VII.—Cycle cars.

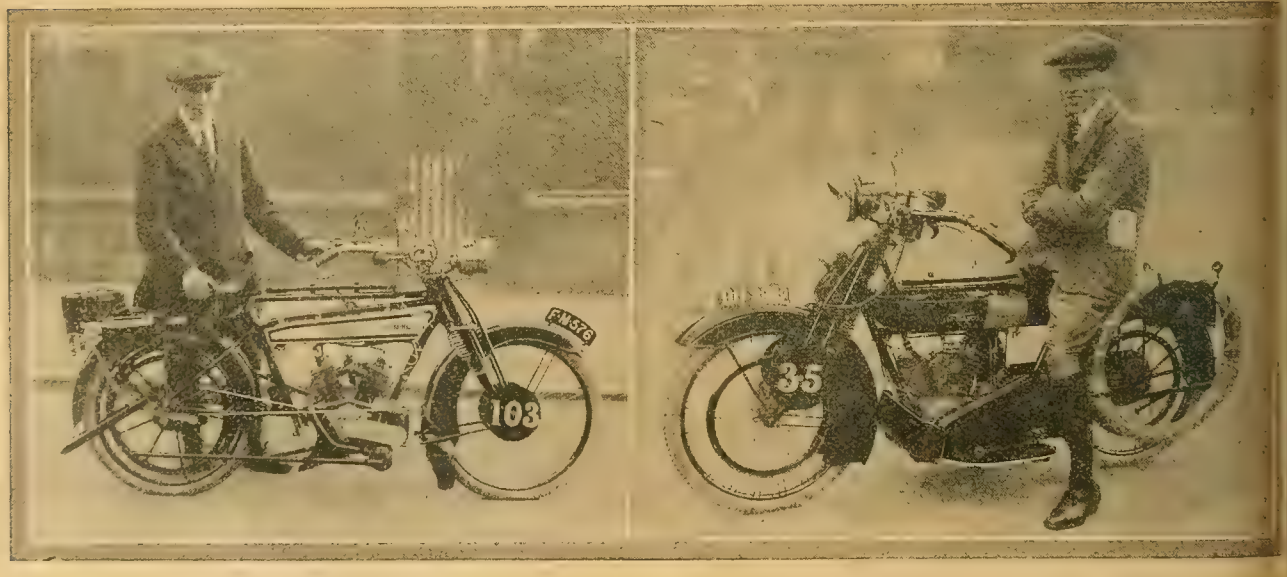
W. D. South (Morgan) ... 76s. ... First on formula.

The Motor Cycle formula was used both in the motor cycle and car classes.

Dublin and District M.C.C.

The above club held an open reliability trial on the 19th inst. over a circular course of about seventy-two miles, the ascent of Sugar Loaf being the only difficult piece of country. Out of twenty-four entries, twenty-two riders faced the starter, Mr. R. J. Dodd. The following were on time at the open controls: J. Browne (3½ Rudge), C. B. Franklin (7 Indian sc.), W. J. Henderson (3½ Rudge), R. McDonnell (2¾ Douglas), T. D. Rollins (5-6 Clyno sc.), S. L. Wilson (3½ Rover sc.), A. W. Mooney (3½ P. and M. sc.), G. Roche (3½ Rover sc.), J. H. Taylor (5-6 Rudge sc.), J. Levins (3½ Rudge), P. O. Sullivan (3½ Humber), C. M. Guinness (3½ Rudge), T. Woods (3½ P. and M.), J. Phillips (3½ Rover sc.), G. P. Harrison (3½ Rudge), and F. M. Summerfield (3½ New Hudson sc.).

NEW MACHINES IN THE SCOTTISH TRIALS.



The Charles Edmund spring frame machine. The latest model Lea-Francis ridden by C. I. Francis.

AMONG THE ACCESSORIES.

To Prevent Creeping.

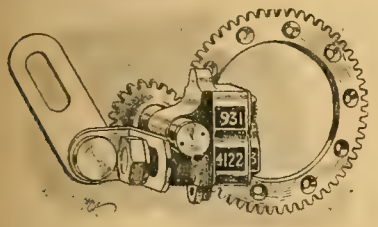
We have been doing our best to impress upon riders the necessity of using security bolts to prevent their tyres creeping in races. We herewith illustrate an invention which is designed to

A substitute for security bolts with beaded edge tyres, introduced by H. Taylor and Co.

supersede security bolts. The tyre itself is furnished with projections, which may be made of any suitable material, upon that part of the bead which lies next the rim. These projections are forced, when the tyre is inflated, firmly into holes in the rim formed to receive them, and thus the tyre is prevented from creeping. This method has been protected by the inventors, Messrs. Thacker and Lawrence.

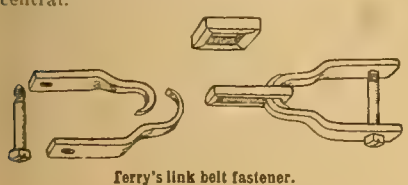
A Reliable Mileage Recorder.

Messrs. Markt and Co., Ltd., 98-100, Clerkenwell Road, E.C., are responsible for the introduction of an accessory which



Messrs. Markt and Co.'s gear driven Veeder trip odometer.

should specially appeal to motor cyclists. This is a gear-driven Veeder trip odometer, specially designed for motor cycle work. It is fitted to brackets which are adjustable in any direction, and it will readily adapt itself to any machine on the market. The instrument is neat, compact, and absolutely accurate. Some method of taking the mileage is especially necessary on a motor cycle, and by its means one can check the tyre wear, petrol consumption, etc., and also cost of running per mile. Naturally, in mounting the instrument care should be taken that the wheels do not mesh too deeply, and that the driving rings are absolutely true and central.

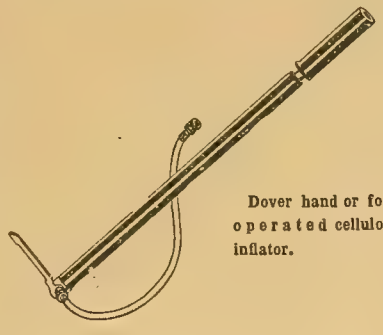


Ferry's link belt fastener.

A Well Made Inflator.

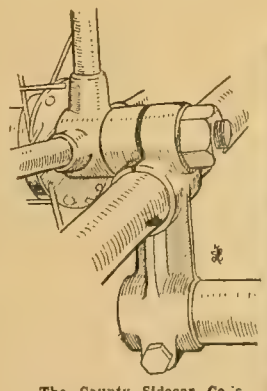
The motor cycle inflator we illustrate is the production of Messrs. Dover, Ltd., of Northampton and Coventry. Its special feature lies in the direction of the Exonite barrel, which is so treated that it is practically as stiff as a metal barrel, but of course it retains the advantage of great lightness.

The foot extension has been improved, and a good feature which is often absent from pump connections is the swivel for attachment to the valve. In many instances the swivel will not turn without twisting the tubular connection; the Dover pump connection is quite free and revolves very easily, and when it is screwed home on the valve thread the joint is quite airtight.



Dover hand or foot operated celluloid inflator.

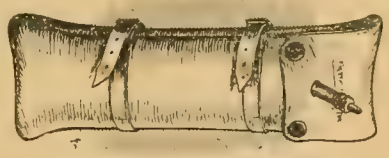
Mr. A. E. Dover showed us an arrangement for connecting lamps to generators which will interest cycle car owners. He has utilised a set of inflator connections on his car in place of the usual push-on rubber tubing. The metal tubes extending along the sides of the frame are fitted with screwed ends like a tyre valve, and the lamps and generator are similarly provided. When the lamps are requisitioned the inflator connections are screwed on, and as the joints are airtight they take the place of the push-on rubber tubing, which if not specially made with thickened ends invariably gives trouble sooner or later by splitting. The inflator connections are also much neater than the average tubing, and the braided tube can usually be purchased to match the colour of the car.



The County Sidecar Co.'s Perfecta sidecar, showing dropped frame and method of fixing mudguard.

A Neat Tube Case.

Messrs. Maude's Motor Mart, 136, Great Portland Street, W., have just introduced an exceedingly nice form of inner tube case, made in soft leather, and with straps fixed on to it for attaching to any convenient portion of the machine. The case is about one foot long and four inches wide. The end is provided with a flap, in which there is a hole through which the valve passes. The flap is then fastened down with the aid of spring fasteners. When the tube is in position it can be inflated slightly, to obviate any chance of chafing.



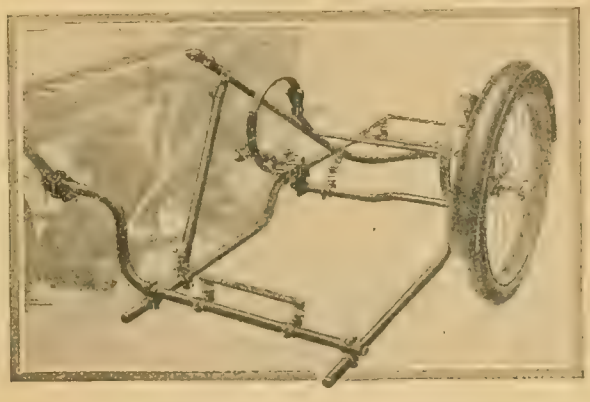
Leather case for carrying spare inner tubes.

A Dashboard Watch.

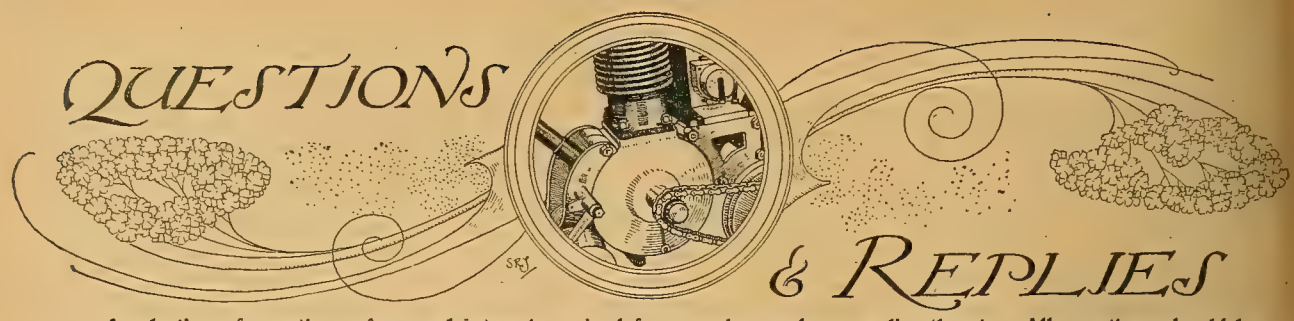
Cycle car owners will be interested to hear that a very neat and inexpensive dashboard watch is now on the market. The watch may be had in a brass or plated case fitted at a convenient angle. It is keyless in action, and the hands may be set from the winder without opening the case. All parts are strongly made to withstand vibration, and the watch has a lever movement and is non-magnetic; the whole may be obtained for the modest sum of 6s. 9d. from Bransom Kent and Co., Ltd., 40, Great Eastern Street, London, E.C.

A Brazeless Sidecar Chassis.

We have recently seen a sidecar chassis which embodies some rather curious features. The entire chassis contains not a single brazed joint, all the members being held together by clips. Extra strength is claimed for this construction, as the tubes are not burned or damaged in brazing. These clips allow the cross-bars and fixings to be slid into any position, and lining up becomes a simple job. The C springs are reversed, as will be seen from our illustration, and a diagonal fixing joins the seat tube connection to the front of the side member. The front of the body is carried on coil springs, and a luggage grid is fitted.



The County Sidecar Co.'s brazeless sidecar chassis.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Lancaster to Birmingham.

Will you kindly oblige me with the fastest road from Lancaster to Birmingham, entering the latter city by Walsall and Handsworth Wood?—S.P.L.

The shortest route is as follows, but the Wigan-Warrington section is trying: Lancaster, Preston, Wigan, Warrington, Northwich, Middlewich, Sandbach, Newcastle, Stone, Stafford, Penkridge, Cannock, Walsall, Birmingham. A pleasanter road is: Preston, Ormskirk, St. Helens, Warrington, Tarporley, Whitchurch, Newport, Watling Street, Gailey, Wyrley, Bloxwich, and Walsall.

Electric Lighting Outfits.

Can you give me the addresses of makers of electric self-generating motor cycle head light outfits? Also, can you tell me if there is an oil lamp suitable for a motor cycle, to be used for short distances?—F.B.R.

We do not know of an oil lamp suitable for a motor cycle, but there are several self-generating electric outfits on the market, such as the "Berko," sold by the Service Co., Ltd., 292-293, High Holborn, W.C., and that sold by Weill Bros., Hatton Garden, E.C.

Balance.

As the cylinder of my 1911 3½ h.p. machine is rather worn, I am thinking of fitting a steel piston. I presume that the difference in weight between a cast-iron and a steel piston would necessitate drilling holes in the periphery of the flywheel. I should be glad if you would give me your opinion in the matter, as a well-known trade rider tells me that I need not touch the flywheels, and that the extra weight on one side will make the engine turn over more readily at high speeds.—C.H.G.

We should imagine that your engine would vibrate at high speeds. Possibly it might not. Your best plan would be to test it for vibration, and if the vibration is bad, to drill metal out of the periphery of the flywheels till the balance is better. The best method is as follows: Stand the flywheels beside weighing scales. Place the piston on the pan, keeping connecting rod horizontal; this gives reciprocating mass. Opposite the crank pin and at the same radius, hang a weight equal to half that of the reciprocating mass, by means of a small hole drilled in the flywheel and a bent wire. Next, place the whole upon two level rods with a main shaft on each rod, and test for balance. The flywheels should remain in any position; if they do not, drill out metal from the heavy side until the balance is perfect. It is essential to drill the same amount of metal out of each flywheel.

Removing Tar Stains.

I have purchased a second-hand grey coach-built canoelet sidecar. It is slightly soiled with small tar splashes. Is there any means of removing this without spoiling the varnish work? Also, what is the cause of a gas lamp continually jumping and very often going out when travelling on a rough road? What carbide do you recommend to get the best results?—W.P.

If the tar has been allowed to set really hard it would be difficult to remove it, but you might try a gentle application of Chemico car polish, applied with a piece of wadding. The trouble with the lamp is probably due to water in the gas pipe. Any make of carbide will do. The carbide, however, should be preferably of a small size.

Overheating and Carbonising.

I have an 8 h.p. twin J.A.P. Last season it ran quite cool, but in the autumn I had a new big-end bush put in, which made it run very stiffly for the start, but it soon became free again. I have also fitted three new rings, but I cannot run without overheating very quickly. I have tried oiling more and less, but find no difference. I take the cylinders off after about 150 miles, and there is a thick hard deposit in the cylinder top. The rings are quite bright all round, although I believe the cylinder has worn slightly oval sideways, and the crank case gets very hot.—C.J.C.

We should imagine that you are running on rather too strong a mixture, and possibly the rings require a little longer running in. It is quite possible that when the new big end was fitted the oilways were not cut correctly, and this may account for the overheating symptoms of which you complain. The fact that the crank case gets very hot and that the cylinder has worn oval appears to show that the charge is getting past the rings, though the heat may be due only to conduction, in which case it is of no consequence.

THE GRAND PRIX. One of the fastest stretches of the course. The leader is advising the driver in the rear of his approach to a corner.

EVERYBODY KNOWS that a

specially tuned machine by a good maker, ridden by a picked rider, whose business in life is to do nothing else, can accomplish a good performance in a hill-climb or race, but there is only one make of motor cycle that, taken from stock exactly as supplied to the public, will equal the performance mentioned in the following extracts from a customer's letters. That machine is, of course,

SCOTTISH BORDER The **UNAPPROACHABLE**

M.C.C. OPEN HILL CLIMB, July 12th (3½ h.p. long stroke, 490 c.c.)

FASTEST SINGLE CYLINDER, beating 6 & 8 h.p. twins easily

NORTON

Extracts from customer's letters :—

July 10.

I am riding at Hawick on Saturday, but am not going to do any special tuning, as I want to see what a machine as received from the makers can do.

Yours faithfully, ROY G. MACGIBBON.

July 12th.

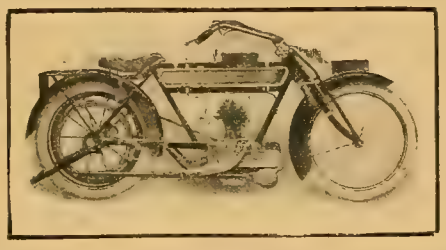
As I mentioned in my last letter I rode out to Jedburgh on Saturday, and took part in the hill-climb organised by the Scottish Border M.C.C.....The results you will see in "The Motor Cycle," but for your information I may say I won class 4 (open) and class 9 (general) making **fastest single-cylinder time of the day.**

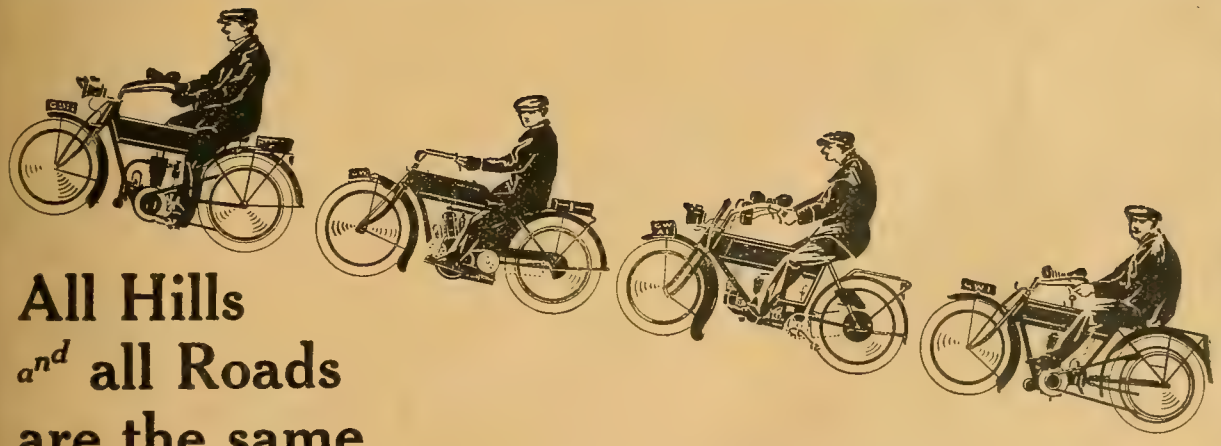
Yours faithfully, ROY G. MACGIBBON.

I may say that I adhered to my plan of not touching the engine.....which shows that one firm at least send out their machines properly tuned up and run in.

POWER and plenty of it!

NORTON MOTORS
Sampson Road North,
BIRMINGHAM.
Telegrams—"NORTOMO."
Telephone—481 Victoria.





All Hills and all Roads are the same

when you fit the invincible Gaulois Tyres. Built to withstand the roughest surface and greatest degree of sidestrain, these are the tyres you need for enjoyable rides free from punctures and bursts.

"Gaulois on"
means
"Troubles off."

Gaulois Tyres
(GOAL-WAH)

6, BATH STREET, CITY ROAD, LONDON, E.C.
Telegrams: "Goalwase, London." Telephone: 7275 London Wall.
C. & Co.

FIRST

ON ROAD AND ON TRACK

Following upon its brilliant victory in the JUNIOR T.T. RACE the N.U.T. has established.

10 NEW WORLD'S RECORDS.

The magnificence of the performance will be at once appreciated by the wide margin that separates the previous records and the new ones, set up by Mr. Mason on the N.U.T.

This record breaking achievement is of great significance, following so closely on the Isle of Man triumph. It demonstrates the phenomenal efficiency of the machine both on the road and on the track. It proves also that a motor cycle capable of such speed and endurance must be one of the front rank eminence—in design, construction, material, and workmanship.

Our catalogue fully describes the N.U.T. Please write for a copy.

BROOKLANDS 6 HOURS RACE, JULY 16th .. .. CLASS B

Distance	Time	Average Speed
100 MILES	1 Hour 36 Mins. 7 Secs. Previous best—Oct. 26/11. 1 hour 45 mins. 31 secs.	62.42 M.P.H.
150 MILES	2 Hours 34 Mins. 51 Secs. Previous best—Sept. 14/12. 2 hours 49 mins. 45 secs.	58.12 M.P.H.
200 MILES	3 Hours 28 Mins. 47 Secs. Previous best—Nov. 19/12. 4 hours 30 mins. 22 secs.	57.47 M.P.H.
250 MILES	4 Hours 24 Mins. 11 Secs. Previous best—Nov. 19/12.	56.78 M.P.H.
300 MILES	5 Hours 17 Mins. 46 Secs. No previous record established for this distance in 6 hours	56.65 M.P.H.

Time	Distance	Average Speed
2 HOURS	117 MILES 1,481 YARDS. Previous best Oct. 26/11. 109 miles 980 yards.	58.92 M.P.H.
3 HOURS	173 MILES 1,610 YARDS. Previous best—Sept. 14/12 159 miles 990 yards.	57.97 M.P.H.
4 HOURS	225 MILES 1,423 YARDS. Previous best—March 19/12. 173 miles 786 yards.	56.45 M.P.H.
5 HOURS	285 MILES 1,388 YARDS. Previous best—March 19/12. 223 miles 864 yards.	57.16 M.P.H.
6 HOURS	325 MILES 1,092 YARDS. Previous best—March 19/12. 264 miles 216 yards.	54.27 M.P.H.

SIR WM. ANGUS, SANDERSON & CO., LIMITED, NEWCASTLE-ON-TYNE.

From the Midlands to the North.

Will you tell me the best route from Thrapston to Warkworth (Northumberland), avoiding as much of the Great North Road as possible? I am aware that the Great North Road is the best and most direct route, but I have been along it so many times that I am getting tired of it. I should like to avoid all big towns. I intend riding 1½ days.—G.H.P.

our best route would be as follows: hrapston, Oundle, Peterborough, Bourn, eaford, Lincoln, Brigg, New Holland, ull, Beverley, Market Weighton, York, hirsk, Yarm, Stockton, Durham, Newstle, Morpeth, to Warkworth. It is uite impossible to avoid all large towns n this trip.

A Carburetter Difficulty.

I have a 3½ h.p. machine fitted with a Longuemare carburetter. When the engine is running all seems well, but when it stops petrol drops very freely from the bottom of the carburetter. Is the petrol level at fault? If so, how am I to remedy same? Would you also explain the difference between the ordinary engine and the two-stroke engine as used on the Scott machines? —H.E.D.

here is probably a piece of grit under he needle valve seating. Lift up the eedle valve between the finger and humb and turn it round in the seating. t would take too long to explain dequately the difference in working an rdinary engine and a two-stroke engine. f, however, you purchase a copy of Motor Cycles and How to Manage hem," which can be obtained from any ookstall, or from these offices, price s. 2d. post free, you will find the subect fully explained therein.

Lack of Flexibility.

My mount is a 5-6 h.p. two-speed 1911 Rex with overhead inlet valves. I use the machine continually with heavy sidecar, and it is a very powerful machine on hills. My trouble is the machine does about 20 to 30 m.p.h. and will not do more than 30 or less than 20 m.p.h. When in free engine the machine seems to run practically the same speed, and will not get up to very high speed, and also will not throttle down to run slowly. B. and B. carburetter. Jet 28. Is this about the right size? The inlet valve springs do not seem very strong; should they be? There are no air leaks about unions to cylinders. With 4½ to 1 gear, how fast should this machine go with sidecar, and about what is the slowest running I should expect on the same top gear with both cylinders firing?—F.F.

The trouble appears to be simply one of carburetter adjustment. Get into communication with the makers of your carburetter, Messrs. Brown and Barlow, Ltd., Westwood Road, Witton, Birmingham, and put your trouble before them. The inlet valves should not open when shaken violently by hand. The machine should do about 40 m.p.h. on a 4½ to 1 gear, and should be capable of being throttled down to about 8 m.p.h., or less, if the carburetter is adjusted for slow running.

The Question of Balance.

My long stroke single-cylinder engine has always given off a lot of vibration at speeds over 25 m.p.h. and has given off a ringing knock, which I have been quite unable to locate. I am of opinion that the heavy flywheels are too heavy on the rim and this upsets the balance of the engine at speed. Am I correct in stating that the heavy end of the flywheels should exactly balance the piston? When I hold my piston up at the top of its stroke the flywheels will immediately bring it down fast on releasing it. Should this be correct? If not, what is the correct method of testing balance? The engine runs well otherwise at all speeds under 25 m.p.h., and climbs well. The bushes are all right.—C.E.T.

It is very difficult indeed to give any decisive reason as to the knocking you complain of unless one can examine the machine. A "ringing knock," of which you complain, may be due to a variety of causes, imperfect lubrication of a bearing being the most likely reason. With regard to the balancing question, this is an exceedingly intricate matter, and unless you are a skilled motor engineer we should not advise you to tamper with the flywheels at all. Remember that it is reasonable to suppose that the maker of the engine has worked this matter out to his satisfaction, and that the balance of the motor as supplied to yourself is the result of careful calculation and design. Broadly speaking, the balance weight on the flywheels should equal the weight of the big ends, plus half the weight of the connecting rod and piston. In the issue of October 10th last, this matter was dealt with in "Queries." See also previous page. With regard to your remarks *re* holding the piston at the top of its stroke and then releasing it, on which it falls rapidly, we presume you mean that you have the cylinder off, as otherwise the closing of the valves would stop progress of the piston on its travel. From what you say, we should imagine that the balance weights on your flywheels are heavier in proportion to the weight of the reciprocating parts than the proportion we have indicated above, and as the question of balancing is not one of rule of thumb, but one about which designers hold slightly different opinions, we do not think that the vibration you complain of is necessarily caused by imperfect balance. Probably, it is due to some other cause, such as a slightly slack piston or play in the connecting rod bearings; but it is impossible to say definitely with the details as supplied. We advise you to get a first-class motor cycle tuner to examine your engine.

Marlow to Ashbourne and Penrith.

Can you recommend route avoiding the Black Country or any uninteresting places, etc.—Marlow to Ashbourne, Derbyshire (for Izaak Walton Hotel, Dovedale); thence to Temple Sowerby, near Penrith (through West Riding if possible), and another way back to Marlow?—A.J.G.

Your best routes will be as follows:—Marlow to Ashbourne: High Wycombe, Aylesbury, Buckingham, Towcester, Weedon, Daventry (turn to the right at foot of hill in town), along Watling Street, to Red Gate Inn, near Atherstone, turn right, Tywcross, Ashby-de-la-Zouch, Melbourne, Derby, to Ashbourne. Ashbourne to Penrith: Ashbourne, Matlock, Chesterfield, Worksop, Tickhill, Doncaster, Ferrybridge, Boroughbridge, Catterick, Scotch Corner, Barnard Castle, Bowes, Brough, Appleby, to Penrith. Alternative route home: Penrith, Kendal, Kirkby Lonsdale, Singleton, Skipton, Ilkley, Otley, Harewood (join Great North Road near Boston), Doncaster, Retford, Newark, Stamford, Grantham, St. Neots, Bedford, Ampthill, Dunstable, Tring, Beaconsfield, to Marlow.

M. Canouel on the Sphinx-Globe cycle car which finished third among the cycle cars, less than ten minutes behind the leader. This car had an air-cooled single-cylinder engine and is very fast.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"G.B." (Dublin).—Wear and non-skid properties of Stelastic tyres.

"Fear Not" (Burnley).—5-6 h.p. F.N. General reliability.

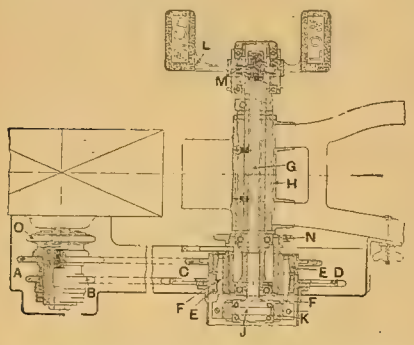
"J.S." (Wolverhampton).—Reliability of kick starters.

"A.H." (Leeds).—Other carburetters compared with standard on 1912 Clyno. Economy, flexibility, and hill-climbing.

"S.R." (Stockport). — 1913 7 h.p. Indian two-speed (solo). Reliability, weight, and suitability of 3in. tyres for cornering.

A Two-speed Countershaft Gear.

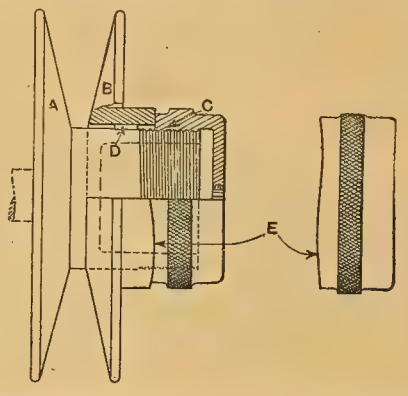
As will be seen this gear is of the type in which two chains take the drive from the engine to the gear, a single chain transmitting the motion to the driving wheel. The engine sprockets are shown at A B, and transmit the drive to the sprockets C D respectively. Within the sleeve carrying these sprockets are expanding clutch members E, which are coned on their inner faces as illustrated, and engaged by wedge bars F of corresponding shape. Operation of the



wedge bars is effected through a rod G passing through the bottom bracket H and provided at J with ball bearings around which is a sleeve K on which the wedges are mounted. The sliding of the rod G is brought about by a pedal L having a screw thread connection therewith as shown at M. It will be seen that the total travel of the wedge bars from either extreme end provides first one gear, then an intermediate position in which neither clutch E is engaged, and finally brings the other gear into engagement. N is the sprocket transmitting the final drive, and O is a sprocket engaged by a kick-starter of any suitable kind.—A. J. Rigby and H. B. Bates, No. 11,724, 1912.

The Lindum Variable Pulley.

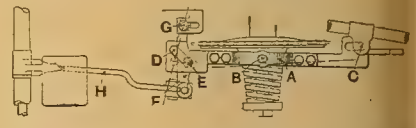
In the construction illustrated, possibly the limit of simplicity, coupled with efficiency, has been reached, the whole pulley comprising merely three parts—



the fixed flange A, the movable flange B, and the locking nut C. The movable flange is keyed, as shown at D, on the boss of the fixed flange, so that it can slide but not rotate thereon. The locking nut C screws upon the fixed boss, and the engagement between the nut C and the movable flange B is effected by undulating surfaces E cut on the two members. When adjusted to the desired position the belt is put in place, and it will be clear that the keys D prevent the movable flange rotating, whilst the undulating surfaces prevent rotation of the locking nut C, so that all is held secure until the belt is removed, when simple rotation of the nut allows the adjustment to be varied.—R. S., A. E., W. H., and M. A. Osborne, No. 22,396, 1912.

Clutch Operating Mechanism.

The plan view shows a link system whereby the actual clutch actuating element A (which takes the form of a yoke engaging trunnions B on the movable clutch member) is caused always to move in the true axial line of the clutch. The yoke A has a slotted connection to the frame at C, and at the other end has a slot D engaged by a



peg E on a bar F pivoted at G. This bar F is connected up to the clutch pedal by a rod H, and the disposition of the slots and pivots provides the desired result.—H. R. Purchase and the Rolfe Mfg. Co., Ltd., No. 7,648, 1912.

Grand Prix Equipment.

The Rudge machine on which T. E. Greene secured first place in the Grand Prix at Amiens was fitted with a C.A.V.-Ruthardt magneto, as was the case with the winning Bedelia cycle car. Continental tyres were also fitted to Greene's Rudge, and to the Bedelia.

Brooklands Successes.

It is interesting to note that Mason's Nut-Jap, which made such a super excellent performance in the B.M.C.R.C. race, had a U.H. magneto. Riddell (Zenith sc.), who also gained a new set of records, favoured a similar magneto.

Tyres in the Grand Prix.

Dunlop tyres and belts were very conspicuous in the French motor cycle, sidecar, and cycle car events at the Grand Prix meeting at Amiens. Seven out of fifteen competitors who finished used Dunlop belts, almost 60%, while the tyres were fitted to various makes, including the Clément on which Fenton won the race in the 350 c.c. class.

Triumph Success in New Zealand.

At a recent hill climb in New Zealand up Faskakariki, which is said to carry with it the hill-climbing championship of that country, Triumph machines were remarkably successful. G. B. Brown was the winner, and beat the record for the hill by 8⅘s., his time being 4m. 11⅕s. The special prize for amateurs was won by A. B. Collins, on a Triumph, who made second fastest time.

Clincher Successes.

In the recent cycle car race for the Yorkshire Auto Club cycle car challenge cup, the Winco car, recently placed on the market by Messrs. Stringer and Co., of Sheffield, fitted with Clincher tyres as standard, proved the winner. This, in addition to the many other recent successes, show that the North British Clincher tyres are in every way satisfactory.

An Excellent Lightweight.

The N.U.T. motor cycle is not only a speed machine, but has also been proving itself lately an excellent touring mount as well. In the recent Cumberland County M.C.C. twenty-four hours' reliability run on the 28th and 29th ult. we learn that the 2¾ N.U.T. ridden by J. Robinson was the only solo machine to make a non-stop run, lose no marks, and finish dead on time. For this excellent performance it was awarded the Christopher Lowther Challenge Cup and gold medal.

The Robbialac Competition.

Messrs. The County Chemical Co., Ltd., Bradford Street, Birmingham, inform us that they have received a large number of applications from persons desirous of entering this competition who have not their addresses to their applications. It will be remembered that this firm are offering ten Clyno sidecar outfits for the best pieces of enamelling sent in done with Robbialac.

Appreciation of Victor Tyres.

Ray Abbott, who ran second by a very narrow margin in the Senior T.T. this year, is a rider whose opinion of a tyre should be worth consideration. He has expressed himself as delighted with the Victor tyres fitted to his sidecar combination just previous to the last London-Edinburgh run. He says that he has now completed nearly 3,000 miles, including a victory in the Essex Motor Club's hill-climb (Passenger Class), and the tyres are still in excellent condition.

British Success in Spain.

Messrs. Brown Brothers, Ltd., have just heard of an interesting win on one of their 3½ h.p. machines, ridden by Senor Marceliano Cuesta in the motor cycle race at Mieres (Asturias) on the 25th ult. The machine was a standard 3½ h.p. single-cylinder Brown, and was the only machine which completed the whole course, which was an exceedingly difficult one. It consisted of a circuit of 47 km. over very hilly country, in which sharp curves and steep gradients abounded. Cuesta made two complete circuits in 2 hrs. 36 mins.

B.M.C.R.C. SIX HOURS' RACE MEETING

ZENITH

"The Summit of Ambition"

SWEEPS the BOARD in TWO CLASSES.

Class G. 500 c.c. and Sidecar—ZENITH FIRST.
Class H. 750 c.c. and Sidecar—ZENITH FIRST.

FOUR ZENITHS in all, completed the FULL SIX HOURS

A SPLENDID PROOF of ENDURANCE coupled with SPEED.

TO THE RIDER who contemplates owning a Passenger Machine, the above, coupled with the fact that the ZENITH holds all the Sidecar Records (except two in Classes C and D) must appeal strongly. To put it briefly—if you want the BEST SIDECAR MACHINE you must have a ZENITH. Catalogue sent with pleasure.

The following NEW TIMES were put up en route and, subject to confirmation by the A.C.U., rank as RECORDS.

Class C, with Sidecar and Passenger.

5 hours.	203 miles	962 yards ..	=40.71 m.p.h.
6 „	247 „	331 „ ..	=41.20 m.p.h.
200 miles in 4 hours 55 mins.		6⅘ secs.	=40.66 m.p.h.

Class D, with Sidecar and Passenger

2 hours.	93 miles	1120 yards ..	=46.82 m.p.h.
3 „	137 „	1676 „ ..	=45.98 m.p.h.
4 „	179 „	1556 „ ..	=44.97 m.p.h.
5 „	224 „	140 „ ..	=44.81 m.p.h.
6 „	265 „	274 „ ..	=44.19 m.p.h.
100 miles in 2 hours 9 mins.		31 secs.	=46.33 m.p.h.
150 „ „ 3 „	20 „	25 „	=44.91 m.p.h.
200 „ „ 4 „	27 „	58⅘ „	=44.78 m.p.h.
250 „ „ 5 „	37 „	22½ „	=44.46 m.p.h.

Class E, with Sidecar and Passenger.

3 hours.	137 miles	1676 yards ..	=45.98 m.p.h.
4 „	179 „	1556 „ ..	=44.97 m.p.h.
5 „	224 „	140 „ ..	=44.81 m.p.h.
6 „	265 „	274 „ ..	=44.19 m.p.h.
150 miles in 3 hours 20 mins.		25 secs.	=44.91 m.p.h.
200 „ „ 4 „	27 „	58⅘ „	=44.78 m.p.h.
250 „ „ 5 „	37 „	22½ „	=44.46 m.p.h.

Spares stocked in London by Robertson's, 157, Great Portland Street, W.

ZENITH MOTORS, LTD.,
WEYBRIDGE,——SURREY.

Z 114.

The "EXCELSIOR" Big Single.

The Motor Cycle with Hill Climbing Capabilities-

AND WITHOUT FREAK GEARS.

A Few Climbs standing to its Credit:

ARMS HILL, Henley-on-Thames.
KIRKSTONE PASS, Ambleside.
BLEATARN PASS, Lakeland.
WYCHE CUTTING OLD ROAD, Gt. Malvern.
WORCESTERSHIRE BEACON, Gt. Malvern.
SALCOMBE HILL, Sidmouth.
BRANSCOMBE LANE, Branscombe.
LYME REGIS.
PEAK HILL, Lyme Regis.
PORLOCK, North Devon.
LYNTON, Lynmouth to Lynton.
STATION HILL, Lynton. Etc. Etc.

Ask the Owner of an "Excelsior" for his opinion.

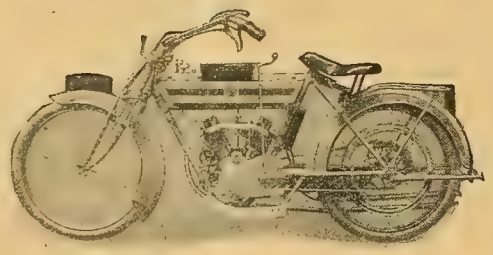
"Excelsior" 5-6 h.p. Model, 2-speed *Write for List.*

BAYLISS THOMAS & CO.,
Excelsior Works
(Founded 1874),
Coventry.

LIVERPOOL—F. C. Jones & Co., 3, Redcross Street. SHEFFIELD—H. Egginton, 23, Commonside. DONCASTER—The Doncaster Autocars and Cycles, Ltd. NORTHAMPTON—G. Loveday & Co., 2, Kingsley Park Terrace. MANCHESTER—Manchester Motor Exchange, 32, Downing Street. EXETER—P. Pike, St. Thomas Garage. Distributing Agents for SOUTH AFRICA—The Raleigh Cycle Agency, Cape Town, P.O. Box 636. Johannesburg, P.O. Box 4912.

EXCELSIOR MOTOR CYCLES

MOTO-REVE



4 h.p. Twin, chain drive, two speeds, clutch, 58 guineas.

2½ h.p. single, 3 speeds, clutch, 43 guineas.

2 h.p. single, free engine .. 32 guineas.

GRAND PRIX DE TURIN, 500 c.c. class.

4 h.p. MOTO-REVE 1st,

Average Speed 52.5 m.p.h.

MOTO-REVE CO., Ltd., Alperton, Middlesex.

"THE MOTOR OF MANY MERITS."

There are definite reasons why the

STAR
MOTOR CYCLE

is superior to all others. It is built on entirely new lines, and embodies many novel and original features, which have made it the most popular machine on the road.—— It is

A MARVEL OF RELIABILITY AND COMFORT, AND IDEAL FOR TOURING.

Send for specification, it is bound to interest you.

THE STAR CYCLE CO.,

Proprietors:
The Star Engineering Co., Ltd.,

WOLVERHAMPTON.

London and District Agents:
E. S. Thomas & Co., 154b, Gt. Titchfield St, London, W.

Grand Prix
with
Gold Medal
awarded at Vercelli Exhibition to
Beldam Tyres

CASED MOTOR CYCLE COVER PRICES.

Size.	*Extra 3-ply.*	*Extra Special 4-ply.*
26in. x 2in.	*34/-*	*39/6*
26in. x 2¼in.	*38/-*	*45/-*
26in. x 2½in.	*43/-*	*50/-*

Retreading.

Send us your old tyres of any make for repairs and retreading. Beldam Workmanship and Materials. Prompt Delivery.

Prices:

Extra Heavy Tread, 13/6 per cover.
Medium Tread ... 11/6 ,, ,,

Patching, Bursts, etc., according to requirements.

Write for the Beldam Motor Cycle Tyre List, post free on request.

The Beldam Tyre Co.,
Limited,
Brentford, Middlesex.

You get top speeds and cool engines with

Elite Oil for Motor Cycles.

If you watch the results of motor cycling events, you will see that the majority are won by users of Sternol Elite Oil of standard quality—the same as your dealer sells to you. The reason for this is that Sternol Elite gives perfect lubrication, and enables you to get utmost power from your engine.

RECENT STERNOL SUCCESSES.

Colwyn Bay: Mersey M.C. Open Trials—

G. E. Stanley, Singer, FIVE FIRSTS, ONE SECOND, and SPECIAL CUP for best aggregate performance.
J. Cocker, Singer, THREE FIRSTS and ONE THIRD.
V. Horsman, Singer, THREE SECONDS and ONE THIRD; also the Bosch Cup and three other prizes for the best amateur performance.

24 Hours Reliability Run from Carlisle to Birmingham and back on 28th ult.

2¾ h.p. N.U.T. .. .. FIRST

Bristol Hill Climb.

J. Cocker, Singer, FIVE FIRSTS, TWO SECONDS, and ONE THIRD, and Fastest Time of the Day.

They ALL USED STERNOL ELITE OIL.

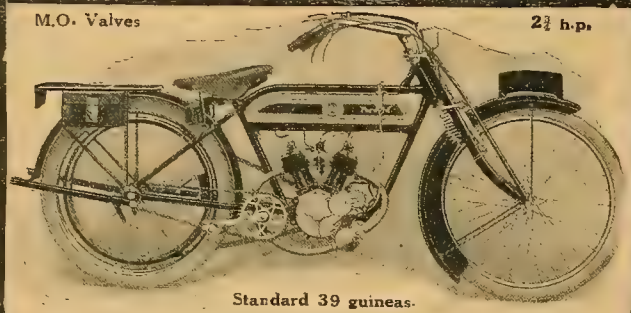
Try a Tin of Sternol now—from your dealer—and see that you get Sternol.

STERNOL

(Stern Sonneborn Oil Co., Ltd.),

56, Royal London House, Finsbury Sq., London, E.C.

M.O. Valves 2¾ h.p.



Standard 39 guineas.

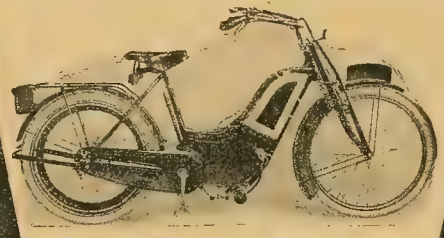
There is no Lightweight more suitable for Amateurs than the "FORWARD."

COLWYN BAY SPEED TRIALS, JULY 5th.
Class II. Amateur Prize G. HILL (amateur) on "Forward."

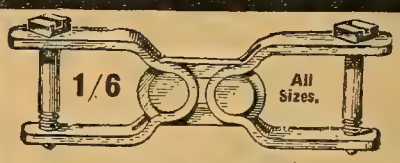
Immediate Delivery of limited number.

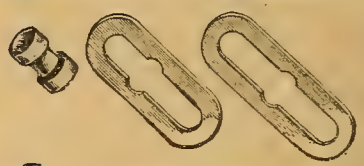
LISTS FREE.

FORWARD MOTOR CO., Summer Row, B'ham.



Open Frame 42 Guineas.





World's 6 days' Sidecar Record broken with the "FORWARD" adjustable belt fastener. 1,800 Miles.
The Forward Giant is an exceptionally strong fastener for 1⅛ belts with large 3/16 screws 2/- everywhere.

Forward British Plugs.

Detachable Pat. 23605/12	Ejector Pat. 19880/11
Perfectly Gastight.	Easier Starting.
No pressure on insulator, therefore cannot crack.	Greater Flexibility.
Instantly taken apart for cleaning.	More Power.
Everlasting Wear.	Won't Soot.
3/6 each.	Just try one. 3/6 each.

Other Forward Models at 2/-, 2/6 and 2/9

"All the Winners."

"Precision"

Engines "The Same as You can Buy."

Please write for particulars to—

F. E. BAKER, LTD.,
Precision Works, Moorsom Street,
Birmingham.

London Stockists for "Precision" Engines and Spare Parts: Messrs. E. S. Thomas & Co., 154b, Gt. Titchfield St., W.C.

Wholesale Distributing Agents for Australia: Messrs. A. G. Healing & Co., 354-356, Post Office Place, Melbourne. Agent for South Africa, Rhodesia, and Portuguese East Africa: Victor S. Wellsford, P.O. Box 883, Durban. Agents for New Zealand: Messrs. J. B. Clarkson & Co., 120, Victoria Street, Wellington.

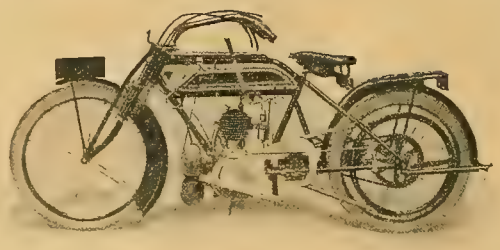
"LINCOLN ELK" New Models, 1913.

Manufactured Completely by

J. KIRBY,
Broadgate, LINCOLN.

Telephone: 484. Telegrams: "ELK," LINCOLN.

Wholesale Agents for Scotland:
The North British Machine Co., Ltd.,
56 & 58, Great Clyde Street, Glasgow.



4¼ h.p. 2-speed Model	£46	0	0
3½ h.p. Standard ,,	£35	0	0
3 h.p. ,, ,, ,,	£31	10	0
2¼ h.p. ,, ,, ,,	£29	10	0

All Models fitted with Palmer Tyres, Bosch Magneto, and Footrests. "Druid" Spring Forks.

Sole London Agent:
REY,
Heath Street Motor Works, 5, Heath Street, Hampstead, London, N.W.

A CLASSY PERFORMANCE in CLASS E

of the

BRITISH MOTOR CYCLE RACING CLUB'S

SIX HOURS' RACE

July 16th

was made by the

Mr. J. J. Cookson, riding a 986 c.c.

MATCHLESS,

the smallest machine in the Class,

FIRST,

covering 298 miles 1180 yards, an average speed of nearly

50 MILES AN HOUR.

If you are interested in the QUALITY of the MATCHLESS, send a postcard for the Art Catalogue and name of nearest Agent where latest models can be viewed.

H. COLLIER & SONS, LTD., PLUMSTEAD, LONDON.

MATCHLESS MOTOR CYCLE

We pay carriage throughout British Isles.

SELFRIDGE'S

Letter Orders carefully and promptly filled.

Motor Cycles on our Extended Payment Plan.

You can have immediate possession of any of the Motor Cycles listed below on payment of a fifth of its cost.

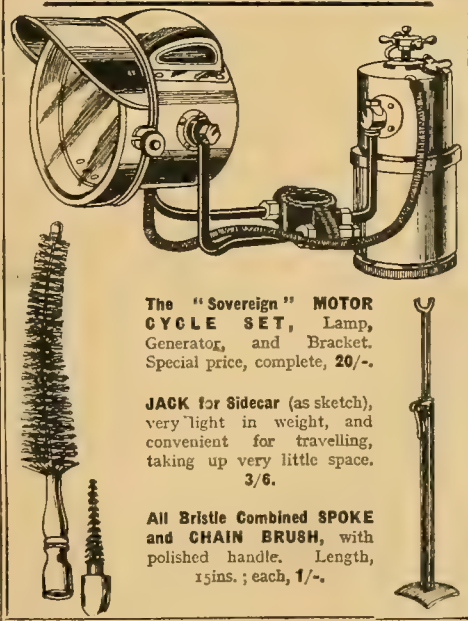
Payment of the balance can be extended over a year. For this added convenience we charge **2½% on the balance only.**

The extra is only 2%, or less, on the entire cost of your machine. The greater your original deposit, the less your machine costs in proportion.

DOUGLAS, Model O, 2¾ h.p., 2-sp.	£48 0
DOUGLAS, Model R, 2¾ h.p., 2-sp.	£52 0
DOUGLAS, Model P, 2¾ h.p., 2-sp.	£48 0
TRIUMPH, 3½ h.p., 3-speed	£59 15
REX, 6 h.p., 2-speed	£62 10
A.J.S., 6 h.p., 3-speed	£72 9
INDIAN, 7 h.p., 2-speed	£70 0
SINGER, 2½ h.p., fixed engine	£39 0
ARIEL, 3½ h.p., 3-speed	£59 10
B.S.A., 3½ h.p., 2-speed	£60 0

TRIUMPH, INDIAN, & B.S.A. Motor Cycles supplied on makers' terms.

INEXPENSIVE ACCESSORIES.



The "Sovereign" MOTOR CYCLE SET, Lamp, Generator, and Bracket. Special price, complete, **20/-.**

JACK for Sidecar (as sketch), very light in weight, and convenient for travelling, taking up very little space. **3/6.**

All Bristle Combined SPOKE and CHAIN BRUSH, with polished handle. Length, 15ins.; each, **1/-.**

SELFRIDGE & CO., LTD., OXFORD ST., W.

Store-soiled Motor Cycles at Reduced Prices.

	Usual Price.	Reduced to
Zenith, 3½ h.p., Gradua gear, kick starter	£63 0 0	£50 0
Zenith, 6 h.p., Gradua gear, kick starter	£78 15 0	£75 0
Rover, 3½ h.p., 3-speed	£58 0 0	£56 0
Matchless, 8 h.p., 2-sp., chain drive	£73 10 0	£70 0
James, 3½ h.p., 3-speed countershaft gear, chain drive	£63 0 0	£58 5
Lea-Francis, 3½ h.p., twin-cylinder, 2-sp. countershaft gear, chain drive	£68 5 0	£63 0
New Hudson, 3½ h.p., 3-speed, belt drive	£60 18 0	£56 5
Sunbeam, 2¾ h.p., countershaft gear, 2-sp.	£63 0 0	£58 5
Martin-Jap, 8 h.p., fitted with speedometer	£64 6 0	£59 10

Morgan Cycle Car, with "Selfridge" de Luxe body, hood, screen, special non-skid tyre on back wheel, Lukin carburetter, and Best and Lloyd lubricator; List Price, £110 10 6, Reduced to **£100 0 0**

Carriage Paid throughout the British Isles.

THE . . .

ORIGINAL

AND STILL BY FAR THE BEST

LADY'S OPEN FRAME MOTOR CYCLE.

The machine with a name for RELIABILITY—

"BROUGH."

Write for particulars.

W. E. BROUGH & CO.,
NOTTINGHAM.

THE WATSONIAN PATENT FOLDING SIDECAR.

THIS invention has been brought about to minimise space, combined with solidity and durability of a rigid built car. It is built up with material introduced by the best of experts.

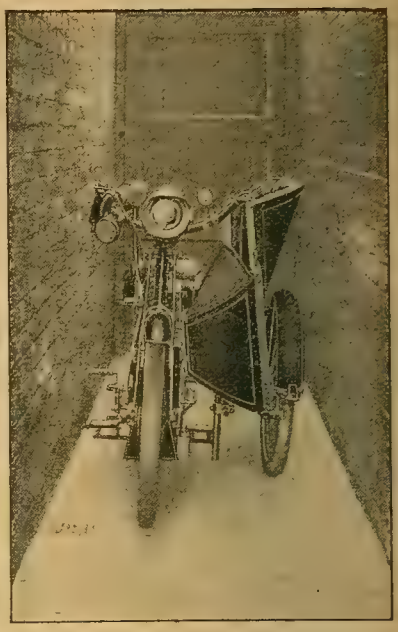
Steel pins, which form its hinged joints, are fitted with castellated nuts and cottered, which creates a solid and sound construction which is equal and superior to many rigid built cars.

The great Storage Problem has been solved by this invention.

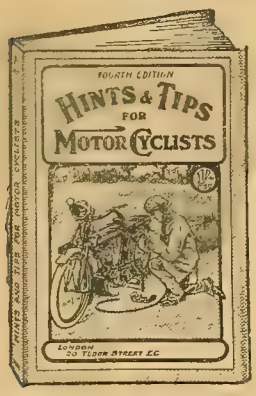
The motor cyclist whose garage accommodation is limited, can save expense, worry, and trouble by purchasing our **Folding Sidecar.**

It will pass through a 2ft. 8in. doorway attached to the machine.

It has been through most of the Midland reliability trials since last November without a mishap, and we give a 12 months' guarantee with each car.



The Patent Collapsible Sidecar Co., Limited,
129, Conybere Street, BIRMINGHAM.
Telephone No.—1531 Midland.
Telegrams—"Flexibility, Birmingham."



A Useful Little Pocket Companion.

Every motor cyclist should make use of this book. It is brimful of sound advice respecting the care, management, and repair of motor cycles. Every hint and tip is numbered, and reference is made very simple by a very exhaustive alphabetical index.

Fourth Edition, Revised and Enlarged. Now Ready.

Obtainable from—
ILIFFE & SONS LTD., 20, Tudor Street, London, E.C.,
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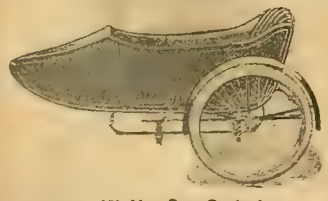
Price 1/- net.
By post 1/2.

SHERBOURNE SIDECARS,

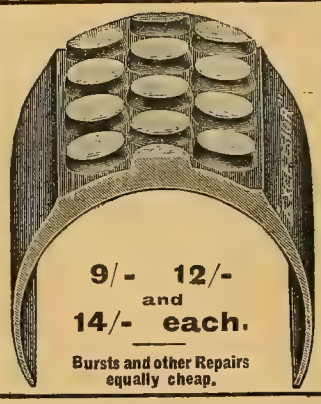
ON EASY TERMS.



25 lbs. ONLY.

Second-hand Cars taken in part payment.

Write for Catalogue. 10 Models.
Manufacturers—THE SHERBOURNE SIDECAR CO.,
100, Holyhead Road, COVENTRY.



9/- 12/- and 14/- each.

Bursts and other Repairs equally cheap.

RETREADING MOTOR CYCLE COVERS.

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We have specialised in all kinds of TYRE REPAIRS —— FOR 15 YEARS. ——

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Send for Sections and all particulars to—

The Excelsior Tyre and Rubber Co.,
Hurst St., BIRMINGHAM.

NOWHERE ELSE IN THE WORLD

can you get such a large variety of SMART and USEFUL fittings for your Motor Cycle. NOWHERE ELSE can you get such prompt attention to your orders.

NOWHERE ELSE is there such large stocks as we hold. EVERYTHING from a split pin to a motor cycle is IMMEDIATELY obtainable at the LOWEST PRICE from the

FOOT MOTOR BELLS.

Very loud. Superior quality, and suitable for hard wear.

No. 110, 6" dome, nickel (very strongly made) 17/3
No. 100, 5½" dome, nickel (very strongly made) 12 6
No. 90, 4½" dome, nickel (very strongly made) 10/-

THE SERVICE PULLEY REMOVER.

Just the thing for removing Douglas fly-wheels. A simple, strong, business-like Tool for removing motor engine pulleys easily and quickly without risk of damaging pulley or shaft. The screw is a square thread, and all other parts are designed to last for years.

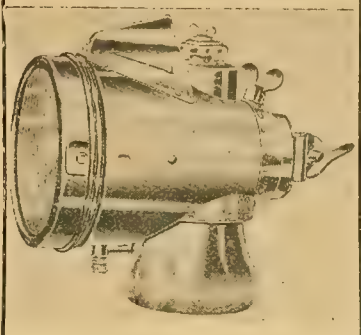
No. 2 .. .. 7/6

A.B.C. VALVE GRINDER.

No. 2.

Can be used on every make of Motor Valve. No loose parts. Neatly boxed, with valve lifting spring 6/6

New Pattern Self-contained SIDECAR LAMP.



Solidly made and well finished. Generator completely detached from lamp by unscrewing winged nut, thereby facilitating charging and cleaning, and can be used as an inspection lamp. Reliable and efficient.

No. 1. **12/-** No. 2. Black Finish, **14/-**

RIM ENAMEL (Black).

Prevents rust forming on the inside and edges of the tyre rim with subsequent rotting of the beads of the tyre.

Can also be used round the heads of the spokes to prevent water entering, and on detachable rims.

Will not chip off like stove and spirit enamels 1/-

SERVICE VALVE TAPPET ADJUSTERS.

This is a new and very useful device which we have brought out for taking up the varying degrees of wear in the valve tappets.

They are made of fine hardened steel and can be instantly fitted over end of valve stem.

Made in following thicknesses: .048, .036, .028, .022.

No. 1. **3d.** each or **9d.** per set of 4.

Special Agents for F.R.S. Lamps, Service Belt, and large stocks of bags, lamps, etc.

SERVICE CO., LD.,

292-293, HIGH HOLBORN, LONDON, W.C.

Phone: 260 Central. Wires: "Admittedly, London."

The BRITISH MADE **Watford** *Speedometers*

The First MOTOR CYCLE SPEEDOMETER
to enter and pass an officially observed
AUTO CYCLE UNION 3,000 MILES TEST.

MOTOR CYCLISTS—PLEASE NOTE!!!

COPY OF LETTER. Masonic Hall, Barton-on-Humber, June 29th, 1913.

Gentlemen,

The £1-4-0 model speedometer which I had from you a few months ago has just registered 5,000 miles without any renewals or trouble, and has never varied in its accuracy.

It has enabled me to reach a given destination to time, and with its help I can keep to time as accurately as a crack train.

To my mind it is perfect, and those of my friends who have been persuaded to go in for one, all agree it is the best on the market.

Wishing you every success,

I remain, yours faithfully, (Signed) TREVOR T. LAKER.

EXTRACT FROM A LETTER FROM RONALD W. PICKERING.
July 8th, 1913.

"I have had Speedometers of three other makes, but not one of them is an equal with yours. The price is as low, and the instrument far better value, *i.e.*, the hand is perfectly still at all speeds on yours, but on all others I've tried, the opposite is the case."

Write for Catalogue to—**NICOLE, NIELSEN & CO., LTD.,**
Inventors and Patentees of the Chronograph, 1862; Split Seconds, 1871, and Speedometer, 1901.

THE WATFORD SPEEDOMETER WORKS.
London Showrooms—14, SOHO SQUARE, W.
Telephone—2858 Central. Telegrams—Nicomicleo, London.

are the outcome of the unique experience of a first-grade English watch manufacturing firm, established in London 1839.

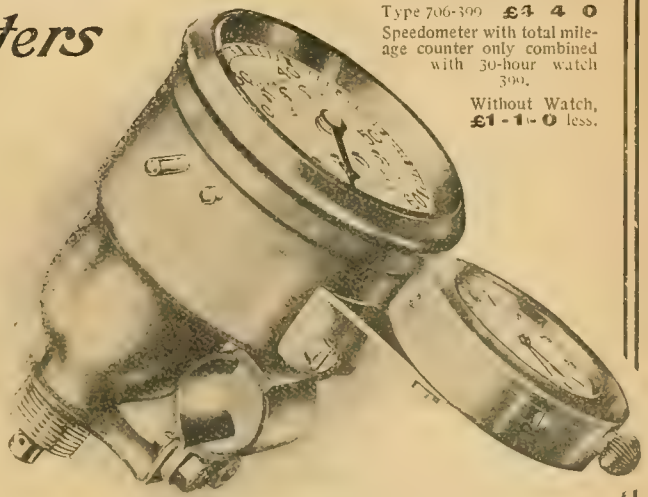
Motor Cycle Speedometer and Watch.

Type 700-399 .. .. **£6 6 0**
Speedometer with trip and maximum speed hand combined with 30-hour watch 399.

Type 702-399 .. .. **£5 5 0**
Speedometer with total and trip mileage counter combined with 30-hour watch 399.

Type 706-399 **£4 4 0**
Speedometer with total mileage counter only combined with 30-hour watch 399.

Without Watch, **£1-1-0** less.



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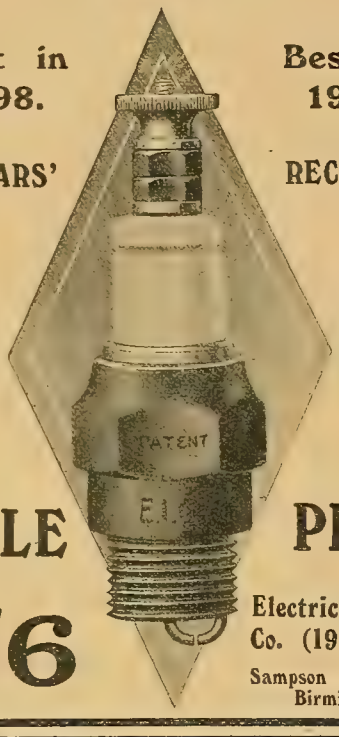
First in 1898.

Best in 1913.

14 YEARS' RECORD.



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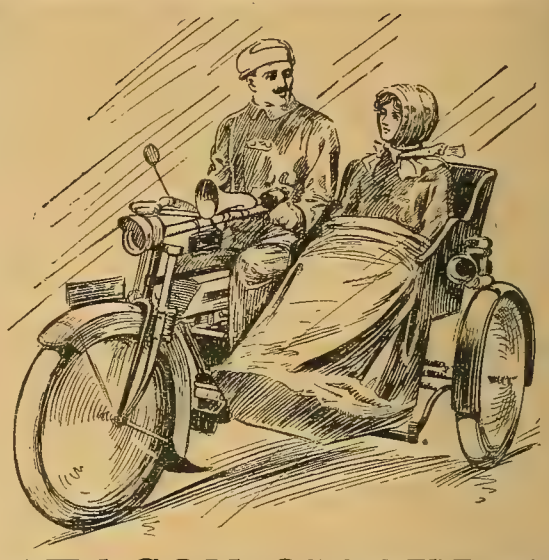
CYCLE PLUG.

3/6

Electric Ignition Co. (1913), Ltd.,
Sampson Rd. North, Birmingham.



BEACON OILSKINS

for ladies' and gentlemen's wear.

Men's Lightweight Storm-proof Suits, black or yellow, 21/-
Jackets only, 13/6. Suits, in tan or grey-green, 25/-
Ladies' 17-ounce pure silk Oilskin Coats, many shades, 42/-
"Erin" Motor Bonnet to match, stormproof, weightless, lined silk, 21/-
Let "The Only Way" put you on the path to weather comfort.
A copy awaits your word. Write now.

J. BARBOUR & SONS, Ltd. (Dept. D.), **So. Shields.**

At Brooklands, June 23rd, Mr. H. Riddell, on a Zenith Precision with Bramble sidecar and passenger, set up

12 SIDECAR RECORDS

using the

'U.H.'

S. Wolf & Co., Ltd.,
115, Southwark Street,
LONDON, S.E.

Telephone: 5172 Central, 2734 Hop.
Telegrams: "Widerstand, London."

THE WINNER of the JUNIOR T.T.

Mr. Hugh Mason, riding a 2¾ h.p. 'Nut,' manufactured by Sir W. Argus Sanderson & Co., Ltd., used this famous magneto.

C.D.C.

12 months' Credit without interest.

That's Friswells' system of easy payments for Motor Cycles and Cycle-cars.

You pay ¼ of the amount down and the balance by 12 equal monthly payments free of interest.

Supposing you purchase a motor cycle costing £60. All you would have to pay down is £15 when you take delivery of the machine and the balance by 12 monthly payments of £3 15s.

Thus you purchase a motor cycle on the instalment system at cash price.

All the leading makes of Motor Cycles and Cycle-cars in stock and ready for immediate delivery. Write to-day.

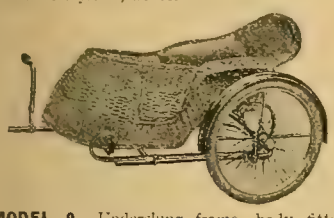
FRISWELLS

ALBANY STREET, REGENT'S PARK, N.W.
Telephone: 2115 North.
Telegrams: Friswell, London.

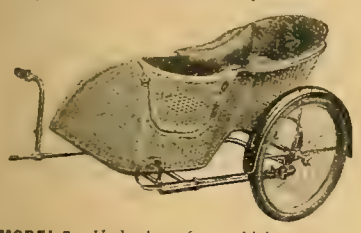
Here's a Really Reliable Sidecar!

Made from quality materials by a firm of repute, the CORONET SIDECARS are excellent in every way. Built upon the rigid principle, they are safe and sure on greasy roads—comfortable in travel—artistic in construction.

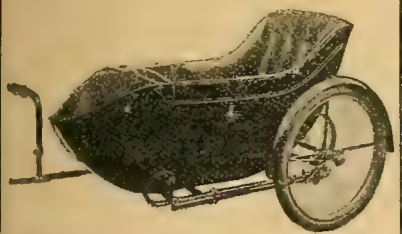
MODEL 1.—High-class canoe front body quick detachable joints, **£6 6s.**



MODEL 9.—Underslung frame, body fitted with side door, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£7 7s.**



MODEL 8.—Underslung frame, high-class reed cane body, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£8 17s. 6d.**



MODEL 7.—Underslung frame, coachbuilt body, tool-box under front, also under seat. A real high-class sidecar **£10 15s.**

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TRADE SUPPLIED.

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Bedford Street North,
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REX, 3½h.p., accumulator, good running order; £10 10.—Apply, 37, Goschen St., Blyth, Northumberland. [X3222

SPECIAL F.N., 4-cyl., low build, shaft drive, free engine, fast; photo; £27.10, or best offer.—Oaktree, Acomb, Hexham. [X3447

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1912 Free Engine Triumph, with N.S.U. gear fitted, splendid condition; £40; exchanges arranged.—Nixon, Brampton, Cumberland. [X3555

1912 8h.p. Zenith, excellent order, heavy covers; reason for selling at £46, buying cycle car.—Bibby, Electric Works, Morpeth. [X3694

NEW Hudson, 1912, 3½h.p., 3-speed gear, lamp, horn, tools, spares, in perfect order; owner bought car; £40.—Armson, Forest House, Penrith. [X2944

5-6h.p. Peugeot, Bosch, B. and B., P. and M., 2-speed, 2½in. Rom tyres; £20, or offer.—Thorne, Maitland St., Houghton-le-Spring, Co. Durham. [X3354

BRADBURY, late 1911, 2-speed gear, faultless; £33; expert examination invited; sidecar also if desired.—Crossley, 73, Woodlands Terrace, Darlington. [9188

3½h.p. Rudge, N.S.U. 2-speed and free engine, new tyres and belt, recently overhauled by makers, powerful machine, splendid condition, with accessories; £33, or nearest.—Wallace, 23, Otto Terrace, Sunderland. [X3602

1913 Zenith-Green, 3½h.p., £50, in new condition; 1912 Singer, 3½h.p., new condition, £33; 1912 Clyno and coach sidecar, 6h.p., 2-speed, perfect condition, £50. — All particulars, G. W. Braithwaite, 94, Highgate, Kendal. [X3537

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TRIUMPH, 1909, and sidecar, engine and tyres excellent, good climber; trial any time; £28.

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L.

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MATCHLESS Agents, Hitchings', Ltd., sole representatives.

TRIUMPH, James, and Velocette motor cycles, Swift and Crescent cycle cars, Montgomery, Gloria, and Gondola sidecars; sole agents.—Prompt deliveries and absolute satisfaction guaranteed by Hitchings', Ltd., 74, Bold St., the firm of good repute. [1725

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1913 7-9h.p. Indian and Gloria Sidecar; list price £88/18, ours £77.

ALL the Above are guaranteed brand new

1913 2¾h.p. Ivy-Precision, T.T., French grey; first cheque £33.

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1913 2½h.p. Calcott Lightweight; list £35, ours £29

THE Above Machines are absolute bargains, being all quite new at second-hand prices. — Hartley Clegg, Ltd., 6, St. James St., Burnley. [0321

1913 F.E. Triumph, perfectly new; £48.—Snape, Wetherby, Yorks. [X3231

NEW 3½h.p. Rover, 3-speed; take £52 quick sale.—Bowcock, Southport. [X3598

1913 Brand New Scott, complete; £68; in stock.—Ewbank, Castleford. [X3384

Booth's Biggest Bargain

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We offer a brand new standard 1913 machine at **£17** less than list price. Exactly as shown at Olympia. The following specification comprises the best of everything:

NEW 1913 3½ h.p. A.S.L.—PRECISION
Standard machine, as turned out by makers, fitted with 3½ h.p. Precision engine, M.O.V., Best and Lloyd lubricator, Hutchinson rubber-studded tyres, Bosch weather-proof magneto, handle-bar control, spring forks, stand, carrier, toolbag, and number-plates. Listed £52 10s. **Our Price, £35 10s.**
Exchanges or easy payments. Subject to being unsold.

OFFERS WANTED FOR THE FOLLOWING:—

Nearly new 1913 **SCOTT**, fitted with Scott patent	
£16 16s. Sidecar, only run about 1,000 miles	£62 0
3½ h.p. **HUMBER**, 1913, 3-speed model, done about 200 miles, complete with sidecar	£45 0
8 h.p. **G.W.K.**, 1912 model, not much used	£110 0
4 h.p. **N.S.U.**, 1910½, big single-cylinder model, 2-speed gear, complete with sidecar	£30 0
2¾ h.p. **WOLF** Lightweight, 1911, magneto	£13 10
2¾ h.p. **GRANDEX-PRECISION**, 1912	£19 10
3½ h.p. **A.S.L.**, brand new, 1913 model	£35 10
3½ h.p. **PREMIER**, 1913 model, 3 speeds, only run 500 miles	£46 10
6 h.p. **BAT**, 1913, chain drive, like new	£98 10
3½ h.p. **N.S.U.**, free engine, splendid order	£23 10
3½ h.p. **QUADRANT**, 1908, magneto	£15 10
3½ h.p. **REX**, 1908, spring forks, magneto	£16 10
3½ h.p. **B.S.A.**, 1912, 2-speed model	£37 10
2 h.p. **MOTOSACOCHE**, 1910, magneto	£15 0
3½ h.p. **REX**, 1910 model	£17 10
SCOTT, 1909, 2 speeds, nice condition	£23 10
MORGAN Runabout, 1912, screen, hood, side tool boxes, new 3in. tyre	69 Gns.
3 h.p. **N.S.U.**, magneto, splendid order	£12 10
2¾ h.p. **EXCELSIOR**	£4 15
3½ h.p. **QUADRANT**, magneto, spring forks	£11 10
3½ h.p. **REX**	£4 15

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PRECISION ENGINES.

We are Special Agents for these High-class Engines, and keep a large stock. We are prepared to take your present engine in exchange, and give prompt delivery. We are also in the position to supply THE TRADE.

BINKS' CARBURETTERS.
Let us take your carburetter in exchange for a Binks, and increase your power, run more miles to the gallon, and enable your engine to run slower in traffic.

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1913 Armstrong Mark VI. 3-speed Gears, delivery from stock Trade supplied.	
Nearly new 1913 Armstrong Mark VI. Gear	£5 15 0
3½ h.p. Torriceli Engine, M.O.V.	£3 0 0
8 h.p. Darracq, water-cooled	£8 10 0
Darracq 3-speed and reverse Gear Box	37 6
26 x 2½ Front Wheel, with Dunlop tyre	£1 0 0
4 h.p. Roc Engine, M.O.V.	£5 10 0
Sidecar, cane body, side doors; cost £8 8s.	£3 15 0
New Bosch Twin Magneto	£2 12 6
New 4 h.p. J.A.P. Engine, with magneto	£14 10 0
Splendid Forecar, cane body	27/6
New Coachbuilt Sidecar Body, side door	£4 5 0
26 x 2¼ New Rubber-studded Cover, best make; usually £2	23/6
Brand New Simms 1913 Twin Magneto	£3 11 6
Nearly new rigid Sidecar	£3 17 6
Millford Sidecar, cane body	£3 10 0
New Sidecar Body, side door	£1 12 6
New 5 h.p. Electric Motor, 460 volts; £20, or take motor cycle.	
Practically new Pillion £6 Car	£2 17 6
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Binks' 2-jet Carburetter	17 6
Amac Carburetter, h.b. control	13 6
Longuemare Carburetter	2 11

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6 h.p., 2 speeds, handle start, cantilever seat, cane de luxe type Sidecar. The best value in the market in sidecar combinations.

£75 : 0 : 0 ALL ON.

Ready for riding away.

EX STOCK.

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6 h.p., 2 speeds, J.A.P. engine, handle start, cane sidecar.

80 Guineas.

Coach-built sidecar

82 Guineas. All on.

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3½ h.p., 2-cylinder, 2-stroke, 2 speeds, kick start, chain drive. Remember T.T. results.

£68 : 5 : 0 Complete.

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The machine with the perfect gear. The 3½ h.p. Multi T.T. model is "IT" for results. Specially recommended.

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3½ h.p. model with the Gradua gear; 6 h.p. model with the Gradua gear.

Prices **£55 : 13 : 0** and **£70 : 7 : 0** all on.

Kick start, £7 7 0 extra.

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Send us your cheque and we deliver right away. Deferred Payments, 2% extra. Exchanges arranged.

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P.S.—Wherever possible we supply on deferred terms at 2% extra, but in some isolated cases the makers fix a gradual payment price, in which case we have to charge this amount.

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SCOTT, 1913; immediate delivery, no waiting.—Timberlake, Wigan. [X3501

A.J.S., 6h.p., 1913; immediate delivery, no waiting.—Timberlake, Wigan. [X3502

2¾h.p. Enfield Lightweight, excellent condition, perfect order, 2-speed gear, chain drive; £28/10, a bargain.—Timberlake, Wigan. [X3504

SHOP-SOILED Machines to be cleared cheap, large variety, larger reductions.—Timberlake, Wigan [X3505

1912 T.T. Rudge, very fast; £29; first cheque gets it.—R. Gill, Castleford. [X3386

1913 Rover, T.T., 300 miles, perfect; £36.—Shaw, 32, Psalter Lane, Sheffield. [X1581

REX, 1908, 3½h.p., Bosch, new cylinder, piston; £15.—68, Friargate, Preston. [X3595

1913 P. and M.'s in stock; £65.—Fenton, cycle agent, 61, Clarendon Rd., Morecambe. [X3417

1912 T.T. 6h.p. Matchless, in fine order, complete; £41.—Cross, Jeweller, Rotherham. [X3659a

1910 Triumph, new tyres, £28; 1911 free engine Triumph, £40 (like new).—Cross, Agent, Rotherham. [X3659

C. POTTER, Leicester Grove, Blackman Lane, Leeds (Tel.: 4046), can deliver to-day

CLYNOS and Clyno Sidecars; special prices for the holidays, why delay?

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1911 Humber, 3½h.p., good condition; what offers?—Hewitt, Alexandra St., Bradford. [X3444

NEW 1913 P. and M., uncrated, going abroad; £62.—Smith, 5, Carlton Terrace, Halifax. [9124

3½h.p. Rex, new belt, tyres, etc., in good condition; £12.—Youde, Princes St., Ulverston. [X3557

3h.p. Motor Cycle, good running order; £3/10.—H. Jowett, 41, Falmouth Av., Bradford. [X3534

1910 3½h.p. Rex; £20; ride any distance.—W. Evers, Clareville, Kenilworth Av., Harrogate. [X3491

1913 Clyno, 5-6h.p., unpacked; cannot take delivery: offers.—106, Ribbleton Lane, Preston. [X3597

1913 Rudge Multi, only shop-soiled; first applicant 48 gns. secures.—Golby, Agent, Batley. [9334

1913 Premier, 2-speed, shop-soiled only; first 40 gns. secures.—Golby, Batley. [9333

1913 Clyno, only shop-soiled; first remittance 60 gns. secures.—Golby, Agent, Batley. [9332

3½h.p. Kelecom, B. and B. carburetter, all in good order; £7/10.—97, Maud St., Rochdale. [X3436

1911 Enfield, £18; 1912 2-speed Indian, 33gns.; 1909 P. and M., £26.—95, The Moor, Sheffield. [1833

TRIUMPH, clutch, late 1910, under 5,000 miles; £28.—Rodgers, Broomfield Grove, Rotherham. [X3603

1913 B.S.A., 2-speed, chain drive, as new, only run 100 miles; £52, cost £61.—172, Waterloo St., Bolton. [X3223

BRAND New 4h.p. 1912 Rex; sacrifice, immediate sale, £32.—Anderson, Gorehill, Stretford, Manchester. [X3496

HUMBER, 1912½, 3½h.p., 2 speeds, lamp, spares, Whittle, new condition; £36.—11, Rhodes St., Halifax. [X3527

1911 Triumph, F.E. model, excellent running machine, splendid condition throughout; £28.—65, Hilden St., Bolton. [X3548

3½h.p. Triumph, lamp, generator, spare cover, excellent condition; bargain, £18.—Clark, Baishaw Terrace, Leyland. [X3434

3½h.p. Minerva, in jolly good order, 1912 B. and B carburetter, spring forks; £9/10.—H. Arthur, jeweller, Rochdale. [X3435

MANCHESTER.—Premier sidecar machines, immediate delivery; speciality, easy payments.—Agents, Cooke's, Longsight. [8074

LINCOLN Elk and Moto-Reve Motor Cycles in stock; immediate deliveries; easy payments arranged, moderate terms; catalogues.—Sole agents, Cooke's, Longsight. [9007

PREMIER, 3-speed, ideal sidecar machine, unsoiled; customer unable accept delivery; £56 model, forfeit deposit £5.—Cooke's, Longsight, Manchester. [9008

£39.—1913 3½h.p. Ivy-Precision, Armstrong 3-speed, Kempshall, Whittle; offers.—Griffin, Gordon Villa, St. Helens. [9245

1912 F.E. Rudge, absolutely new, unused; listed £55/10, will sell £39 cash, a bargain.—Hitchens, Ltd., Morecambe. [8503

MOTOSACOCHE, 1911¾, 2½h.p., free engine, perfect condition, accessories; £21.—Dr. Penistan, Cleveleys, Blackpool. [X3574

1913 A.S.L., Precision engine, only done 500, as new; any trial; will accept £25 for quick sale.—1, Ribblesdale Place, Chorley. [9234

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1913 **REX** Sidette, 6 h.p., cane sidecar de Luxe, Jones £5 5s. meter, all spares, ready for instant use	£60
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1913 **HAZLEWOOD,** 3½ h.p., twin, 3 speeds not ridden above 300 miles, and like new	£40
1913 **RUDGE** 3½ h.p., multi. Whittle belt, tyres like new, excellent order	£50
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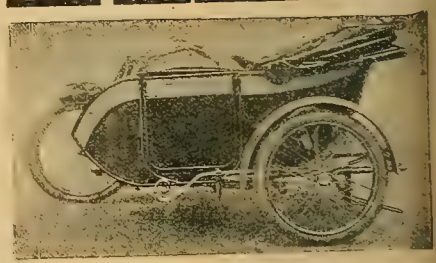
1912 **ZENITH,** 6 h.p., combination, with canoelet sidecar, equal to new, lamp, horn, etc.	*£60
1912 **MATCHLESS,** 6 h.p., 2 speeds, head lamp, and horn, cane sidecar, excellent combination	£58
1912 **REX,** 6 h.p., combination, Portland £11 11s. sidecar, spring forks, 2 speeds, head lamp, Cowey, and horn; special value	£50
1912 **RUDGE,** 3½ h.p., multi, good tyres, enamelling and plating as new	£47
1912 **PIERCE,** 5-6 h.p., 4-cylinder, mechanical lubrication, shaft drive, M.O.V., only done 500 miles	£55
1912 **BRADBURY,** 3½ h.p., 2-speed, free engine, kick start, suit sidecar	£40
1912 **BRADBURY,** 3½ h.p., 2-speed, belt drive, Cowey, complete with sidecar	£55
1912 **BAT,** 6 h.p., spring frame, Bosch magneto, J.A.P. engine, very fast	£36
1911 **INDIAN,** 5 h.p., blue finish, free engine, good tyres	£31
1911 **INDIAN,** 7 h.p., 2 speeds, Millford £16 16s. sidecar, speedometer, horn, lamp, etc., complete outfit	£48
1910 **V.S.,** 5 h.p., 2 speeds, Truffault forks, pedal start, good tyres, French grey, finish, suit sidecar	£27
1910 **PREMIER,** 3½ h.p., spring forks, magneto, free-engine clutch	*£25
1910 **PREMIER,** 3½ h.p., twin B. and B. carburetter, spring forks, magneto	*£22
1910 **ENFIELD,** 2¾ h.p., twin, lightweight, finished khaki, magneto	£18
1910 **TRIUMPH,** 3½ h.p., T.T. roadster, M.O.V., spring forks excellent order	£28
1908 **MOTOSACOCHE,** 2½ h.p., Druid forks, magneto, stand, and carrier, excellent order	£14
1906 **REX,** 6 h.p., twin, spring forks, cantilever seat, good tyres, take sidecar	£16
MOTO-REVE, 2 h.p. twin, magneto, Druid forks, free engine	£15
ALCYON, 5 h.p., twin, spring forks, suit sidecar, very fast	£13
KELECOM, 4 h.p., single, M.O.V., good tyres, low built	£10

Deferred payments 5% extra.

THE PORTLAND SIDECAR



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JULY 31ST, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

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FIVE HUNDRED AND FORTIETH CONSECUTIVE ISSUE.

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ADDRESS: 20, TUDOR STREET, LONDON, E.C.

The Scottish Six Days' Trials.

LAST week's Scottish Trials proved a most gruelling test, and the fact that such a large proportion of machines got through successfully is a striking proof of the absolute dependability of the present day motor cycle. But trouble was not absent; far from it. Apart from the usual crop of troubles which can generally be traced to machines having been hurriedly assembled and prepared for the event, not a few retirements have been caused by the inability of the riders themselves to continue, though their mounts have been in almost perfect order. Falls have been far too frequent, and this can mainly be put down to the freakish corners and stony surfaces, combined with the strange roads, and also to the fact that an average of 20 m.p.h. had to be maintained. If the trials promoters have erred, we consider that it is in setting a comparatively high average speed. Such an average is all very well on ordinary roads, but on an exceptionally hilly course such as was used for the Scottish Trials, abounding in corners that tried the rider's skill to the utmost, loose sandy surfaces, and then again boulder-strewn tracks, it must be agreed that a lower average speed is certainly desirable. In pointing out the strenuous nature of the trial, however, we are throwing into high relief the wonderful performances of those who obtained full marks. It may reasonably be argued that what one rider and one machine can do, the remainder should be able to do also. But one is inclined to overlook the personal element in these trials, which counts for a great deal. Passenger machines have fared well considering the arduous nature of the test, seven sidecars proving their ability to follow the solo mounts anywhere and keep up with them in average speed. The cycle car drivers were not so fortunate, only two being gold medal winners.

Petrol Prices and Substitutes.

OUR readers will remember that, some time ago, the Royal Automobile Club offered a large sum of money as a prize to the producer of the best substitute for petrol, such a substitute being desired on account of the inflated price of the standard fuel. It was hoped that the increased cost of petrol would be only temporary, but at present there seems to be no indication of any reduction in the near future—unless some other fuel can be produced in sufficiently large quantities to become a serious rival. It is, therefore, interesting to note that the Petrol Substitutes Joint Committee, composed of representatives from the R.A.C., the S.M.M.T., and the A.A. and M.U., has lately made some tests of a motor spirit which is produced from peat.

Valuable prizes have also been offered on the Continent with the same object in view, and we trust that the efforts which are being made will meet with success, and that quickly. The continued high price of fuel is likely to have an adverse effect upon the sale of motor cycles, for it is a most important point to the man with a shallow purse who has carefully to consider ways and means. It is probable, too, that it will interfere largely with the sale of second-hand machines, and thus again check the sale of new ones. Therefore, it is a matter into which it behoves the trade societies to enquire very thoroughly.

Benzole, of course, is now a well-tried and very satisfactory substitute, but it is not always easy to obtain, and there are some unsatisfactory brands on the market which do not give the good results obtained by the standard 90% benzole; these vary very considerably in their chemical composition and specific gravity, both important points. The price of benzole, too, is not much less than present petrol prices, and much in excess of the amount charged a few years ago.

Many of our readers successfully use mixtures of petrol and paraffin, in which the amount of paraffin may be anything from 20% to 75% of the whole. A 20% mixture will give quite easy starting, except in very cold weather, and the engine will pull well on hills—some engines pull better on this mixture than on petrol alone—but the saving in cost is slight until the mixture is at least half paraffin, when starting becomes more difficult, and it is advisable to empty the carburetter at the end of each journey and fill up with petrol only, unless the re-start can be made while the engine is still warm.

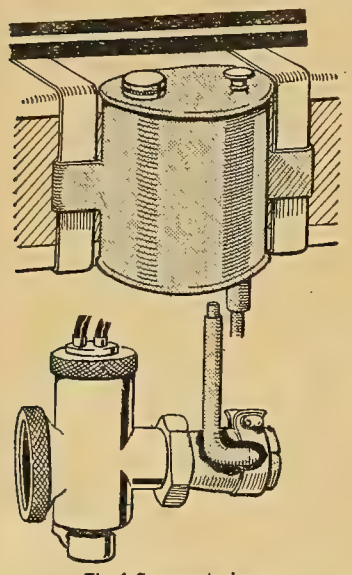
There are now upon the market several carburetters designed for use with paraffin alone, or paraffin and petrol from separate jets, mixing in the vaporising chamber, the amount of each fuel being under the control of the rider. Also, it is possible to purchase devices the object of which is to enable a start to be made on petrol only, without the trouble of emptying the float chamber of the paraffin or mixture from the main supply.

In fine, this fuel question is one of great importance, and we heartily wish success to the work of the trade and automobile societies.

AMONG THE ACCESSORIES.

The A.G. Converter.

A simple device, by means of which it is possible to run any motor cycle on paraffin has just been placed on the market, and is known as the A.G. converter. The usual petrol tank is filled with paraffin, and a small D shaped tank

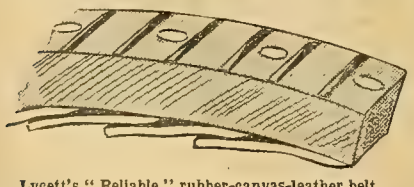


The A.G. converter in use.

is strapped to the outside. This tank contains petrol for starting purposes, and is fitted with a needle valve to regulate the supply. A short adapter is fitted between the engine and carburetter, and contains a bent tubular nozzle through which petrol and a small amount of air are allowed to pass for starting purposes, the usual carburetter forming an additional air supply. As soon as the engine has warmed up enough to enable the paraffin supply to come into action the petrol may be turned off and the heavy fuel alone used. A. Gibbs, 44, Avondale Road, Birmingham.

A Combination Rubber and Leather Belt.

Lycett's Rawido Belt Co., Bromley Street, Birmingham, have introduced a combination rubber and canvas belt called the Reliable, which is giving excellent results. The idea is that the leather tongues which are riveted separately to the rubber, slide over one another when the belt passes over the small pulley, and



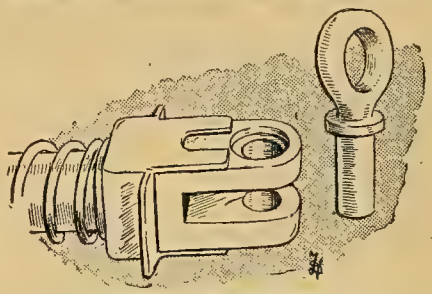
Lycett's "Reliable" rubber-canvas-leather belt.

no swelling with its consequent wear occurs at the sides of the belt. The rubber portion is shallower than the usual all rubber and canvas belt, the depth being made up by the leather tongues.

At each end of the Reliable belt are four or five fastener screws with nuts, these being in position when the belt is sent out. Drilling of holes is avoided, and a new screw is always in readiness should the old one be worn or rusty. We are informed that on a dynamometer test to destruction, this belt stood over twice as long as an ordinary rubber and canvas belt.

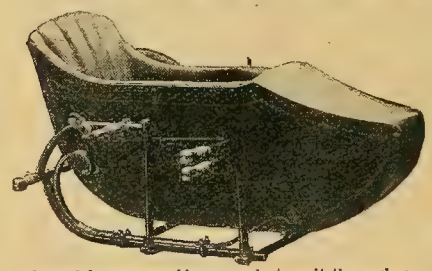
The Supreme Sidecar.

A very neat and well finished sidecar is being manufactured by the Supreme Sidecar Co. The model illustrated is specially made to suit the spring frame



The quickly detachable fittings.

Indian, and we hear that it is meeting with considerable success. The frame and fittings are all extremely soundly carried out and a quick detachable joint of a very simple and efficient type is used. This consists of a shouldered joint pin which drops into the connecting jaws



A model supreme sidecar made to suit the spring frame Indian.

and is held in position by a spring slide. To detach the sidecar it is only necessary to push back the slide and pull out the pin.

New Lodge Plugs.

Two new models of the well-known Lodge plug are now on the market. The design has undergone considerable alteration, and the insulator is now composed of unbreakable steatite welded to the central electrode and main plug body with a patent enamel on similar lines to those employed by the Mascot Co., with whom Messrs. Lodge Bros. are now amalgamated. The model C plug has several interesting features. The central electrode is constructed very heavily with the idea of conducting the heat away rapidly. The fact that the joints are perfectly gastight prevents overheating through "blow past," and owing to these features and the very short section of electrode exposed to the gases, it is claimed that the exhaust valve will cause pre-ignition before the plug.

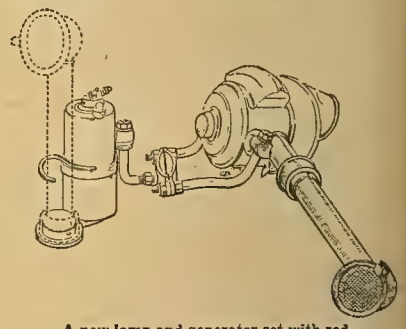
Another model is the self-cooling plug, which is manufactured on similar lines, but has a single gap, the central electrode having air-cooling ribs formed on its exposed upper end. Ribs are also turned on the body of the plug, which assist in the cooling process. It is pointed out that, though this plug is recommended for engines which work at very high temperatures, the cooling of the standard plug is good enough for practically all cases.

A new design Lodge plug has radiating fins for cooling.

Section of the new Lodge plug.

A Well-designed Rear Light Reflector.

The advantage of a tail light for night driving on any vehicle is now universally admitted, and the enormous sales of the well-known type of red reflex rear lights for cycles and motor cycles prove that the riding public are fully awake to the safety such devices afford. But such lights suffer from the disadvantage that they have to rely on the lights from an overtaking vehicle falling upon them before they give off a warning reflection, and on motor cycles, which may be ridden on a bumpy or twisty road, it is highly desirable that the rear light should be permanently burning. Evidently this feature has been appreciated by the Priory Accessories Co., Coventry, for they have just brought out an attachment fitted to a head lamp, by which this difficulty appears to have been completely overcome.



A new lamp and generator set with red warning light.

A glance at our illustration will render the nature of this attachment clear, and briefly the nature of the invention is that a tube is attached to the right-hand side of the lamp down which a ray of light is allowed to pass, and at the end of the tube is a reflector directing this ray through an ordinary red reflex type mirror. A constant light, so long as the head lamp is burning, is thus thrown to the rear, and the tube is carried far enough to the right to clear the driver. When not in use the tube is carried neatly in a special fitting attached to the generator.

OCCASIONAL COMMENTS

BY "IXION"

Waterproof Gloves.

A Canadian reader tells me that magnificent storm-proof gloves can be purchased in Winnipeg at a very low price; it is obvious that outdoor workers must require decent protection as the Canadian winter draws on, and I am sending for samples in the hopes of discovering a good line which some English maker may take up.

Toolbag Locks.

At the risk of appearing as an inveterate grumbler, I must register yet another complaint. The old strap-on toolbag has practically disappeared in favour of two small pannier bags, bolted to steel frames on the carrier, and these pannier bags are almost invariably provided with locks, as commonsense must suggest. But the locks without exaggeration represent a regular source of income for the repairer. They are extremely miniature in character, and what with the side strains imposed by the bulge of the variable size of the kit behind the flap, and the dust that infallibly enters, and the flimsy nature of the keys, and the chances of losing the keys or leaving them at home, the bags are oftener under repair than not. Can no genius invent a bag with a simple and substantial locking arrangement? The commonest trouble is the jamming of the lock by the entrance of dust. The next time a tool is wanted the key refuses to turn, and the irritated owner uses a little more wrist torque than usual, with the natural consequence that the wards of the key shear clean off. I keep four keys, and always have one in my sovereign purse, but twice this year I have had to gouge the lock off the bag with a screwdriver, because grit had jammed it, and injections of paraffin had failed to wash out the obstruction.

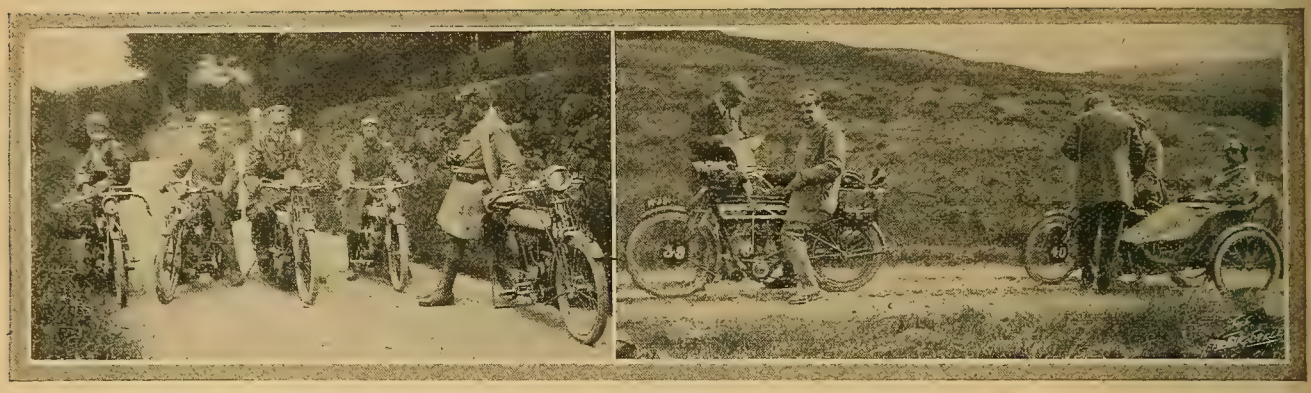
Mending a Leaky Float

Many readers, some of whom appear to puncture their floats at frequent intervals, have recommended the obvious tip of immersing the float in boiling water and tracking the hole by the bubbles. One writer says, with sense, that as soon as the hole has thus been traced and marked by a scratch, it will save time to enlarge the orifice and get the petrol out quickly. Another reader says that in repair work he expels most of the petrol by heat, and then applies a light to the last few spurts of escaping gas, when the flame indicates the hole to the eye, and marks it on the float by carbon stains. The boiling water dodge is obviously the best.

An Interesting Lubrication System.

I wonder how many motor cyclists are familiar with the lubrication system employed on the Connaught two-stroke motor bicycle. It is probably the simplest in the world, consisting merely of a small metal measure, holding $\frac{1}{16}$th of a pint; this measure is carried screwed to the draw-off tap of the oil tank, and one measure full of oil is mixed with each quart of the petrol used in the fuel tank. The oil is then sucked into the engine with the petrol (of course, the explosive mixture on this engine passes through the crank case). The lubrication thus bears exact relation to the petrol consumption, which is, of course, ideal. A Connaught enthusiast has been asking me why the same system is not applied to the standard four-stroke machine, as its advantages from the rider's point of view need no emphasising. The first difficulty lies in the fact that an engine provided with valves almost invariably possesses a side pocket, with shafts and bushes which require lubrication, and it is not certain

HILL CLIMBING EXTRAORDINARY. W. H. Carson, who, as we reported last week, climbed the Nailsworth Ladder on a 5-6 h.p. Excelsior and sidecar. This ascent is the first by a single-cylinder sidecar outfit and the third to date. The approximate length of the hill is said to be 300 yards, and the gradient from 1 in 4 to 1 in 2. The gear was 13 to 1.



SCOTTISH SIX DAYS TRIALS. OUTSIDE THE KIRKMICHAEL CONTROL.

R. S. Macrae (3½ h.p. L.M.C.), G. C. Proctor (3½ h.p. Singer), L. E. Cass (6 h.p. Trump-Jap), W. B. Gibb (2¾ Douglas), and J. G. Beveridge (3½ h.p. Rudge Multi).

G. C. Proctor (3½ h.p. Singer) and A. B. Wade (8 h.p. New Imperial sidecar) signing in at the Amulree check.

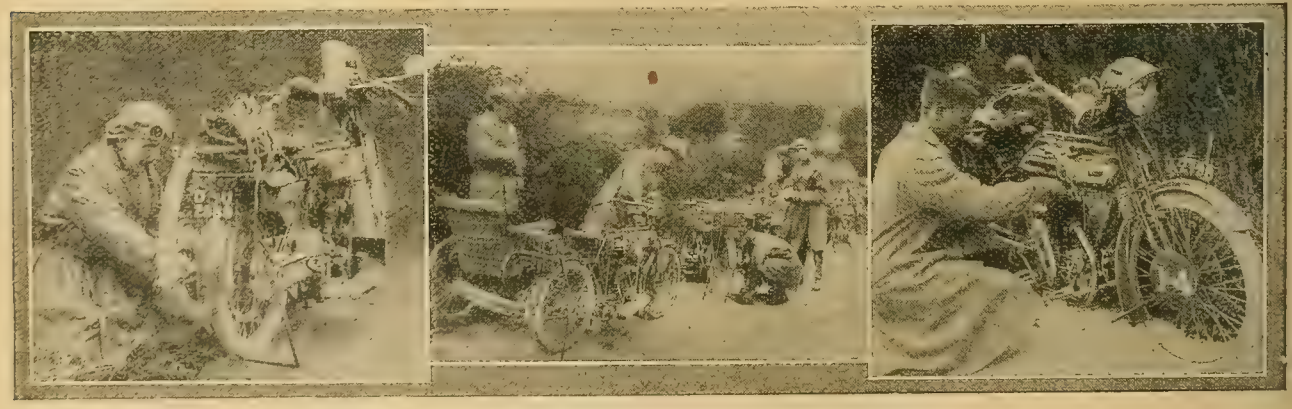
that an oil fog would wander out into a timing gear case with sufficiently dogged penetration to enter the narrow clearances between the pinion spindles and bushes (for the liquid oil, it must be remembered, is introduced by holes drilled towards the centres of the shafts). A further difficulty lies in the fact that the pressure on the bearings of a high efficiency four-stroke engine is extraordinarily heavy, and is intermittent; but in the case of a two-stroke engine the explosion stresses never touch so high a maximum, and are practically constant in character. It is, of course, possible that this simple system might be applied to a four-stroke engine, but I do not feel certain that the connecting rod and crankshaft bearings would receive an adequate supply of oil when the engine was working really hard; and I rather suspect that the timing gear case might have to be shut off from the crank case and lubricated by liquid oil, fed through a plug at its highest point. This could easily be arranged to last for very long distances if the cover were made genuinely oil-tight. If my memory is not at fault, I fancy that one of the old brigade used to feed his lubricant through the carburetter on a prehistoric Clement-Garrard of 1¼ h.p. If he did, the experiment does not afford sufficient data for dogmatising about the modern ultra-efficient 500 c.c. engine. It would be interesting to hear from any practical engineer who has made experiments with the system, and from any theorist who perceives possibilities or impossibilities in it. Personally, I do not believe that this or any other modification of the present system can long delay the universal adoption of mechanical oiling. Will any Connaught users tell us whether the system makes it necessary to clean out the carburetter oftener than is customary with ordinary machines?

Starting T.T. Models.

Yet once again have I taken delivery of a T.T. model which is frightfully difficult to start. The difficulty depends on two factors: the first is the tightness of a new engine in all its parts—this will disappear as the engine gets run in—and the other is the carburetter adjustment, which is planned to supply a perfect mixture at high speeds, whereas the touring carburetters are adjusted on a system of compromise.

It is real work to get it going. My complaint is to the effect that a simple shutter on the main air supply would render this machine as docile in starting as any touring model; such a shutter could be operated by a small knob on the carburetter itself, and would not increase the manufacturing cost by sixpence.

Every racing carburetter should possess one of these simple fitments; in fact, while there are always novices with us, I regard shutters as rather desirable adjuncts to the standard touring carburetter. They make it possible to start a very gummy engine at the first push, and cancel the handicap of air leaks.



EFFECTING ADJUSTMENTS WHILE WAITING OUTSIDE A CONTROL.

(1) C. H. Ingall and his Lea Francis. (2) Scene outside Evarton check. (3) D. H. Noble at work on his 3½ h.p. Rover.

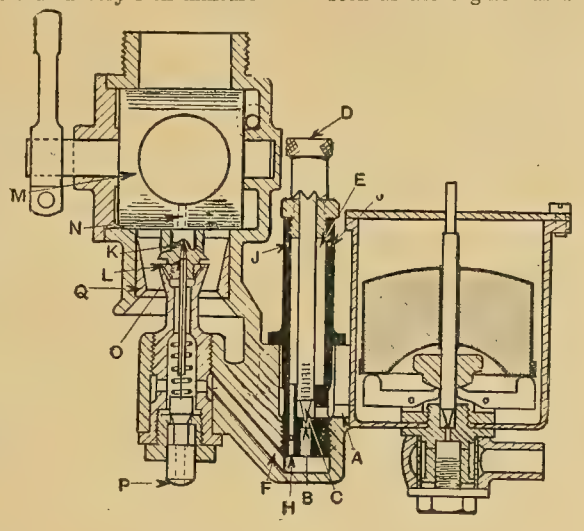
A STUDY IN CARBURETTER DESIGN.

Three New Carburetters possessing Automatic Air Supply.

THE LATEST LONGUEMARE WITH VARIABLE JET.

As we mentioned in our report, the winner of the 350 c.c. class in the Grand Prix, G. Fenton (Clement), used one of the new automatic Longuemare carburetters, with adjustable jet opening. We have obtained a sketch and particulars of this device from Messrs. E. J. Hardy and Co., Queen Victoria Road, Coventry, who are the sole agents in this country. The first Frenchman to complete the course in the 500 c.c. class, Perrin (Peugeot), also used one of these devices. The carburetter is an adaptation for motor cycle use of the F. B. Longuemare car carburetter.

The carburetter is so constructed that a very rich mixture is given automatically every time when the engine is doing real hard work, such as accelerating or pulling slowly uphill. When running at high speed the mixture automatically becomes of a lighter nature, and the carburetter is therefore highly economical. This result is obtained by a reserve chamber which automatically fills and empties itself of petrol under the varying conditions. The details will be followed by referring to the annexed drawing.



The float chamber, which is of the ordinary toggle lever pattern, connects to the reserve chamber by the canal A, and the spirit flows from the bottom of the reserve chamber through the canal B. The amount of petrol which passes through B is regulated by the needle valve C, which can be adjusted by the milled thumbscrew D, and this adjustment can be altered by the rider from the saddle. The reserve chamber E is connected with the bottom canal F by a small diameter passage H. The petrol thus flows from the float chamber through A and B into F and rises in the reserve chamber through H, the displaced air in the reserve chamber passing through the small port J.

In the vaporising chamber there is a pilot jet K and a series of jets L. The jets L are somewhat similar to the old type Longuemare carburetter so familiar to old motor cyclists, except that they are of larger diameter than is really necessary, and will thus pass whatever amount of petrol flows past the regulating needle D. The throttle is of the barrel type, and when in the closed position as shown, a small hole N is situated exactly over the pilot jet K.

When the engine is started up the throttle should be in the closed position, and the engine will revolve very slowly upon the petrol drawn solely from the pilot jet. When running slowly, less petrol is required than will be supplied by the passage B, consequently the petrol in the reserve chamber is not touched. Immediately, however, that the throttle is opened, the ordinary jets L will come into action and the engine will then require more petrol than will pass through the canal B. It consequently begins to draw on the reserve through the passage H, and from there it obtains the rich mixture which is necessary for quick acceleration. As soon as the engine has accelerated, the reserve chamber will become exhausted, and then air will commence to flow through the port J into the reserve chamber, and from there through the passage H into the canal F. In this manner the petrol is aerated before it reaches the vaporising chamber, and consequently a very economical mixture is produced for high speeds. This continues so long as the high speed is maintained. As soon, however, as a hill is encountered and the engine revolutions decrease, then automatically the reserve will fill up, and the supply of air from the reserve chamber will cease, and once more a richer mixture is produced suitable for the harder work. An ingenious device is fitted to overcome any stoppage in the pilot jet. A very fine wire O runs through the centre of the pilot jet, and should any obstruction take place, owing to dirt, all that is necessary is to press the spring plunger P, when the pilot jet will be automatically cleaned. A choke tube Q is fitted round the jets and varying sizes of choke tubes are supplied, so that the best adjustment to suit various sized engines may be obtained. The throttle is actuated by a small lever which can be connected by a Bowden wire to the usual handle-bar control, being returned to its closed position by a spring.

Greame Fenton, after the race, said that his success was largely due to the Longuemare carburetter, which enabled him to get a rich mixture for starting from cold in the chilly early morning, and this was demonstrated by the manner he obtained a substantial lead in the early portion of the race.

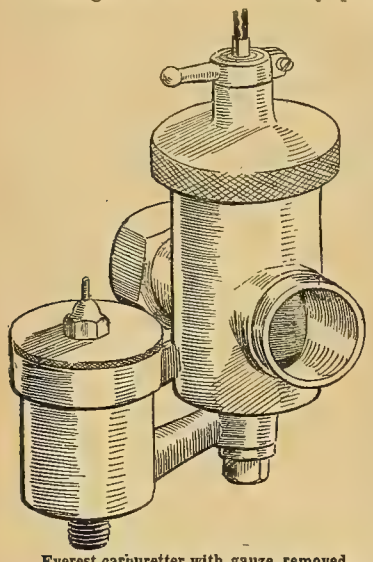
THE EVEREST AUTOMATIC CARBURETTER.

WHEN dealing with the various machines entered for the Scottish Six Days' Trials, we mentioned the fact that one of the Lea-Francis machines was fitted with a new automatic carburetter. By permission of Mr. Everest, of the Maudslay Motor Co., we are now able to describe and illustrate the device which, as before stated, is a modification of the carburetter used with great success on Maudslay cars. The petrol enters through a float chamber of the usual type which calls for no special comment. It is then led to the base of a tall vertical jet member A, which is drilled with a number of horizontal jets to suit the requirements of the engine. This jet member has a flat on either side, and is covered by a saddle piece B, having a spring section C let in on the flat opposite to that on which the jets are drilled, which holds the saddle up to its work and prevents leakage from the jets still covered. The petrol level is slightly below the lowest jet, so that no liquid can flow over. The saddle piece is capable of being raised by means of a Bowden wire, and is cast with two projecting arms D, one of which is clearly visible in our illustration. These arms engage with the under-side of a ring cast in the throttle barrel E, and thus the throttle is raised with the saddle piece, both being returned to the shut position by the spring.

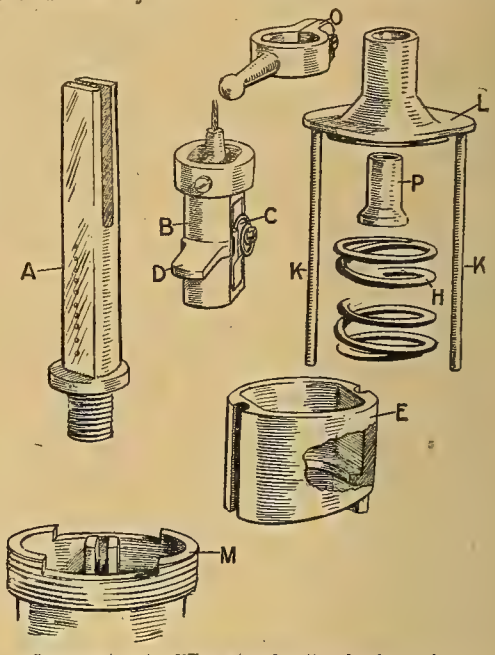
The Method of Working.

The principle on which the carburetter works may now easily be followed, for it will be seen that when the saddle-piece is raised a jet is uncovered and the throttle and air partly opened by the same movement. As the throttle is further opened more jets are uncovered and more air allowed to pass, thus by spacing and proportioning the jets correctly a steady flow of correctly proportioned mixture is obtained at all speeds. For obtaining the correct air supply a very simple and accessible device has been introduced. It will be seen that two grooves are cut in the outer

periphery of the throttle barrel E; into these grooves fit the two prongs K of the flange-shaped top L. The arms of this flange lie in the cut away portions of the top of the carburetter body M, and by means of the lever O may be partially rotated, thus altering the position of the lower profiled face of E in relation to the main air orifice. If a specially strong mixture be desired the throttle barrel may be reversed, thus bringing the profiled face opposite the gas outlet port and the plain face opposite the air inlet. The nipple P fits over the top of the jet member and forms the take-off for the Bowden cable. All parts of the carburetter are very accessible and simple, and, if necessary, can be handled and cleaned by the merest novice. A pilot jet, having an outlet above the saddle piece and being cut out of action as soon as the main jets come into play, is a refinement which will be fitted to future models. The nipple P and the flange top L are both formed with conical faces, which effectually prevent air leakages, and a special inlet pipe fixing will be supplied to prevent leakage at the carburetter joint.



Everest carburetter with gauze removed, showing profiled back of throttle barrel by means of which the air adjustment is obtained.

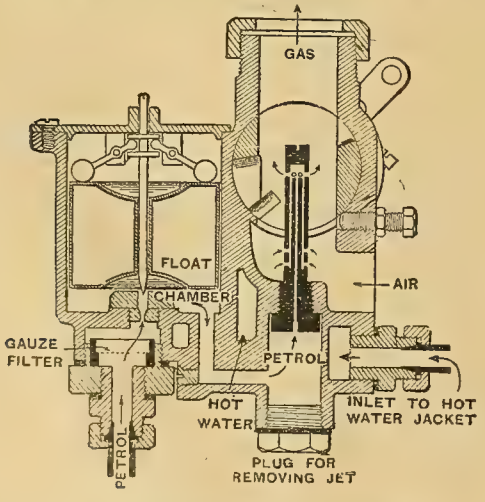


Component parts of Everest carburetter showing curious arrangement of jets.

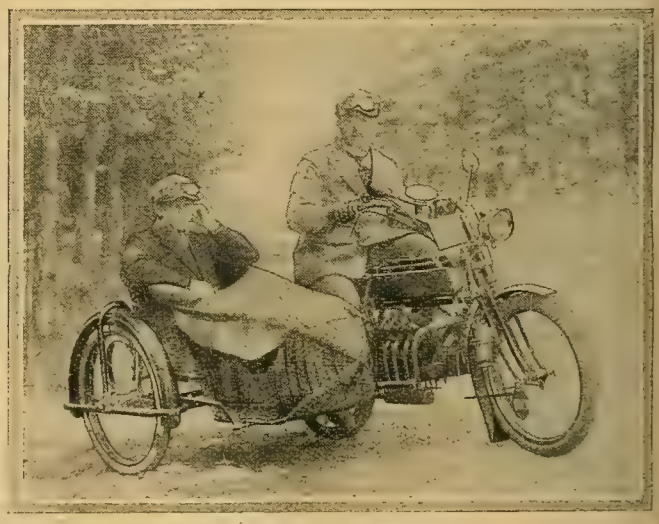
THE CLAUDEL AUTOMATIC CARBURETTER.

PROBABLY no man has devoted so much time and attention, with such marked success resulting from his efforts, to the question of carburation as M. Claudel. His status in the carburetter world is shown by the fact that out of the twenty starters for the recent car Grand Prix all the French and English cars were fitted with this firm's device for their gas supply, and for two years in succession the winners of this race have successfully relied on M. Claudel in this department. Fuel economy, combined with power, is the ideal in carburation, and, at all events, in fitting his instruments to cars, the inventor has abundantly proved that he can reach the ideal indicated. Now a new model carburetter by M. Claudel is being put on the market specially designed for motor cycles and cycle cars. This is marketed in three types for different sized engines. It is automatic in its action, and is entirely devoid of any devices or complications for adding extra air at high speeds, or to give alterations to the jet. A feature of the carburetter is the provision of a hot water warming jacket, which can be used when fitted to a water-cooled engine. The water can be turned on and off by a tap as the temperature demands.

A glance at our sketch reveals very clearly the general principles of this carburetter, which approaches very nearly to the ideal of simplicity, a jet in a tube. This carburetter is claimed to be so automatic in its action that it is quite independent of barometric differences, because the whole action of the carburetter is governed by the amount of air entering, and the amount of air which can enter is governed by the requirements of the motor at the moment of admission. Therefore, it is impossible to upset the mixture by the admission of two much or too little air. This carburetter is sold by H. M. Hobson, Ltd., 29, Vauxhall Bridge Road, London, S.W.



The Claudel motor cycle and cycle car carburetter.



THE SIDECAR IN BELGIUM.

Messrs. J. W. Meier and H. C. Coates of Brussels touring on their four-cylinder F.N. with Millford sidecar. M. Meier is the manager of the Hotel de la Poste and is an enthusiastic reader of this journal.

Scottish Six Days Reliability Trials

A description and photographs of the first day's run appeared in our last issue. (See pages 965-8).

SECOND DAY.—Inverness, Dingwall, Bonar Bridge, Lairg, Tongue, Bettyhill, Thurso. 140 miles.

Everyone was glad of the late start this morning from Inverness, and at 9.30 in beautiful weather the first man was sent off. After the rough going yesterday, which Sam Wright described as the worst for passenger vehicles he had ever experienced in any trial, it was delightful to bowl along over almost perfect roads for the first forty miles to Bonar Bridge. Very pot-holey surface followed to Lairg, where the lunch control was situated. All fittings and accessories are being put to a tremendous test by the road shocks, but, despite the hardness of the trial up to the present, everyone agrees that it is most sporting, and the officials manage everything splendidly.

Although the morning's run was quite uneventful, and, in fact, just a pleasant trip over sixty miles of perfect roads, everyone had a rude shock when a move was made after lunch towards Thurso, some eighty miles distant. The easy nature of the morning's run, combined with the lovely weather, had raised the riders' spirits after the almost indescribable nightmare of the first day's run. But in some ways this afternoon's run has proved even worse than yesterday's, and a formidable list of casualties has been the result of a passage over roads so bad that it was a real physical strain to sit one's machine at all. All who arrived at Thurso were dead tired, and a good deal of grumbling was heard among the English entrants at being asked to take their machines over such villainous surfaces as we have had to traverse this afternoon. All the same, the contention of the officials, that a machine that will not stand this treatment is no good for Scotland, has a lot of reason behind it, and the jolly sporting go-as-you-please nature of these trials almost makes a pleasure of the toil.

Almost immediately after leaving Lairg we found ourselves literally pitching and rolling on a horrible loose stony track, which continued, partly bad, partly execrable, to within fourteen miles of Thurso, where we were treated to a perfectly straight level road, upon which a miniature T.T. was straightway held, everyone being delighted to be able to open the throttle and let the motor roar for a short burst.

F. L. Bassett (2¾ h.p. Sun-Villiers). Observe the method of carrying a spare tyre. Several competitors deemed it necessary to carry spare covers during the trials.

No one who went over it will readily forget the horrors of the switchback road from Lairg to Altnaharra. Great flinty boulders strewed the path, and every now and then we struck a piece of road under repair, which meant perhaps 300 to 400 yards over huge unrolled granite, the worst feature being that the repaired surface was always at least eight or ten inches above the rest of the roadway. One simply had to charge the obstruction, grip the bars fiercely, and crash over the obstruction in a series of terrific wobbles, amid the cheers of the road-menders.

Lots of falls naturally occurred, and some of them were serious. G. A. Lovegrove, on a Raglan, had a bad toss and was discovered by an official in a dazed condition. It is believed that he has broken a rib, but details are meagre at the time of writing. His smash occurred near Altnaharra. Hands broke the frame of the sidecar on his Williamson and had to take his passenger into Thurso, some twenty miles, on the carrier of his machine, but he told us at dinner he intends to continue solo if the judges will allow him to do so. Ingall riding a Lea-Francis suffered a bad fall. His front wheel got into a deep rut on the road near Borgie after leaving the Tongue check, and he was thrown heavily, damaging his knee, and had to be brought in on the official car. Edmond, on the 2¾ Humber, broke his spring forks on one of the ridges where road repairing was going on near Bettyhill, and Cyril Walden had to be towed in, as the flywheels of his twin Premier came adrift. Pollock, driving a 600 c.c. single-cylinder James and sidecar, was put out of action between Altnaharra and Tongue. An eye witness told us that his tyre burst and the driving wheel collapsed, while the steering gear on the Summers and Harding cycle car snapped, and the vehicle ran into the ditch and was disabled. Early in the

LEA FRANCIS TEAM.—C. H. Ingall, N. W. Downie, and G. I. Francis.

MATCHLESS TEAM.—R. E. Guest (8 h.p. and sidecar), J. A. Hoult (3½ h.p. twin), and C. R. Collier (8 h.p. and sidecar.)

Great interest has been taken in the trial all along the route. Our photographs show how competitors have had to ride through lines of spectators in many of the large towns.

day a curious accident occurred as Westwood and Meredith, riding Nos. 1 and 2, on a Triumph and Bradbury respectively, collided through their front wheels getting into ruts, and Westwood had to retire owing to his front wheel being smashed. It is also said that the back wheel of Bell's A.J.S. collapsed on the first day at Amulree, causing his retirement. We have just been informed by Hands that the judges have refused to allow him to continue solo on the Williamson, so he is getting the village blacksmith to see if he can brace up the broken sidecar frame in order to keep going.

The Unseen Scenery.

There is little doubt that the roads we have covered up to date are not a fair test for motor cycles unless ridden at an average speed of under 20 m.p.h. The writer got his Matchless through all safely, except that the front fork spring suffered, and the clutch on the hub gear gave out. But we can certainly say from our own experience that the strain of driving is terrible when one has to grip the bars tightly for hour after hour on end, and keep one's eyes glued to the road the whole time. We are informed that we passed through scenery of unparalleled splendour, but no one had the remotest chance of seeing it. The only view was millions of loose stones on a rutty potholey road.

C. R. Collier stated very definitely tonight that he would absolutely refuse to ride again in these trials unless better roads were selected. The gradients to-day were contemptible, but we would rather go on climbing Porlock all day than bounce and ricochet over the abominations miscalled roads we have been over during the last forty-eight hours.

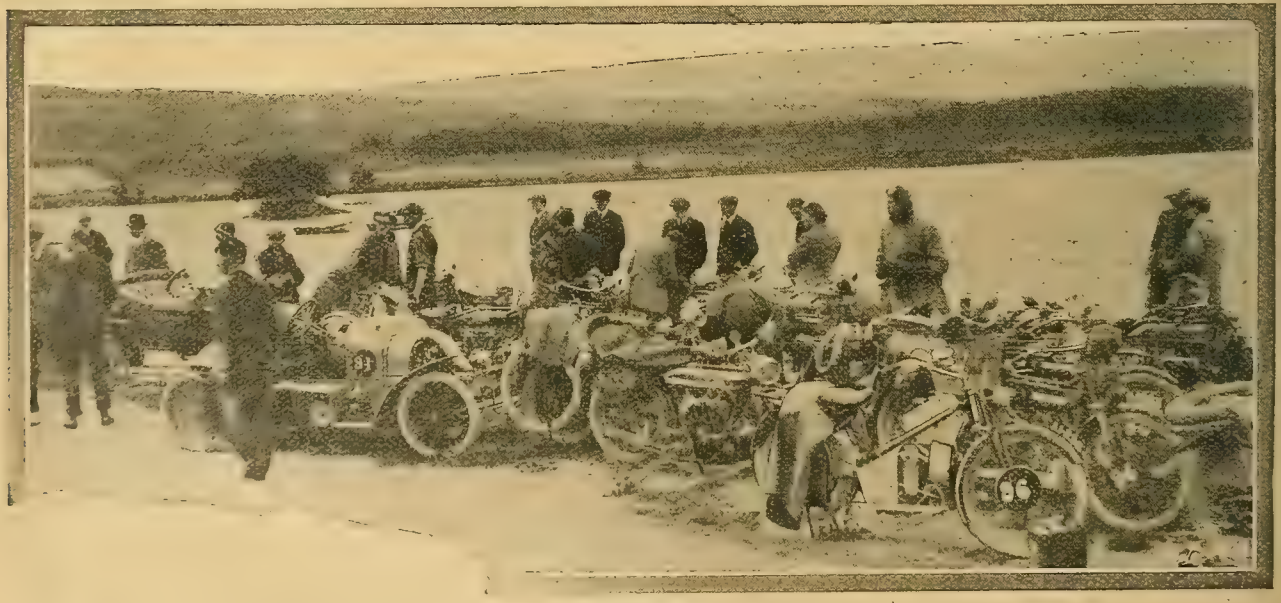
The Lady Riders.

The ladies acquitted themselves splendidly, though the strain of driving must have been very severe. Miss Hammett (Douglas) has shown herself to be a most dashing rider, while Mrs. Hardee (P. and M.) and Mrs. Baxter (Rex) keep slogging along in a most determined manner. Just after passing Tongue this afternoon we came suddenly upon a very sharp hairpin on quite a respectable gradient, so acute, in fact, that several riders missed the turn, but Mrs. Baxter made a particularly good climb, although her heavy machine with open frame cannot be an easy handful for a lady to manage as a solo mount.

Not so good as Whiskey.

The dust has been appalling, and we, in company with many others, have suffered from throat soreness from hours of swallowing bits of pulverised granite—not a pleasant beverage.

The officials are a cheery lot, and give us all the help they can, and profess to pooh-pooh the difficulties of the road, but the mere list of casualties show that this trial is something far in excess of English Six Days so far as difficulties are concerned.



Picturesque scene at the luncheon stop at Lairg.

C. M. Keiller (G.W.K.) overtaking one of "The Motor Cycle" representatives during the long ascent of Applegill Hill.

One thing stands out prominently; that is, that anyone who gets a machine through at all has performed a very fine feat, and any manufacturer who can put a successful team through this test is a constructor of great merit, and fully deserves every bit of prestige with which such a performance invests him, and Southerners must cover these roads themselves at an average of twenty miles an hour to form an adequate idea of their severity.

The following retired on the second day: Ingall (Lea-Francis), C. H. Walden (Premier), W. H. Hands (Williamson), Thompson (Kynoch), Pollock (James), Edmond (2¾ h.p. Humber), and Lovegrove (Raglan).

The following lost marks: G. I. Francis (Lea-Francis), Mellor Jameson (3 h.p. Enfield), Tom Knowles (3½ Humber), Selous-Jones (Douglas), and G. C. Proctor. Laker (3¾ h.p. Elswick) and Busby (Ariel) returned no cards.

THIRD DAY.—Thurso, John-o'-Groat's, Wick, Berriedale, Helmsdale, Lairg. Bonar Bridge, Dingwall, Strathpeffer. 146 miles.

An absolutely perfect summer morning, developing into a blazing day, perfect roads and gorgeous scenery, has been our lot to-day. If yesterday was a nightmare, to-day has been a dream, for anything more magnificent than our trip could not be imagined. The scenery beggars description, and the southerners discovered that Scotland *has* roads, a belief that was almost shattered yesterday. At 8.30 we drew out of the little northern town Thurso, and sped along to John-o'Groat's, where there was a check and a fifteen minutes' halt, and then on by the coast road over part of the familiar End-to-end road. Despite the perfect going trouble was encountered quite early, for we passed F. L. Bassett (2¾ Sun-Villiers) stranded. His flywheels, it seemed, had come right adrift five miles north of Wick, while at Helmsdale, Downie (Lea-Francis) suffered engine trouble and had to withdraw. Mention of this make reminds us that Ingall left by train for the south from Thurso this morning, looking very shaky after his heavy fall yesterday. His Lea-Francis was in perfect running order, as we had ocular demonstration. It is a pity that these interesting machines have had such bad luck, but yesterday's run subjected every machine, and every rider as well, to a terriffic bucketing. It now transpires that Lovegrove, who was thrown heavily yesterday from his Raglan, has not broken a rib, but his side is very badly bruised.

Berriedale Easily Ascended.

Berriedale was taken from the easy side and everyone roared up—the surface being excellent. In fact, the going all the way through Brora, Golspie, and on to lunch at Lairg, where we stopped yesterday for the same purpose, was perfect, and everyone thoroughly enjoyed scorching along at high speed. The dust was a nuisance, but no one minded that—the relief of being able to travel without clutching one's bars was worth a Sahara sandstorm. There was not a hill on the course to-day worth noting, Dunbeath being the worst, as it contained a bad corner with a sharp right bend, and here we watched the cornering methods of some of the riders. Some came round quite easily without effort, others scraped round, while a few nearly "conked" to a standstill. The following solo riders all made good climbs, Meredith (Bradbury), Harrison (Swift), Downie (6 A.J.S.), Fletcher (Douglas), Tessier (5-6 Bat), Featherstonhaugh (Rover), Colliver (7 Indian), Newsome (Rover), Chisholm (Ariel), Mrs. Baxter (6 Rex), McCreadie (Sunbeam), Hugh Gibson (Bradbury sc.), and two Chater-Lea riders.

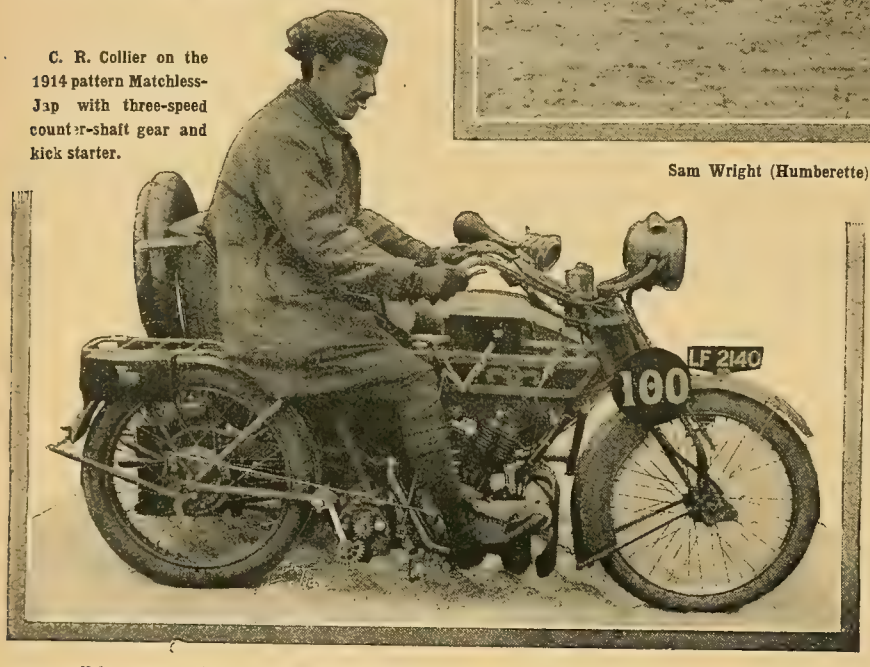
Punctures and bursts have been almost universal. Mellor Jameson (3 Enfield) had two stops this morning, and the

A. B. Wade (8 h.p. New Imperial sidecar) climbing Applegill Hill.

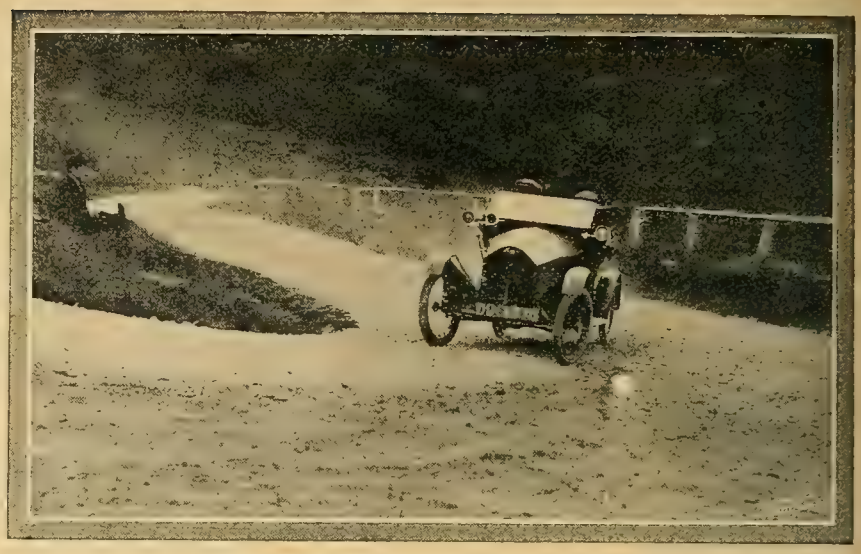
second time found four punctures in a cluster near the valve, and had to ride two miles on the rim before he reached water in which to test his tube, whil Keiller wrenched one of the tyres off his G.W.K. on Dunbeath Hill, and after replacing it got a puncture. It is really a great testimony to the excellence of the tyres that they have stood up as well as they have done, but we have not been much struck by the behaviour of the ultra-large covers, for they seem prone to roll and bounce excessively on the rough roads.

Flints and Punctures.

The main North Road from John-o'-Groat's, while being of infinitely superior surface to any yet covered, was particularly flinty, this sharp material being



C. R. Collier on the 1914 pattern Matchless-Jap with three-speed counter-shaft gear and kick starter.



Sam Wright (Humberette) rounding the Devil's Elbow.

responsible for most of the trouble. Probably the unluckiest rider in this respect was Graham Taylor (3½ h.p. Rudge), who had no less than five punctures. These occurred, however, in the long checks, and he was able to repair and maintain his schedule. Shortly after leaving Thurso we passed D. H. Noble (Rover), who was troubled with his plug. This did not, however, cause him much delay, as he passed us later, travelling at a good speed.

Clouds of Dust.

The majority arrived at John-o'-Groat's well ahead of time, and seized the opportunity of doing a few adjustments. Hal Harrison (Swift) punctured when near the control, but arrived to time. J. H. Begg (3½ h.p. Rudge) was rather unfortunate, taking an awkward toss near John-o'-Groat's. The only member of the Downie family to escape trouble was A. U. R., his two brothers both being delayed—N. W., as previously mentioned, with engine trouble, and A. F. with two punctures.

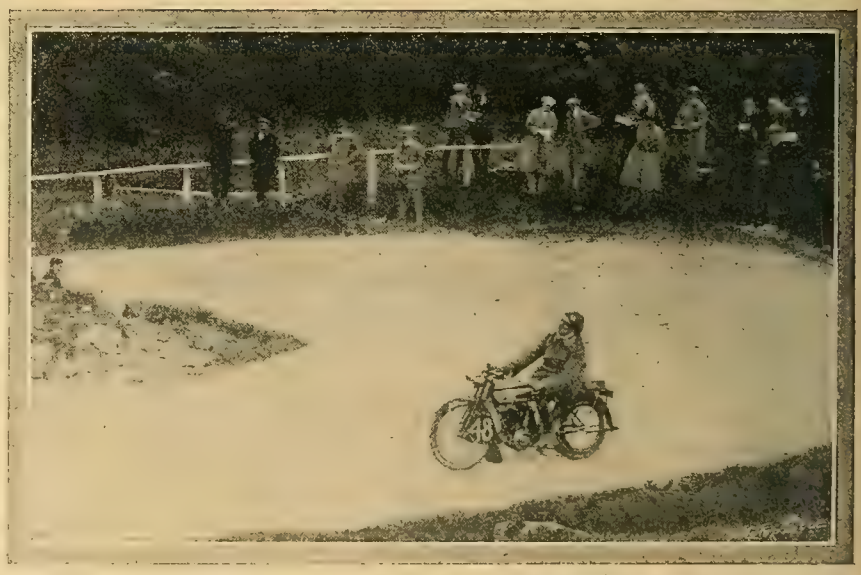
Near Dingwall this evening we came across about three hundred yards of road some four inches deep in loose floury dust, and front wheel skids were common, while the whole countryside was obscured by a dense cloud, and to make matters worse a car dashed by at the same moment.

The smaller machines are doing splendidly, and the Gnome-like beat of the Douglases when all out on low gear seems to impress the natives. The energy and courtesy of the officials cannot be too highly praised, and there is a feeling and spirit of *bon camaraderie* between competitors and officials that makes these trials a jolly trip, in spite of the hard work incurred.

The following have retired to-day: N. W. Downie (Lea-Francis), E. L. Bassett (Sun-Villiers), J. F. Selous Jones (Douglas), and S. Tubb (3½ Humber).

The following have lost marks: J. Cocker (3½ Singer), G. A. Gregson (5-6 Bat), B. Alan Hill (7 Indian), H. Mellor Jameson (3 Enfield), and P. D. Walker (10 Summers and Harding c.c.).

Seventy-six riders are still left in.



George Brough (6 h.p. Brough) on the Devil's Elbow. The performance of George Brough riding a single-geared machine on some of the steepest hills in the Scottish Trials has proved an eye-opener to many. He is seen above on the second bend of the Devil's Elbow.

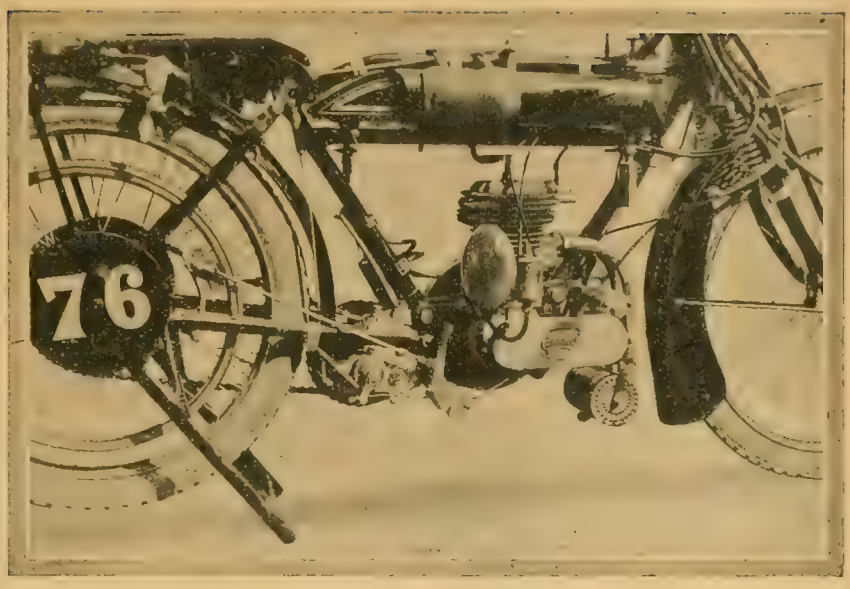
FOURTH DAY.—Strathpeffer, Kinlochewe. Achnashellach, Lochcarron, Tornapress, Applecross, Tornapress, Lochcarron, Achnasheen, Garve, Strathpeffer. 137 miles.

Perfectly magnificent weather has been our lot to-day; in fact, it has been one of the hottest days we have had this year. A great many competitors had got in last night with their tyres in a more or less precarious condition, and there was a regular tyre-changing competition against time in the official garage before to-day's start. Sidecar drivers suffered most, and one of the first we saw was Guest inserting a new tube in his three-inch Palmer cord on the Matchless sidecar. He got a huge nail like a bolt through yesterday, and had a good deal of difficulty in getting it out, and evidently he was not satisfied with his repair of yesterday, as he put in a new tube this morning. Selous Jones turned up on his Douglas, but he was officially declared out of the running yesterday, as he broke a cone in his back wheel—a most unusual and unlikely accident to any machine. G. Taylor and J. G. Beveridge, both on 3½ Rudge-multis fitted new back covers, and G. T. Gray put a new belt on his long stroke 5 Rudge. He explained to us that he was running in three or four belts in readiness for the English Six Days' Trials next month.

The Ladies Assist.

Mrs. Morgan and Mrs. J. R. Alexander were both working as hard as Grand Prix mechanics, assisting their respective drivers to change the big three-inch tyres on the back wheels of their Morgan and Williamson sidecar respectively, and the cheery way the ladies accept and help to overcome troubles makes us mere men feel rather small. We confess we do not like the trouble of even shortening a belt, but taking out back wheels from chain-driven machines seems quite a little morning diversion to some of the fair sex taking part in the trials.

A good many engines are very gummy in the mornings, probably due to over-oiling. Brough's single gear 6 Brough



NEW MACHINES IN THE SCOTTISH TRIALS.
The two-stroke Connaught engine, also showing new carburetter and G. H. gear with chain drive.

is really a remarkable machine. It starts with almost the ease of a lightweight, and nothing in the way of hills seems to worry it o rthe driver. Sam Wright's Humberette has run very well up to half-way, and so far neither he nor the two G.W.K.'s driven by Keiller and Wood have lost any marks. The two Morgans have clean sheets up to half-way, except that one of Blackburn's checking cards is said to be incomplete for Monday's run. The cycle cars, therefore, have done extremely well so far, and although it lost forty-four marks up to Wednesday night, the Summers and Harding cycle car is still getting along gamely. The Gordon cycle car, except for an incomplete checking card, has lost no marks up to half-time. By the way, this machine turned up and started with trade numbers, but has since attached private registration numbers as well. It is a curious looking machine, but we can personally testify as to its speed, for we followed it for some miles over a horrible road on Tuesday, and rather envied the occupants, for it seemed to hold the road well.

A Curious Experience.

H. Thompson has turned up to-day with his 3½ h.p. Kynoch, and a remarkable tale to tell. It seems that by some means part of a tappet got into his engine, and he had to take the whole engine to pieces outside Thurso, miles from anywhere. He spent all yesterday doing this, and eventually slept on the mountain side, where he was eventually discovered by a local doctor, who is a motor cyclist, and who took in the unfortunate Thompson, repaired his engine, and generally played the part of good Samaritan. One of the things that

TWO VIEWS OF THE SAME BEND AT THE MOST NORTH-WESTERLY POINT OF THE TRIAL.
R. S. Morrison (Bat sidecar) on the hairpin outside Tongue. Douglas, A.J.S., and Lea Francis riders on the same corner.

Scottish Six Days' Trials.—

strike one most forcibly is the extreme kindliness and hospitality of these northern Scots, nothing being too much trouble for them when the recipient of their kindness is some unfortunate stranded motor cyclist. One sportsman has hired a car specially to start after the last competitor and drive round with the sole intention of rendering assistance to any stranded victim of the Trials he may come across. He brought in Nott to-day after his collision with a level crossing gate to which we refer later on.

Fine Scenery.

From the scenic standpoint nothing could be finer than that of to-day, and the majority of the competitors wished that they had had more time to study the beauties of the Western Highlands. Twenty miles per hour does not appear a great speed, but to average this over the roads of to-day's route required careful driving on the corners and very fast scorching on the favourable stretches. Up to the first check at Achnasheen the surface was fairly good, although loose in places. Thereafter it deteriorated very much, and up the hill to Applecross it was frightful, large stones and loose gravel causing the competitors a great deal of uneasiness, and rendering the steering of the machines a matter of great difficulty.

The easy nature of the road to Achnasheen is easily estimated from the fact that all the riders arrived here with plenty of time to spare, and employed this in making adjustments to their mounts. One or two suffered from tyre trouble, and we passed A. F. Downie (6 h.p. A.J.S.) with his back tyre off. After having twice had tyre troubles yesterday it was rather hard luck to have to repair immediately after the start to-day. T. A. McCreadie (2¾ Sunbeam) was even more unfortunate, getting into a rut and coming a nasty cropper, and buckling his front wheel and frame. He luckily was able to get this repaired at a blacksmith's near at hand, and resumed his journey, only to meet with further trouble later. The tumble had evidently cracked his handlebar, since he had not proceeded very far before that part of the bar containing the control levers came adrift entirely, making the driving of the machine anything but an easy matter, and he wisely decided to retire.

Applecross Climb.

Discussion amongst the riders, of course, centred in the ascent of Applecross, and at the various checks before this point the talk was entirely on this new introduction in the way of hills. Leaving Jeantown, the road strikes due west over the hills, after which there is a long descent into Tornapress, whence the dreaded ascent begins. At first this appeared not appreciably steep, but gradually winding round the hillside, the road can be seen disappearing in the distance between two precipitous crags. It is at this point that the various hairpin bends occur, and coming as they do after the long climb, the engines are very much inclined to conk badly.

The most difficult bend to negotiate was the first, and many of the cycle cars had to reverse to get round. We observed most of the competitors here, and, although the majority got round, a great many nearly came to grief. The sidecars being, of course, on three wheels had an advantage over the single trackers, and, using low gear, made quite good performances. Special mention must be made of Hugh Gibson and his 3½ h.p. Bradbury sidecar, the manner in which he came up to the bend and got round exciting the applause of the few observers. Unlike what might be expected of a single-cylinder with sidecar attached, this combination possesses a very fine turn of speed, and climbed the long gradient to the bend at an excellent pace. G. L. Fletcher (2¾ h.p. Douglas) got round beautifully, picking up the whole way. Mrs. Baxter was unlucky, coming to grief. She, however, restarted and got away well. C. M. Keiller (G.W.K.) reversed into the corner, but started quite easily. J. F. Morrison (2¾ h.p. Douglas) failed, as also did J. H. Begg (3½ h.p. Rudge-multi), who cannot obtain a low enough gear for corner work. W. B. Gibb (2¾ h.p. Douglas) was in trouble all day with his ignition, and stopped on the hill, getting away after some delay. C. R. Collier (8 h.p. Matchless sc.) seemed to have a great reserve of power, since after rounding the bend he went away at a fine pace.

Good Ascents.

The following were all good: S. J. K. Thomson (7-8 Bat sc.), J. Chater-Lea (8 Chater-Lea sc.), A. U. R. Downie (2¾ A.J.S.), Rev. R. M. Banks-Jones (P and M), G. Brough (6 Brough), F. C. North (Ariel), B. A. Hill (7 Indian), Mrs. Hardee (P and M), J. B. Roberston (Douglas), G. T. Gray (5 Rudge), H. F. S. Morgan (Morgan cycle car), and Miss Hammett (Douglas). P. D. Walker (Summers and Harding cycle car) took the bend too close in and charged the bank, buckling his front wheel and finishing his chances. Although officially retired, Lionel Martin (Singer cycle car) is still taking a keen interest in the event. The splendid hill-climbing ability of his little car was well tested.

Accidents.

G. Nott (6 h.p. Clyno sc.) was unfortunate enough to run into a level-crossing shortly after the start, where the road takes a complete S bend across the rails. It would have been advisable had the committee placed a warning sign at this point, since there appeared to be only the ordinary warning triangle erected.

D. S. Alexander (8 h.p. Williamson sc.) nearly ran into the closed gates of this same crossing, only pulling up with his front wheel touching the bars.

Graham Taylor fell over the edge of the precipice coming down Applecross and damaged his front wheel.

Lunch was served on the seashore at Applecross in blazing sunshine, and a large number of riders spent half an hour paddling and catching limpets while their engines cooled themselves preparatory to the return climb. The run back was uneventful, but everyone was behind time more or less. And for once in a way the whole crowd was unanimous on one point—they had come across a *real* hill that afternoon. Applecross is more than a hill—it is a precipice.

The following retired to-day: T. A. M'Creadie (Sunbeam), G. A. Gregson (5-6 Bat), J. D. Beveridge (3½ Rudge), G. Nott (6 Clyno sc.), G. Taylor (3½ Rudge), T. Finlay (4 James sc.), and P. D. Walker (Summers and Harding c.c.).

The following lost marks: W. B. Gibb (Douglas), T. T. Laker (3½ Elswick), J. R. Blackburn (8 Morgan), D. Alexander (8 Williamson sc.), T. Heath (6 Clyno), J. Steel (3½ B.S.A.), Miss Hammett (2¾ Douglas), C. R. Collier (6 Matchless sc.), and T. Knowles (2¾ Humber).

Sixty-nine runners were left in to start on Friday morning.

V. Busby (3½ h.p. Ariel) climbing the Devil's Elbow.

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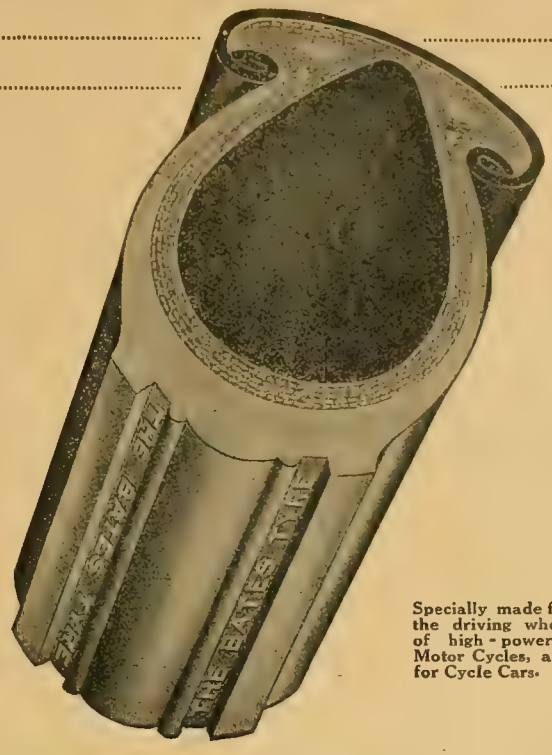

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1 „ „	1 7	11 10	12 8	13 5	—
1¼ „ „	1 9	13 1	14 0	14 10	—
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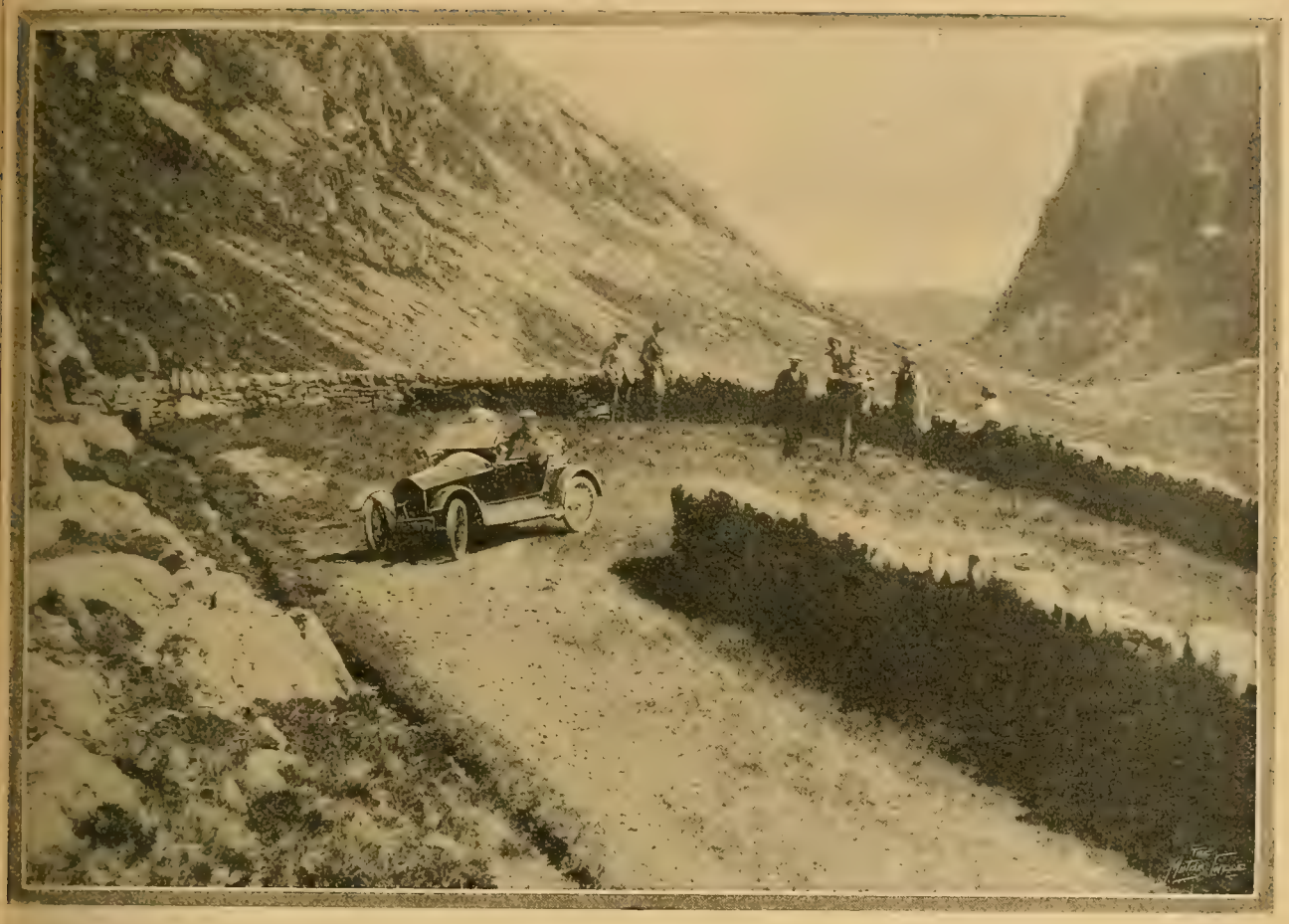


Sam Wright (8 h.p. Humberette) rounding the hairpin on Applecross Hill, which ascent was considered to be the worst in the trial, being six to seven miles long.

FIFTH DAY.—Strathpeffer, Beauly, Drumnadrochit, Invermorriston, Cluanie, Sheil Inn, Glenelg, Cluanie, Tomdoun, Fort Augustus, Craggie Inn, Carr Bridge, Grantown, 199 miles approximately.

We are now nearly at the end of our journey, for to-morrow night will see the survivors in Edinburgh. The start this morning was an early one—seven o'clock—in view of the long distance to be covered from Strathpeffer to the Western Highlands, and thence back again to Grantown, only about thirty miles as the crow flies from the morning's starting place. For the first time this week we thought the weather was going to fail us, for the morning was dull and cold, but about ten o'clock the sun broke through, and afterwards it was a day of blazing heat and the usual smothering dust, which is very gritty up here, and highly irritating to the throat.

The crux of the day was the passage of a very sharp hill called Mam Ratachan, a few miles before Glenelg, the luncheon stop. The contour gives it as 1 in 7, but that is apparently the average gradient, and it is a real little teaser with a bit of something very near 1 in 3. Mellor Jameson had some sprinting exercise with his little Enfield, but, generally speaking, there were few who experienced any difficulty. C. R. Collier made a splendid ascent on his 6 Matchless sidecar, and so did Hugh Gibson (3½ Bradbury sc.). If we were asked to pick out any one performer in the Trials deserving of special merit we should select this rider. His hill-climbing powers are really extraordinary, and up to the time of writing he has made a clean ascent of every hill and lost no marks. His sidecar is quite a heavy substantially built one, and his passenger by no means light.

His climb up the long, tiring Glendoe, with its miles of collar work and tricky, unexpected little stiff incline right at the end, was really amazing. He tells us he has only used his first speed, 13½ to 1, on two occasions—once on Amulree and once on Applecross. There has been a great deal of grief and woe to-day, and as we are writing this, late at night, stragglers are still coming into Grantown. Luckily, it keeps light up here till after ten o'clock, which is a great boon, for nearly everyone is equipped with the tiniest outfits in lamps and generators.

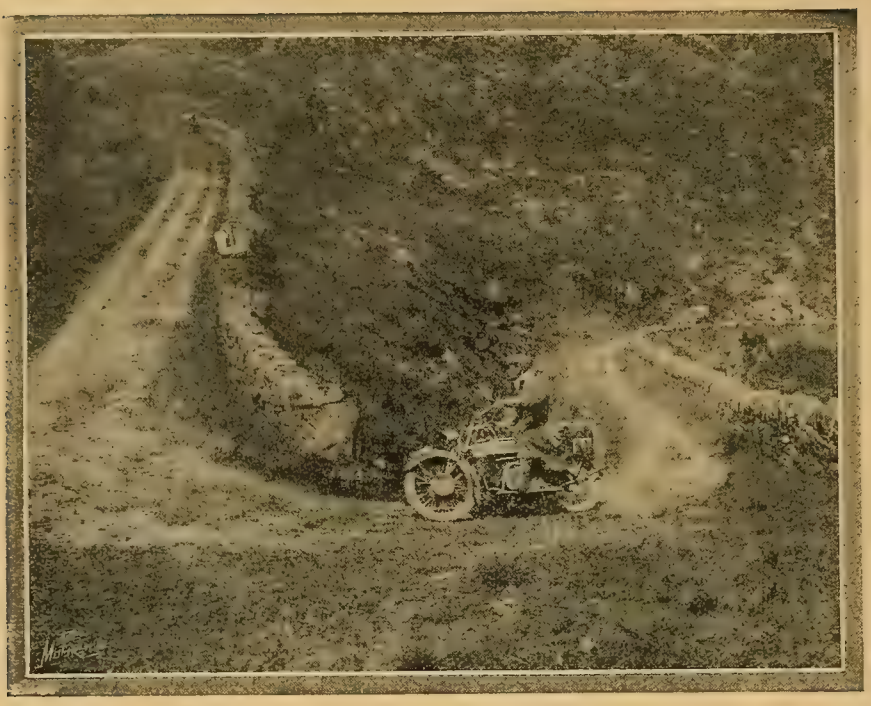
We are sorry to say that Mrs. Hardee has had a very nasty fall, which has caused her retirement when she practically had a gold medal in her grasp. She informed us this evening that she took a wrong turning on the way home from Fort Augustus, and did not discover her mistake till she had traversed five miles or so. Then she put on speed to make up time, and when she was travelling all out on her P. and M. the rear tyre burst and she was thrown with great force, and lay on the ground for some time, when two ladies picked her up. She was brought in by Sam Wright on his Humberette. Luckily, no bones were broken, but she naturally suffered from shock, and her machine was smashed.

The Tale of Woe.

Donaldson was towed in late on his Quadrant with timing gear troubles. One of the officials, Mr. Aitken, towed him in from Craggie Inn.

Gordon Fletcher smashed the frame of his Douglas on the way up Glenelg when crossing a donkey-back bridge at speed, and came in with the brake fastened up with straps, and Roberts broke the carrier on his Zenith at the same spot.

Miss Hammett had a day of trouble. The driving chain of her Douglas broke and, becoming entangled in the sprocket, locked the wheel, and she was thrown; and then she had great difficulty in fitting the spare owing to its being too short. Douglas Alexander stripped the second speed wheel in the gear box of his Williamson sidecar, and had to put it on the train for Inverness and retire from the Trial between Craggie Inn and Glendoe, and Macrae fell heavily near Fort Augustus and smashed the front wheel of his L.M.C. too badly to con-



Rex Mundy (8 h.p. Williamson) on the Applecross Hairpin. The Scottish Trials was Mundy's first experience of a Williamson, yet he again obtained a gold medal.

tinue. C. R. Collier had the misfortune to fracture the left back fork stay on his 8 Matchless sidecar, but strapped it up and got in to time without loss of marks, but whether it will hold together over to-morrow is rather doubtful. However, Collier is as expert a driver in a trial as he is in a race, and we should not be surprised to see him carry off a gold medal after all. Cocker tried to continue his climb up Glendoe on a flat tyre, with the result that his belt was pulled off three times and as he had such trouble with punctures and got in so late, he decided to give up. Generally speaking the remaining machines did well, and no praise is too high for any man, woman, or machine that survives this tremendous ordeal. We have no hesitation in describing these Trials as infinitely harder for machines and riders than the average English Six Days. The roads are in many places in such atrocious condition that it is impossible to make up any time even after the delay of a puncture.

There has been considerable dissatisfaction to-night concerning the official watches at the luncheon stop at Glenelg, it being alleged that they were five minutes in error.

It has been a very tiring day, and everyone was glad to see Grantown, and we fancy Edinburgh will be the pleasantest view to-morrow night that most of the riders have seen for a week. Late at night news has come in that Thompson has had a smash on his Bat, but hopes to continue. Chater-Lea has also broken his sidecar frame.

The cycle cars left in are going strong. The Humberette, Morgans, and G.W.K.s have certainly proved themselves thoroughly roadworthy machines.

The following have retired to-day:

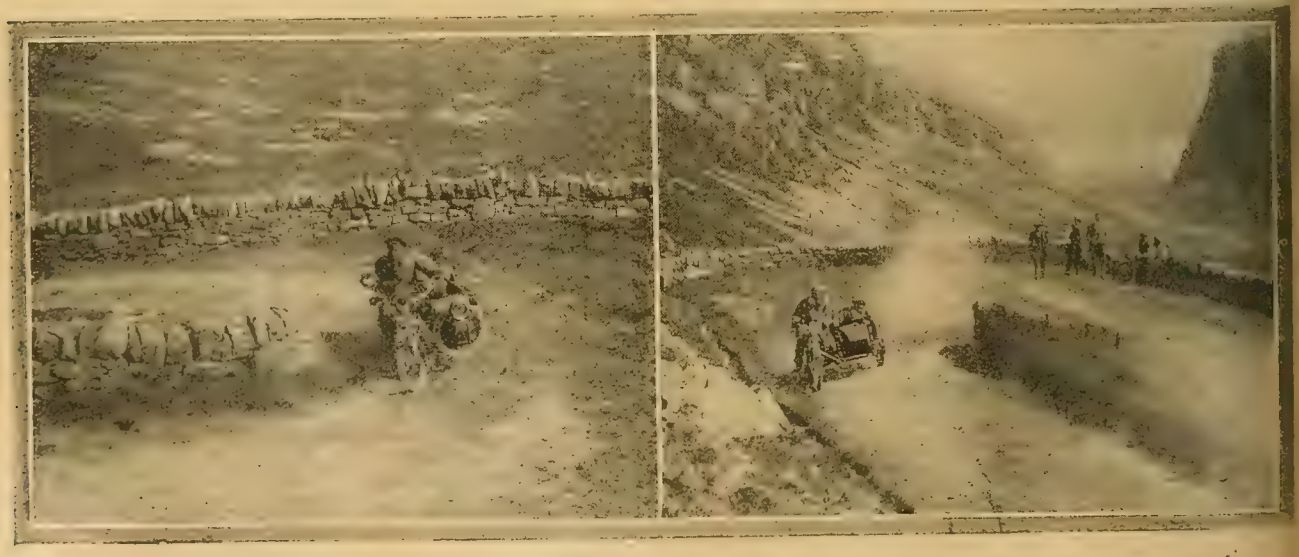
L. E. Cass (Trump-Jap), R. S. Macrae (L.M.C.), J. Cocker (Singer), Mrs. Hardee (P. and M.), D. Alexander (Williamson sc.), J. Donaldson (Quadrant), and T. Knowles (2¾ Humber).

The following lost marks:

W. H. Gibb (2¾ Douglas) and Miss Hammett (2¾ Douglas).

SIXTH DAY.—Grantown, Cockbridge, Braemar, Spital of Glenshee, Kirkmichael, Pitlochry, Ballinluig, Aberfeldy, Kenmore, Glenquaich, Crieff, Stirling, Falkirk, Edinburgh. 184 miles.

The magnificent weather, which has been one of the features of these Trials, held up to the end, and it was a perfectly glorious morning at Grantown, when at 7 o'clock the first man was sent off on the last stage of the Trials. Mrs. Hardee was out and about, the recipient of a great deal of sympathy for her smash overnight, and was bought on by an official car, which, by the way, was not quite so punctual as her P. and M. had invariably been, for tyre troubles galore overtook it, and it made a very late arrival in Edinburgh. Evil fate also overtook Mr. MacMillan's official Belsize car, for when only a few miles from the finish it tried conclusions with a commercial car, and came off very much second best, and had to be left derelict at the roadside. W. G. McMinnies, driving a Grand Prix Morgan, also had a remarkable escape, for when travelling at high speed his steering failed, and the vehicle dashed into a telegraph pole, and was totally wrecked. The driver escaped without



(1) J. Chater-Lea (Chater-Lea) and 2) R. E. Guest (Matchless sidecar) at the hairpin bend which was the crucial test on Applecross Hill.

Scottish Six Days' Trials.—

injury, but Johnny Gibson, his passenger, sustained injuries to his side, and it was feared some ribs were broken. It will be recalled that Gibson was badly hurt in the Isle of Man last year.

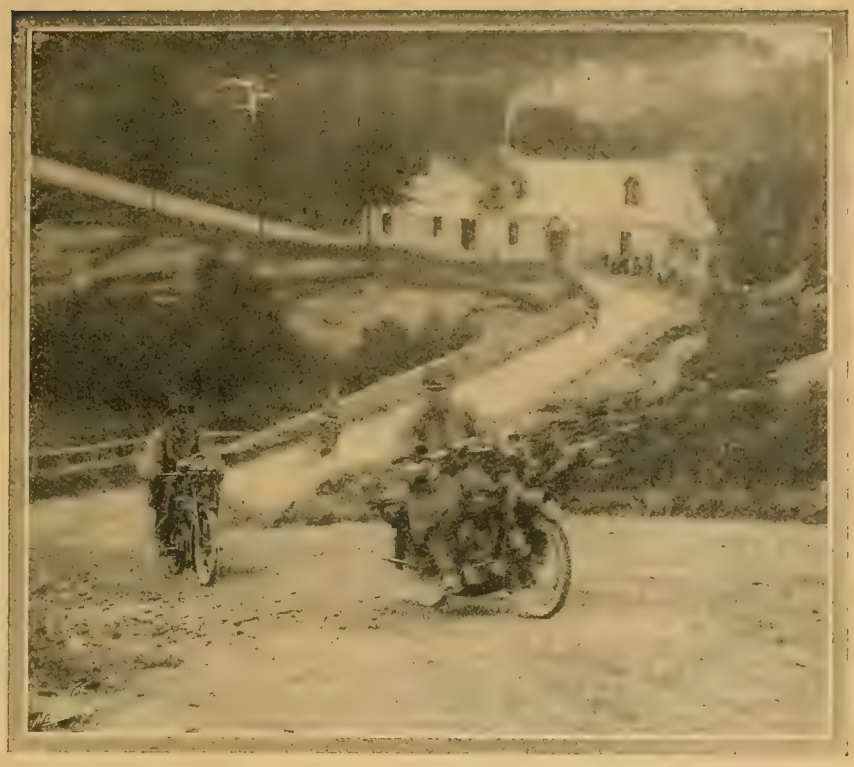
The last day's route was a severe one, for soon after the start the Cockbridge Ladder had to be climbed the reverse way to Monday's run, and the numerous gullies across the road made it an abominably uncomfortable ascent, and steering was very difficult. A mistake would have proved dangerous, as a precipice was on the right-hand side, and the road is very narrow.

Cases of Hard Luck on the Last Day.

Prior to reaching the hill, Sam Wright, whose Humberette had been going splendidly all the week, had the bad luck to be run into by a cart, the result of which was a broken front spring. Wright managed to make an excellent repair, but the delay cost him marks, and was fatal to his chances of a gold medal. It was a piece of real bad luck, and Wright would not be consoled.

Prior to the lunch check at Pitlochry, Morgan's steering gear went wrong, and he injured a front wheel and had to withdraw. Brittain (Bradbury) who was going well at Kenmore, also retired after descending Amulree, but, no account is available at the time of writing as to the nature of his mishap. MacGibbon (3½ Edmond) and A. W. Walden (3½ Premier) also retired on the last day.

Nearly everyone was early at Pitlochry, despite the Cockbridge climb, and the street of the little town was filled with men and machines killing time till they could check in. After Pitlochry the road was splendid for twenty miles till Kenmore was reached. Riding on in front of the men, we came across Lionel Martin, who had got his Singer light car running well again, and he gave a fine impromptu hill-climbing exhibition up Kenmore Hill. This gradient is the opposite side of Amulree, and is more severe. It is quite two and a half miles long, and contains seven corners, four of them being acute hairpins with precipitous gradients and loose, sandy, stony surface. We observed this hill very closely, because not only was it a very severe hill—some riders think it the worst of the trial—but, coming as it did on the last day and in the last sixty miles, it might well be thought that the engines would be showing signs of weakness.



G. I. Francis (Lea-Francis) and K. A. MacDonald (Singer) on the Bridge of Brown Hill, Tomintoul. This pair gained gold medals.

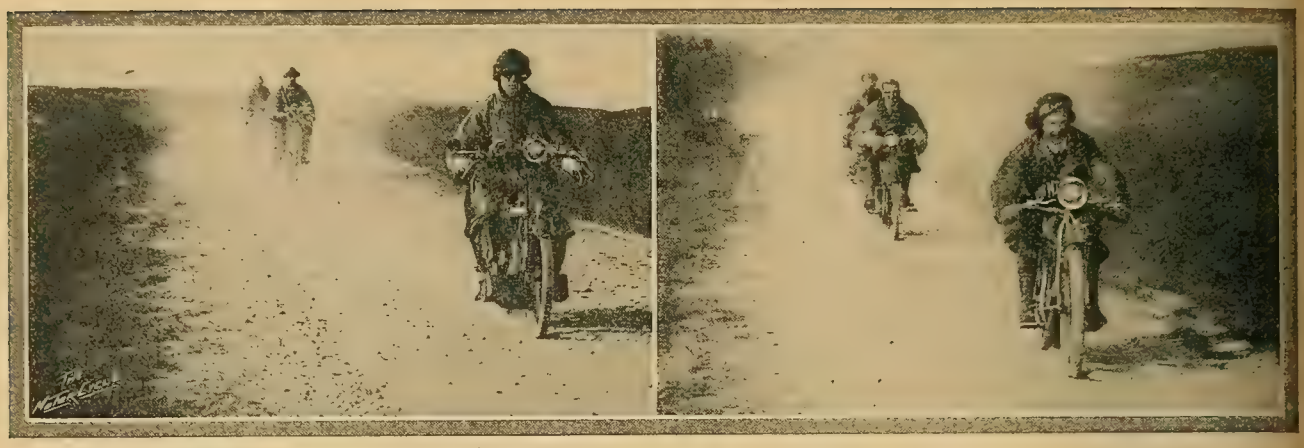
Taken as a whole, the result was remarkably good, and we only saw three actual failures.

Hoult (3½ h.p. Matchless) failed at the last bend but one, Begg (3½ h.p. Rudge) slipped up, and W. Pratt (P. and M) failed at the first hairpin. All three, however, made good restarts, and they got up well. The G.W.K.s and Blackburn's Morgan made splendid climbs, and C. R. Collier played with the hill on his big Matchless sc., while the Clynos ran up easily. The star performance was made by Hugh Gibson on his 3½ h.p. Bradbury sc. He climbed magnificently without the slightest sign of knocking on a 12 to 1 gear. Many of the solos, although climbing successfully,

TWO ASPECTS OF DUNBEATH CORNER.

D. H. Noble (Rover).

H. Harrison (Swift) and C. W. Meredith (Bradbury).



IN INDIAN FILE. A Lea-Francis rider leading a string of competitors near Strathpeffer.

E. A. Colliver (Indian), G. Featherstonhaugh (3½ h.p. Rover), and A. U. F. Downie (2¾ h.p. A.J.S.) This trio are among the gold medal winners.

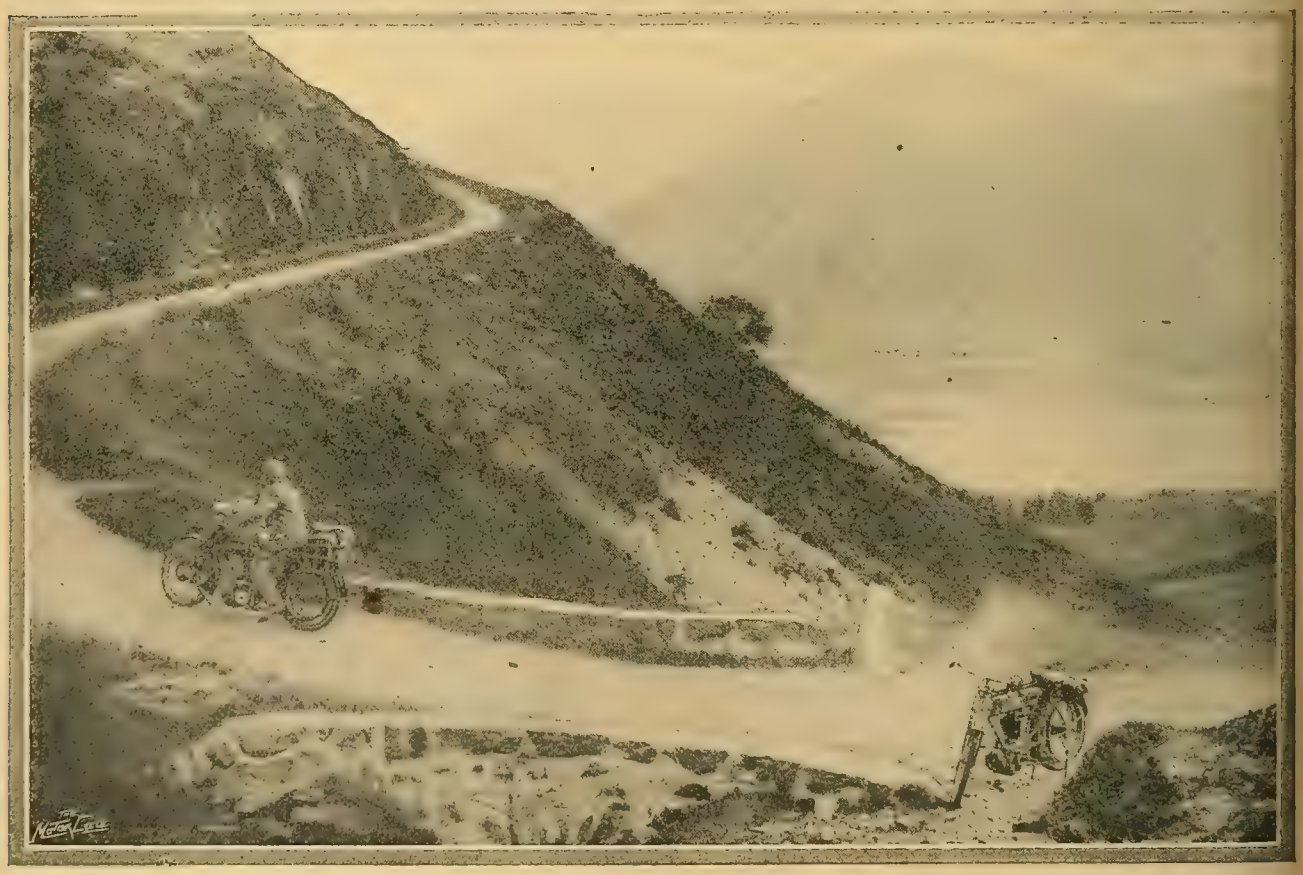
knocked frightfully at the hairpins. The little Connaught two-stroke went up beautifully, and the Indians, Rovers, and Bats were admirable, while the five Ariels were all splendidly handled, and got up easily.

Mrs. Baxter on her big Rex and Miss Hammett also made capital ascents. Once over the hill, the descent of Amulree required great caution, as the surface was appalling, but soon after the main Crieff road was reached, and on a magnificent surface we rode home through Crieff and Stirling to the Peebles motor garage, where the machines were placed for their examination by the officials.

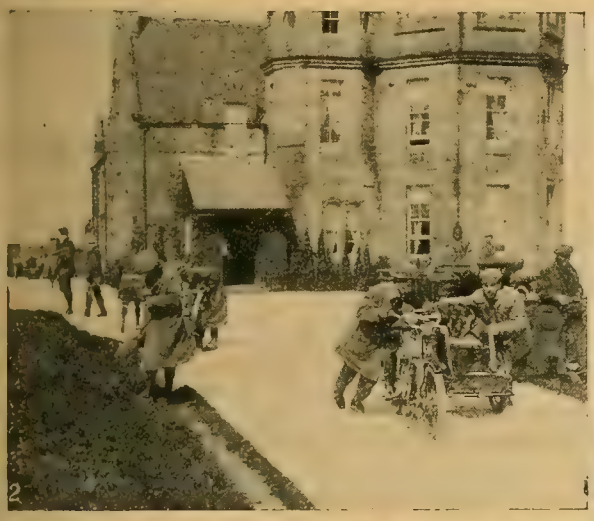
Fifty-nine Survivors.

Firty-nine actually finished, and most of the machines were in really wonderful condition after the tremendous gruelling they had undergone. Everyone was burnt brown by the six days of blazing sunshine, and, despite the hard work, all voted the trial a most sporting event.

The officials were splendid throughout, and the organisation wonderful, everything going without a hitch from the start. The enthusiasm displayed by the officials was delightful, and they were one and all ever ready to answer any questions put to them at any time with perfect good humour.



L. Sealey (two-speed B.S.A.) negotiating the S bend on Mam Ratachan Hill.



(1) A group of competitors at Thurso.

(2) Competitors at John-o'-Groats House on Wednesday.

(3) Miss Hammett (Douglas) on Applecross Hill. The photograph gives same idea of the gorgeous scenery.

(4) Miss Hammett (2¾ h.p. Douglas) on the narrow ascent of Kenmore Hill.

(5) A Clyno sidecar skidding round the second bend of Kenmore Hill.

OFFICIAL LIST OF GOLD MEDAL WINNERS AND DETAILS OF MACHINES.

Competitors coming over the Brow of Glendoe.

MOTOR CYCLES.

No.	Name of Rider and Machine, and No. of Cylinders.	Variable Gear.	Bore and Stroke. mm.
1	C. W. Meredith (3½ Bradbury, 1-cyl.)	S.-A. 3-sp. hub	89 × 89
3	Hal Harrison (3½ Swift, 1-cyl.)	Armst'g 3-sp. hub	86 × 85
5	J. E. Chisholm (3½ Ariel, 1-cyl.)	Armst'g 3-sp. hub	86.4 × 85
7	*R. S. Morrison (5-6 Bat, 2-cyl.)	‡Armst'g 3-sp hub	76 × 85
10	*G. L. Fletcher (2¾ Douglas, 2-cyl.)	†Douglas 2-sp.	60.5 × 60
11	*S. T. Tessier (5-6 Bat, 2-cyl.)	Armst'g 3-sp. hub	76 × 85
14	*D. H. Noble (3½ Rover, 1-cyl.)	Armst'g 3-sp. hub	85 × 88
16	*A. U. R. Downie (2¾ A.J.S., 1-cyl.)	A.J.S. 3-sp.	74 × 81
17	J. F. Morrison (2¾ Douglas, 2-cyl.)	†Douglas 2-sp.	60 × 61
18	*G. Featherstonhaugh (3½ Rover, 1-cyl.)	Armst'g 3-sp. hub	85 × 88
19	J. H. Begg (3½ Rudge, 1-cyl.)	Rudge Multi var.	85 × 88
20	*E. A. Colliver (7-9 Indian, 2-cyl.)	†Indian 2-sp.	82.5 × 93
24	*C. T. Newsome (3½ Rover, 1-cyl.)	S.-A. 3-sp. hub	85 × 88
28	*W. Pratt (3½ P. & M., 1-cyl.)	P. & M. 2-sp.	84.5 × 88.9
30	E. F. Baxter (6 Rex, 2 cyl.)	‡N.S.U. 2 sp.	77.5 × 95
31	K. A. MacDonald (3½ Singer, 1 cyl.)	S. A. 3 sp. hub	85 × 88
35	*G. I. Francis (3½ Lea Francis, 2 cyl.)	†Lea Francis 2 sp.	60 × 76
39	Rev. R. M. Bankes Jones (3½ P. & M., 1 cyl.)	P. & M. 2 sp.	84.5 × 88.9
42	E. H. Littledale (3½ Ariel, 1-cyl.)	Armst'g 3-sp. hub	86.4 × 85
48	*G. Brough (6 Brough, 2-cyl.)	Fixed	77 × 88
54	*H. Berwick (3½ Humber, 1-cyl.)	S.-A. 3-sp. hub	84 × 90
58	*F. C. North (3½ Ariel, 1-cyl.)	Armst'g 3-sp. hub	86.1 × 85

MOTOR CYCLES (continued).

No.	Name of Rider and Machine, and No. of Cylinders.	Variable Gear.	Bore and Stroke. mm.
63	*B. A. Hill (7 Indian, 2-cyl.)	Indian 2-sp.	82.5 × 93
69	*A. G. Fenn (3½ B.S.A., 1-cyl.)	B.S.A. 2-sp.	85 × 88
71	*G. T. Gray (5 Rudge, 1-cyl.)	Rudge Multi var.	85 × 132
74	*J. Oliphant (3½ Premier, 1-cyl.)	Armst'g 3-sp. hub	85 × 88
77	C. Q. Roberts (8 Zenith, 2-cyl.)	Zenith-Gradua va.	85 × 85
78	I. A. Hoult (3½ Matchless, 2-cyl.)	Armst'g 3-sp. hub	70 × 64.5
80	*L. Sealey (3½ B.S.A., 1-cyl.)	B.S.A. 2-sp.	85 × 88
89	*R. G. Mundy (Williamson) 2-cyl.	Williamson 2-sp	85 × 85
90	W. C. Brandauer (7-9 Indian, 2-cyl.)	†Indian 2-sp.	82.5 × 93
94	*L. Newey (3½ Ariel, 1-cyl.)	Armst'g 3-sp. hub	86.4 × 85
	SIDECARS.		
6	S. J. K. Thomson (7-8 Bat sc., 2-cyl.)	†Pat 2-sp.	85 × 85
9	*A. F. Downie (6 A.J.S. sc., 2-cyl.)	A.J.S. 3-sp.	74 × 81
15	*Hugh Gibson (3½ Bradbury sc., 1-cyl.)	S.-A. 3-sp. hub	89 × 89
45	*R. Pearsons (5-6 Clyno sc., 2-cyl.)	Clyno 3-sp.	76 × 82
46	*C. Freeman (5-6 Clyno sc., 2-cyl.)	Clyno 3-sp.	76 × 82
87	*G. Wray (5-6 Clyno sc., 1-cyl.)	Clyno 3-sp.	76 × 82
100	*C. R. Collier (7-8 Matchless sc., 2-cyl.)	Matchless 3-sp.	85 × 85
	CYCLE CARS.		
22	C. M. Keiller (9.2 G.W.K. c.c. 2-cyl.)	G.W.K. var.	86 × 92
26	*J. T. Wood (9.2 G.W.K. c.c., 2-cyl.)	G.W.K. var.	86 × 92

* Denotes trade rider. † Lower than standard. ‡ Higher than standard. § Not standard.

Mr. and Mrs. Baxter (Rexes) and E. A. Colliver (Indian) and others ahead of time waiting outside a control.

J. Chater-Lea, Jun. (8 h.p. Chater-Lea sidecar) being checked in at Evarton. The neat method of affixing a large headlight to the sidecar will be noted.

CLUB NEWS.

Newton-Stewart and District M.C.C.

The first annual trial for the Picken Trophy was held on the 16th inst. Route: New Galloway, Penpont, Crawford, Abington, Biggar, Broughton, Moffat, Beattock, Dumfries, Maxwelltown, Castle Douglas, Gatehouse, to Newton-Stewart. The result was a tie between B. Jesson (3¾ h.p. Scott sc.) and J. Dunn (3½ h.p. Triumph), who each obtained full marks. A. Young (5 h.p. F.N.) was third.

Members of the Newton-Stewart M.C.C. on the occasion of the recent trial for the Picken trophy.

Western District M.C. (London).

A reliability trial was held on the 20th inst. for the Triumph Cup, from Ealing to Daventry and back, resulting as follows:

	m.	s.	
1. B. F. G. Fowke (Triumph), non-stop	1	2	early
2. R. F. Addey (Triumph), non-stop...	1	33⅖	early
3. G. Hinds (Douglas)	1	25	early

Surrey M.C.C.

The results of the members' speed trial at Clandon Park were as follows:

Class I.—1, C. A. Crow (2½ Singer), 47s., 309, silver medal; 2, S. H. Crow (2¾ Douglas), 48s., 387, bronze medal, 3, H. Butterworth (2¾ Douglas), 51.6s., 480.

Class II.—1, E. M. Wood (3½ Zenith), 40s., 314, silver medal; 2, T. G. Meeten (3½ Rudge), 40.6s., 335, bronze medal; 3, H. Mitchell (3½ Premier), 44.8s., 450.

Class III.—1, S. H. Crow (2¾ Douglas), 42.6s., 271 silver medal; 2, E. M. Wood (3½ Zenith), 39.2s., 294, bronze medal; 3, T. G. Meeten (3½ Rudge), 39s., 296.

Class IV.—1, T. G. Meeten (3½ Rudge sc.), 51.2s., 670, silver medal; 2, S. H. Crow (3½ Ariel sc.), 56.2s., 885, bronze medal; 3, P. Mitchell (3½ Premier sc.), 56.6s., 907.

All classes were decided on the formula CT^3. In Classes I., II., and IV., the figures given include the penalties for T.T. machines.

The silver medal for best performance by non-trade competitor and the bronze medal for the sealed handicap were both won by E. M. Wood.

Middlesex M.C.C.

The annual Stratford-on-Avon trial took place on the 13th inst. The following were notable performances on Sunrising Hill, the only real gradient on the course, and included in a non-stop section: Miss Hammett (Douglas), excellent; Tustin (Indian sc.), very good; Fletcher (Williamson sc.) displayed remarkable acceleration and Jennings (Precision sc.) did well to bring up the only single and sidecar; McNab, on a 6 h.p. Trump-Jap, came up very fast. Results:

Gold medals: H. C. Mills (Premier) and H. Karslake (Rover).

Silver medals: E. R. Hare (Enfield sc.), E. R. Cass (Trump-Jap sc.), Miss R. Hammett (Douglas), W. P. Tippett (Humber), W. Price (Rudge), A. C. Adley (Premier), P. C. Austin (Indian sc.), T. A. S. Brown (J.A.P.), C. Pearson (Douglas), A. Jennings (Precision sc.), G. Nott (Clyno sc.), and F. A. McNab (Trump-Jap).

Bronze medal: Victor Garland (Chater-Lea sc.).

North West London M.C.C.

The results of the members' hill-climb are as follows:

Class I.—1, Purchase (Douglas), 22⅖s., figure of merit 217; 2, Goddard (Douglas), 24⅖s., 230.

Class II.—Buchanan (New-Imperial-Jap), 16s.

Class III.—C. Rose (Indian), 17⅖s.

Class IV. (Passenger).—1, Dreydel (Ivy-Jap sc.), 24⅘s., figure of merit 259; 2, Wilmot (Morgan), 28⅕s., 297.

Fastest Time Classes.

Class VI.—1, Rowden (Douglas), 21⅗s.; 2, Purchase (Douglas), 22⅕s.

Class VII.—1, Buchanan, 16⅘s.; 2, C. Rose and Gwynne, 17s.

Class IX.—1, Dreydel (Ivy-Jap), 24⅘s.; 2, Down, 25s.

HERTS. COUNTY OPEN HILL-CLIMB.

The open hill-climb has been postponed until August 9th, and will take place at Kop Hill. The following are the classes:

Experts Only.—(1) Machines not exceeding 350 c.c.; (2) machines over 350 c.c. and under 500 c.c.; (3) any machine; (4) passenger machines up to 1,100 c.c.

General.—(5) Touring machines up to 350 c.c.; (6) touring machines over 350 c.c. and under 600 c.c.; (7) T.T. machines up to 500 c.c.; (8) any machines up to 1,000 c.c.; (9) passenger machines up to 1,100 c.c.

Classes 5, 6, and 9 will be decided by *The Motor Cycle* formula, $\frac{C \times l^2}{W}$

The rest will be decided on time only.

AMULREE IN THE SCOTTISH TRIALS. N. W. Downie (Lea-Francis) on the second bend.

NOTTINGHAM CLUB'S OPEN TRIAL.

On August 9th the Nottingham and District M.C.C. has arranged to hold a one day open reliability trial, the event being one to which the Manufacturers' Union decided to give their support. The first competitor will be despatched at 9 a.m., the remainder at intervals of thirty seconds. Entries close to-morrow (Friday) at ordinary fees.

BRITISH SUCCESSES IN THE BILBAO-SAN SEBASTIAN-BILBAO ROAD RACE.

THE SPANISH TOURIST TROPHY RACE.

(1) F. A. Applebee (Scott) who proved the winner of the 500 c.c. class.

(2) A. H. Alexander (Douglas), first in 350 c.c. class.

(3) Group of British riders at the conclusion of the race

4 Scene at the finishing point showing portion of the large crowd of spectators.

5 Applebee and Sorriguieta, first and second, lifted shoulder high.

Un aplauso: un aplauso es poco! The Spanish road race, the results of which we gave last week, has been a great success and a notable victory for British makers, for in the 350 c.c. class all the machines which got through came from this country, and the three leading riders were British. In the larger class an Indian took fifth place, and the rest of the machines were English. In fact, the English machines so predominated in the entry that it would have been strange indeed if they had not taken a prominent place in the results. All the British riders took part in the T.T. and Grand Prix races. The four foreign riders who were placed were mounted on Forward, Triumph, Rudge, and Bat. The course was 255 kilometres (158¼ miles). Applebee's speed averaged 43.1 m.p.h.

CLASS I.—CYLINDER CAPACITY UP TO 350 C.C.

Order.	Rider.	Nationality.	Machine.	Time of Outward Journey.			Time of Return Journey.			Total Time.		
				h.	m.	s.	h.	m.	s.	h.	m.	s.
1	A. H. Alexander	Scotch	Douglas	1	53	24	1	57	37½	3	50	39½
2	[illegible]	English	Douglas	2	1	21	2	2	37	4	4	1
3	E. Kickham	English	Douglas	2	4	5½	2	6	19½	4	10	25
4	[illegible]	Spanish	Forward	2	44	6½	2	57	8½	5	1	15½

CLASS II.—CYLINDER CAPACITY, 350 C.C. TO 500 C.C.

1	F. A. Applebee	English	Scott	1	49	50½	1	50	39½	3	40	29½
2	— Sorriguieta	Spanish	Triumph	1	50	54½	1	52	56	3	43	30½
3	T. E. Greene	Irish	Rudge	1	55	34	1	58	41½	3	53	45
4	W. F. Newsome	English	Triumph	1	59	32	1	57	49½	3	57	21½
5	J. F. Sirette	English	Indian	1	52	33	2	8	45	4	1	8
6	J. N. Longfield	English	Scott	1	54	27	2	9	13½	4	3	40½
7	— Cardinal	Spanish	Rudge	1	56	19½	2	30	29½	4	26	48½
8	L. Arana	Spanish	Bat	2	3	39½	2	37	49½	4	41	28½

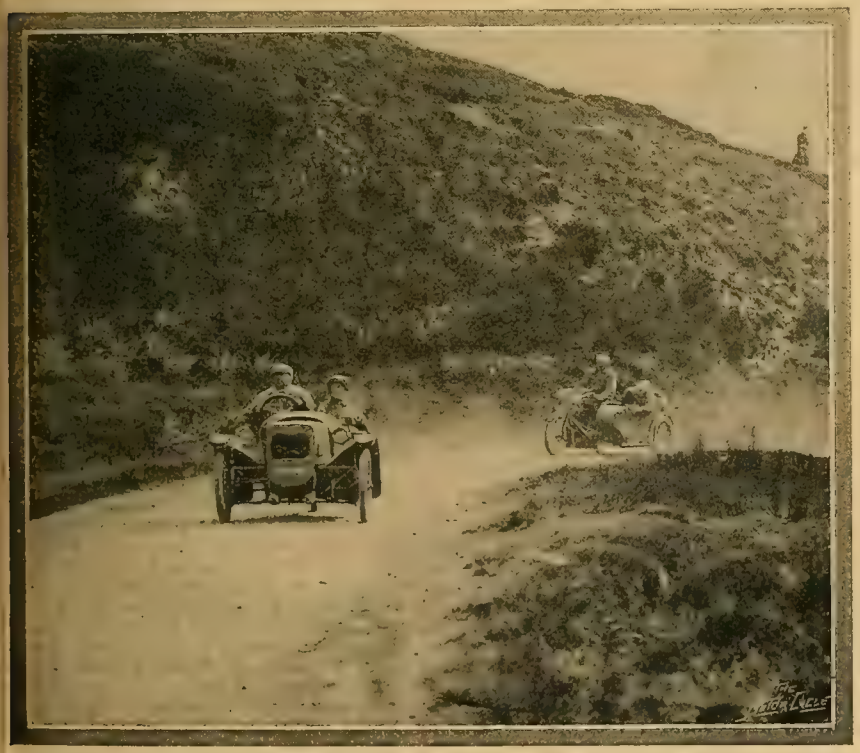
Impressions of the Scottish Trials.

The great outstanding feature of this year's Six Days' Scottish Trials, which came to a conclusion last Saturday was the magnificent weather. Seldom, if ever, can a full week of such tropical sunshine be experienced in the Highlands and, despite the dust, there was not a rider whose spirits were not cheered by the sight of the sun morning after morning. I suppose the wonderful clearness of the atmosphere away in the north, far from all chimneys and industrial centres, makes the sun far more felt than in the south, and nearly everyone might have been spending a week in the Tropics, judging by the sunburnt complexions which arrived at the Peebles Garage, Edinburgh, on Saturday evening. Everyone was glad, after a gruelling week, to see Edinburgh, and surely that exquisite city has never looked fairer than it did on that perfect summer evening. The absence of trams from the streets, due to a strike of the drivers, rather helped to set off the wonderful vista down Princes Street. Taxicabs were in great request, as everyone was too tired to walk the mile or so to the official hotel.

R. S. Macrae (L.M.C.) and R. Pearsons (Clyno sidecar) on Berredale Corner.

Scottish Keenness.

Our daily reports of the trials, written at considerable pressure nightly after a long arduous day with the competitors, were necessarily bound to be somewhat sketchy, and looking back at the last week it is now possible to view events and performances in their proper perspective. I was enormously impressed with a number of facts *re* motor cycling in the North generally, and was greatly struck by the tremendous keenness of the Scottish riders all over the country. The interest was of the keenest, even in the remote North and the number of people all over the route who were armed with the admirably got-up official programmes was remarkable. How the Edinburgh club had got these into the remote Northern and Western Highlands is a mystery, but nearly everyone seemed to have a copy, and every policeman we met was busy privately checking off the riders as they passed. I could not help thinking what a boon a good machine would be to the police in some of the rural districts. A southerner cannot understand the remoteness from anywhere of some of the places we visited, and I was told that at Applecross the policeman's beat extended for forty miles! To show the isolation of this spot I may mention that the post goes out once a week! Indeed, many of us wondered what the inhabitants would do with the considerable sum they collected for lunch in this wild spot, for there seemed no possible means of spending it there.



H. F. S. Morgan (8 h.p. Morgan runabout) and R. E. Guest (Matchless sidecar) in Glendoe.

Scottish Roads.

With regard to the roads we covered, many miles were terribly rough, and some of the trade riders complained bitterly of being asked to take their machines over such villainous surfaces. On the other hand, all the amateurs and some of the trade riders described the course as most sporting, "Rover" Newsome expressing himself as thoroughly pleased with it. I do not think that the various breakages which happened to some of the sidecar frames need be taken too seriously, and the sufferers in the trade will have gained a lot of valuable data for the construction of their colonial models. The English Six Days' Trials pale beside this test, and I think that a gold medal won in the Scottish Trials is worth a great deal more than one gained in England—a point which buyers should bear in mind when ordering their mounts for 1914.

I am certain that the greatest performance was that of Hugh Gibson with his

Impressions of the Scottish Trials.—

3½ Bradbury and sidecar. Not only did Gibson score a clean sheet, but he took his combination intact up every hill on the course without shedding his passenger, and I never even heard his engine knock, though I observed him very carefully on all the real hills. Gibson stands in a class by himself at this sort of work, and I doubt if there is another man in England who could duplicate his performance. His machine was in perfect condition at the finish, and he drove with the greatest skill throughout.

I was impressed very forcibly with George Brough's handling of his big single-geared twin. Brough is a perfect rider, but, nevertheless, it was a remarkably fine performance to go through without the aid of a gear box, and not only did he climb all the hills, but he did so with consummate ease. Indeed, I rather think that he made the ascent of the Devil's Elbow on the Spital of Glenshee on the first day with greater ease than any other competitor. He simply toyed with the climb, and his engine must be a marvel of flexibility. His machine was also in beautiful condition at the end, and I particularly noticed that his valve caps were not even discoloured.

After the Trials I accompanied him a further twenty miles, and thus observed him for a full thousand miles over the severest test roads that can be found in the British Isles. His John Bull tyres never punctured, and his machine had no other attention than filling up with petrol and oil. He carried two belts—one gave a gear ratio of 3⅞ to 1, and the other about 4½ to 1. He used the latter on Amulree, Applecross, and Kenmore, but when it is remembered that even users of the largest twins were glad to use their lowest ratios on these hills, his performance will be seen to have been remarkable.

The Smallest Engine.

The little 2½ two-stroke Connaught, the smallest engine in the Trials, ran wonderfully well, and carried a heavy rider through without a hitch. Although using petrol in Scotland, this machine normally runs on paraffin, and the spirit and oil are poured into the same tank. The Rev. R. M. Bankes-Jones did very well in losing no marks, as this was his first trial, and his P. and M. was only geared 9 to 1 on low gear. Rex Mundy handled the big Williamson solo with great address on the acute hairpins which abounded throughout the week, and the very easy starting of this machine greatly impressed me, a couple of steps at a walking pace sufficing even when cold. His tyres showed not a scratch at the finish. Large tyres were wisely fitted by a great many competitors, the three-inch Palmers and Kempshalls being popular.

The Lady Riders.

The ladies did well. Mrs. Baxter's handling of her big Rex, one of the heaviest machines running, was most masterly, and she was the only lady to gain a gold medal, though Mrs. Hardee had lost no marks on her P. and M. up to Friday afternoon, when she was the victim of a bad fall through her back tyre bursting when travelling at speed. Miss Hammett seems destined to find trouble in big six-day events, and although she finished she lost marks, and failed to annex a gold medal. Personally, I think these sort of events are too strenuous for ladies, and there is always the chance of a male competitor finding one of them stranded and losing his own gold medal in stopping to render assistance, which chivalry naturally demands in their case, though I daresay the ladies are quite skilful enough to effect their own repairs. But I know, from my own experience, that the strain of driving these big distances up to time over these dreadful surfaces is severe enough for a man.

The Cycle Cars.

Among the cycle cars, the G.W.K.'s did well, and but for the unfortunate burning of Wilberforce's little car on the first day would probably have finished a complete team. Wood made a mistake in driving at the last hairpin on Kenmore, changing up instead of down, and caused his engine to knock badly as he passed me, but he got up all right. Sam Wright handled his Humberette with great skill, and the Morgans were fast, but I thought tougher steering design was wanted for such rough work. M.S.

SPECIAL AWARDS.

The special awards were not decided upon until Monday evening, and were officially announced on Tuesday morning. We give them below:

Lightweight Class.—J. F. Morrison (2¾ Douglas).

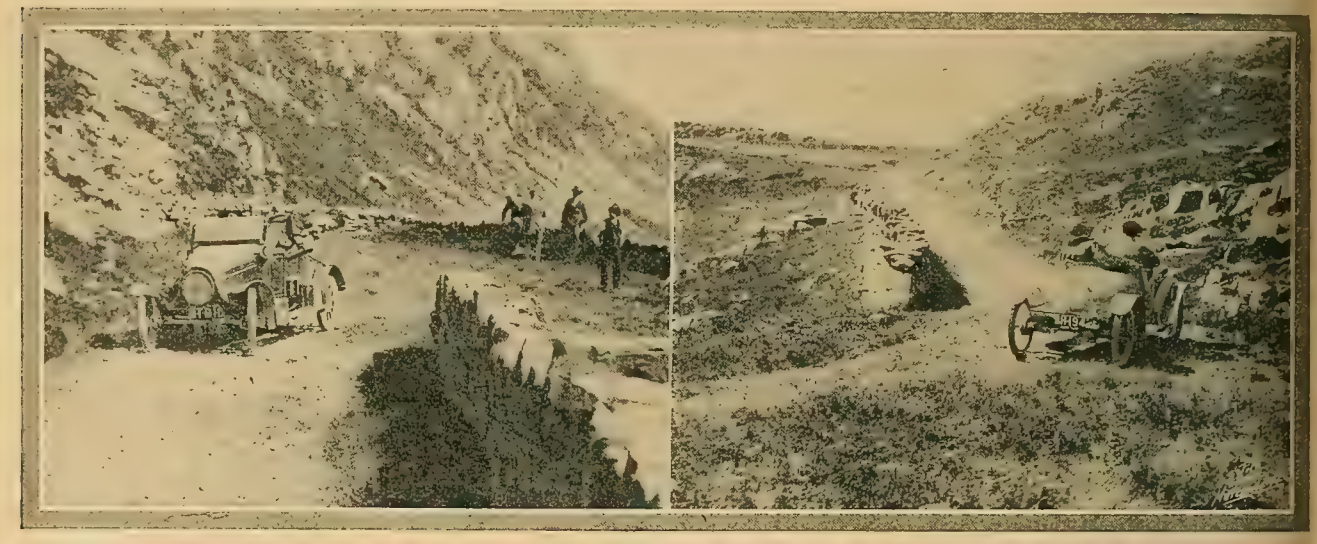
Passenger Class.—J. T. Wood (G.W.K. cycle car).

Club Award.—The Motor Cycling Club, represented by D. H. Noble, C. T. Newsome, and G. Featherstonhaugh, all 3½ Rovers.

Manufacturers' Team.—Components, Ltd., F. C. North, L. Newey, and V. Busby, all 3½ Ariels (subject to one time card being correct).

Agent's Nominee.—F. C. North (3½ Ariel) and S. T. Tessier (5-6 Bat) tied.

Private Owners.—W. C. Brandauer (7-9 Indian).



G. Armstrong on the 8 h.p. Gordon climbing Applecross Hill. Another aspect of the same hairpin showing a G.W.K. almost round the corner.

ENGLISH-DUTCH TRIAL.

Although the route for the above trial on August Bank Holiday remains a secret, we are able, for the benefit of motor cyclists who desire to see the trial, to give the following brief time-table:

Start from Oxford	...	9 0	a.m.
Pangbourne	... ...	10 0	,,
High Wycombe	...	11 24	,,
Tring (luncheon)	...	12 30	,,
Aylesbury	... ...	4 0	p.m.

A certain number of tickets are available for the official banquet at the R.A.C. on Saturday evening. We are asked to state that readers desiring to attend, may, by advising the trials secretary, Mr. W. Cooper, Elmcroft, Pinner Road, Harrow, by to-morrow (Friday) morning, enclosing 12s. 6d., obtain a ticket.

In connection with the prize fund, an interesting donation is that of Mr. I. Van Zwieten, of 56 62, Skinner Street, Pretoria, for £1 1s. Mr. Van Zwieten represents the Netherlands M.C.C. in South Africa, and has followed the trial through the medium of these pages.

CYCLE CARS AT LEICESTERSHIRE A.C. HILL-CLIMB.

On Saturday last the above club held a hill-climb at Beacon Hill, Woodhouse Eaves, in which one class was for cars up to 200 guineas and one for cycle cars up to 1,100 c.c. The positions on formula and time were :

	Time.
1. W. E. Bullock (10 Singer)	1m. 12⅖s.
2. J. E. Lester (10 Salmon)	2m. 24⅕s.

And in the class for cycle cars :

1. W. E. Bullock (10 Singer)	1m. 11⅖s.
2. T. H. Wathes (Morris-Oxford) ...	1m. 58⅖s.
3. J. F. Buckingham (Chota)	1m. 57s.

In each event an objection was lodged against the winner.

ENTRIES FOR BROOKLANDS BANK HOLIDAY MEETING.

AT the Bank Holiday Meeting at Brooklands there will be two races for motor cycles and one each for side-cars and cycle cars, particulars of which are given below. Racing commences at noon with one of the several car races on the programme.

12.25.—The August Sidecar Handicap. About 5¾ miles. Prizes—Cups, value £5, £3, and £2. For all classes of motor bicycles, the capacity of the engines of which does not exceed 1,000 c.c., furnished with sidecars and carrying one male passenger, weighing not less than 9½ stones.

Kenneth Holden (1-cyl. B.S.A.)
A. J. Luce (2-cyl. Zenith)
G. E. Stanley (1-cyl. Singer)
H. Jepson (1-cyl. Zenith)
H. A. Collier (2-cyl. Matchless)
J. Baxter (1-cyl. Armstrong-Villiers)
A. J. Brewin (2-cyl. Zenith)
F. W. Barnes (1-cyl. Zenith)
S. F. Garrett (1-cyl. Zenith-Green)
E. L. Moxey (2-cyl. Zenith)
V. E. Horsman (1-cyl. Singer)

2.5.—The Second Cycle Car Handicap. About 5¾ miles. Prizes—Cups, value £5, £3, and £2. For cycle cars, as defined by the Royal Automobile Club and Auto Cycle Union, carrying one male passenger at option.

J. T. Wood (2-cyl. G.W.K.)
H. E. Dew (2-cyl. D.E.W.)
G. W. Hands. (4-cyl. Calthorpe)
F. H. Ronksley (2-cyl. G.N.)
J. F. Buckingham (1-cyl. Chota)
J. C. Stringer 2-cyl. Winco)
B. Heywood (4-cyl. Singer)
A. E. J. Collins, R.E. (1-cyl. Chota)
R. V. Patterson (1-cyl. Chota)
J. V. Carden (1-cyl. Carden)
Cecil M. Whitehead (2-cyl. G.N.)
G. L. Holzapfel (1-cyl. Carden)
E. Jozot (2-cyl. Super)
D. C. Bolton (2-cyl. Bolton-Precision)

2.50.—The Thirteenth Long Motor Cycle Race. A handicap. About 8½ miles. Prizes—£10, £5, £3, or cups at option. For all classes of motor bicycles.

F. G. Edmond (2-cyl. Humber)
S. Yano (1-cyl. Triumph)
L. G. Brown (1-cyl. Corah)
E. L. Keller (1-cyl. Triumph)
J. A. Manners-Smith (1-cyl. Triumph)
Kenneth Holden (1-cyl. B.S.A.)
W. H. Wells (2-cyl. Indian)
F. C. Avery-Wright (2-cyl. Douglas)
George Roberts (1-cyl. Rudge)
J. A. B. Hellaby (2-cyl. Indian)
L. Hill (1-cyl. Rudge)
A. J. MacDonagh (1-cyl Rudge)
G. W. Miller (1-cyl. Grandex-Precision)
J. L. E. Emerson (1-cyl. Norton)
J. R. Haswell (1-cyl. Triumph)
E. E. Elwell (2-cyl. Douglas)
R. Bownass (1-cyl. Matchless)
W. A. Jacobs (1-cyl. Singer)
J. P. Le Grand (1-cyl. Singer)
G. E. Stanley (1-cyl. Singer)
J. Cocker (1-cyl Singer)
J. W. Tollady (1-cyl. Singer)
H. G. Partridge (2-cyl. N.S.U.)
R. B. Pullin (1-cyl. Rudge)
R. G. Parker (2-cyl. Humber)
V. E. Horsman (1-cyl. Singer)
S. Halsall (1-cyl. Veloce)
F. W. Barnes (2-cyl. Zenith)
Noel H. Brown (1-cyl. Indian)
F. H. Arnott (1-cyl. Rudge)
H. Hoffmann (2-cyl. N.S.U.)
H. Hoffmann (2-cyl. N.S.U.)
H. Hoffmann (1-cyl. N.S.U.)
C. G. Pullin (1-cyl. Rudge).
E. N. Openshaw (1-cyl. Triumph)
J. P. Nicholson (1-cyl. Zenith)
A. J. Brewin (2-cyl. Zenith)
H. A. Collier (2-cyl. Matchless)
H. Martin (2-cyl. Martin)
E. Remington (2-cyl. Matchless)
Percy Butler (2-cyl. Scott)
E. L. Moxey (2-cyl. Zenith)
J. W. Tollady (1-cyl. Norton)

4.5.—The Sixteenth Short Motor Cycle Race. A handicap. About 5¾ miles. Prizes—£10, £5, and £3, or cups at option. For all classes of motor bicycles.

F. G. Edmond (2-cyl. Humber)
J. L. E. Evans (1-cyl. Singer)
S. Yano (1-cyl. Triumph)
L. G. Brown (1-cyl. Corah)
J. A. Manners-Smith (1-cyl. Triumph)
W. H. Wells (2-cyl. Indian)
Kenneth Holden (1-cyl. B.S.A.)
F. C. Avery-Wright (2-cyl. Douglas)
George Roberts (1-cyl. Rudge)
J. A. B. Hellaby (2-cyl. Indian)
L. Hill (1-cyl. Rudge)
A. J. MacDonagh (1-cyl. Rudge)
G. W. Miller (1-cyl. Grandex-Precision)
J. L. E. Emerson (1-cyl. Norton)
J. R. Haswell (1-cyl. Triumph)
E. E. Elwell (2-cyl. Douglas)
R. Bownass (1-cyl. Matchless)
W. A. Jacobs (1-cyl. Singer)
J. P. Le Grand (1-cyl. Singer)
G. E. Stanley (1-cyl. Singer)
J. Cocker (1-cyl. Singer)
J. W. Tollady (1-cyl. Singer)
H. G. Partridge (2-cyl. N.S.U.)
H. Jepson (1-cyl. Zenith)
W. J. Startin (2-cyl. Ivy)
S. Halsall (1-cyl. Veloce)
F. W. Barnes (2-cyl. Zenith)
Noel H. Brown (1-cyl. Indian)
F. H. Arnott (1-cyl. Rudge)
Reg. G. Parker (2-cyl. Humber)
H. Hoffmann (2-cyl. N.S.U.)
H. Hoffmann (2-cyl. N.S.U.)
H. Hoffmann (1-cyl. N.S.U.)
R. B. Pullin (1-cyl. Rudge)
W. H. Buckeridge (2-cyl. Douglas)
C. G. Pullin (1-cyl. Rudge)
George Graff (2-cyl. Douglas)
E. N. Openshaw (1-cyl. Triumph)
G. L. Haydon (1-cyl. Calthorpe)
J. P. Nicholson (1-cyl. Zenith)
G. S. Woodman (2-cyl. Douglas)
J. E. Bird (1-cyl. Singer)
A. J. Brewin (2-cyl. Zenith)
H. A. Collier (2-cyl. Matchless)
H. Martin (2-cyl. Martin)
E. L. Buchanan (2-cyl. New Imperial)
Percy Butler (2-cyl. Scott)
H. A. Busk (1-cyl. Motosacoche)
E. L. Moxey (2-cyl. Zenith)
V. E. Horsman (1-cyl. Singer)

SIX DAYS' TRIALS, 1913.

Entries for the A.C.U. annual Six Days' Reliability Trials in Lakeland up to date are given hereunder :

C. B. Moss-Blundell (Precision)
F. E. Bartlett (Endurance)
C. H. Norrington (Enfield sc.)
T. Stevens (James sc.)
M. C. Breese (B.S.A.).
P. Grout (A.J.S.)
W. C. Drake (P. and M.)
P. Shaw (P. and M.)
W. Pratt (P. and M.)
F. Crosthwaite (Matchless)
H. F. S. Morgan (Morgan)
R. C. Davis (Clyno sc.)
I. P. McDonald (Norton)
J. A. Neumann (Rudge)
F. W. Applebee (B.SA.)
S. Sawer (Premier)
A. E. Catt (Triumph)
P. D. Walker (Summers and Harding)
J. D. Morrison (Bat)
J. Tippens (Rudge Multi)
J. H. Kerr (N.S.U.)
F. Dover (Premier)
T. J. Ross (Triumph)
G. D. Hardee (Triumph)
W. J. M. Sproulls (P. and M.)
F. K. Portway (Paragon cycle car)

A PROLONGED HILL-CLIMBING TEST.

ON Saturday last the Coventry and Warwickshire Motor Club held the annual trial for the Manville Trophy, presented by Mr. Edward Manville, J.P. The course, which measured 145 miles, was particularly severe, embodying no fewer than fourteen hills having gradients approaching 1 in 6. In short, all the noted acclivities on the Edge Hill and Cotswold ranges were included. There were thirty-one competitors on all types of motor vehicles, except cycle cars, which class received no support. Naturally with such gradients to contend with, it was not long before there was a thinning of ranks, and by the time the luncheon stop at the top of Birdlip was reached seven or eight were out of the running. As times were taken at the very summit of the hill, competitors found considerable difficulty in gauging their time accurately, as to slow down on a 1 in 6 gradient was not within the capacity of most. S. A. Rowlandson adeptly manipulated his Rudge-multi, and was practically dead on time. The return journey was equally severe, including a second climb up Sudeley. The three smallest powered machines—a Hobart and two Humbers—showed up particularly well on the hills, as also J. R. Haswell's Triumph sidecar. The trial erred in one direction only, and that was the intricate nature of the course, which it was impossible to follow with certainty by means of a route card only. As a result many left the route. The finish was at the Round Tower at the summit of Edge Hill.

The results were declared on the riders' ability to climb every hill and run to schedule. a secret check being introduced. S. A. Rowlandson (Rudge) easily came out top with a total deviation from the 20 m.p.h. schedule of 1m. 26s. In the sidecar class J. R. Haswell (Triumph sidecar), who lately openly expressed his pronounced disapproval of time checks to decide winners (and we must say we agree with him), proved himself a more expert timekeeper than his fellow competitors, his error only being 3m. 8s.

The list of survivors and their errors are appended :

MOTOR CYCLES.

Rider and machine.	Error. m.	s.
S. A. Rowlandson (3½ Rudge-multi) ...	1	26
A. N. Barratt (3½ Rudge-multi)	3	6
H. G. Liefieldt (3½ Rudge-multi)	3	9
D. Elson (6 Rex)	4	41
J. H. Pountney (3½ Rover)	5	55
Geoffrey Smith (2¾ Humber)	6	33
C. W. Graham (3½ Triumph)	8	11
W. G. Blatch (5-6 Rudge)	9	8
L. A. Pollack (3½ Singer)	9	17
M. Anderson (2¾ Humber)	9	20
J. Dudley (2½ Hobart)	9	46

SIDECARS

J. R. Haswell (3½ Triumph)	3	8
F. H. Brown (6 Rex)	7	17
W. H. Egginton (6 Enfield)	15	45
W. H. Carson (5-6 Excelsior)...	20	21
C. T. Lloyd (6 Rex)	21	38

TIME TO LIGHT LAMPS.

July	31st	... ...	8.49 p.m.
Aug.	2nd	... ...	8.46 ,,
,,	4th	... ...	8.42 ,,
,,	6th	... ...	8.39 ,,

The New Affiliation Scheme.

The committee of the Coventry and Warwickshire Motor Club has decided to affiliate to the Auto Cycle Union under the new five shilling scheme, no extra subscription being charged to members.

The Scottish Trials.

The excellent photographs of the Scottish Trials reproduced in this issue were taken by one of our staff photographers, who accompanied the competitors throughout on his 2¾ h.p. Douglas.

The final results of the Trial were issued on Tuesday morning, and appear in this issue.

Oils and Accessories.

Reverting to the paragraph in our last issue concerning oil used by the Grand Prix winner, T. E. Greene, we have received a letter from Messrs. C. C. Wakefield and Co. enclosing a copy of a letter received from the rider in question, stating that he used Castrol "C" exclusively in the Grand Prix and in the Spanish race. We give it up at this!

Scottish Border Hill-climb.

The winners of the first four classes are as follows:

CLASS I., FORMULA, OPEN (Lightweights up to 350 c.c.—Jas. Steele, Edinburgh (2¾ Douglas), 66s., 508 formula.

CLASS II., FORMULA, NOVICE (Singles over 350 c.c.)—K. J. P. Laing, Hawick (3½ Triumph), 59s., 669 formula.

CLASS III., FORMULA, NOVICE (Twins over 350 c.c.)—J. Balfour Robertson, Edinburgh (3½ Indian), 66⅕s., 708 formula.

CLASS IV., FORMULA, OPEN (Singles over 350 c.c.) — A. J. C. Lindsay, S.B.M.C.C. (3½ Rover), 57s., 593 formula.

Olympia Space All Let.

All the space available for the Motor Cycle Show is over applied for, and at this early date there is not an inch to let anywhere in Olympia. Over eighty firms who exhibited last year will be unable to show this time, as, not being members of the Union, their applications for space could not be entertained, in view of the fact that about sixty new members have joined. All the exhibitors next November are members of the Motor Cycle Manufacturers' Union. To make room for some of the tyre firms, the exhibitors' office space in the annexe has been curtailed, but tyres only will be on view there.

Another New Club.

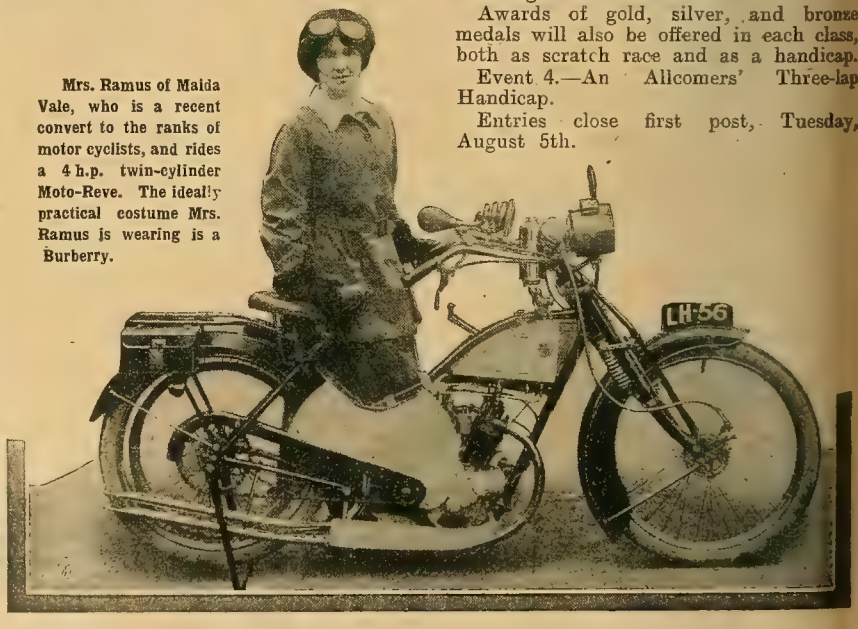
The latest club is the West Hants M.C.C., for motor cyclists in the neighbourhood of Wimborne. Affiliation is being sought to the A.C.U.

The Colwyn Bay Speed Trials.

In connection with the Colwyn Bay speed trials, the Mersey M.C. reports a correction. W. Heaton (2¾ A.J.S.) gained the second place in the 350 c.c. class and not V. Busby. In writing, Mr. Carty incidentally mentions that the prize fund amounted to the big sum of £160, and the Mersey M.C., having now settled all the accounts, find that it is a matter of a couple of pounds on the adverse side. But there is more than this amount to the credit of such a young organisation for its successful handling of the event.

Brooklands Six Hours' Race.

The official times for the recent Brooklands six hours' race (350 c.c. class) show that the first 3 h.p. Enfield actually covered a distance in excess of that first recorded. The exact figures are: 302 miles 1,521 yards. The Enfield performance in running into second, third, and fourth positions was considered so meritorious by the B.M.C.R.C. that three gold medals are being specially awarded to the Enfield riders. This is an unprecedented feature of a six hours' race, and bears testimony to the wonderfully regular running of the Enfield team.



Mrs. Ramus of Maida Vale, who is a recent convert to the ranks of motor cyclists, and rides a 4 h.p. twin-cylinder Moto-Reve. The ideally practical costume Mrs. Ramus is wearing is a Burberry.

SPECIAL FEATURES:

OFFICIAL ROUTES AND MAPS OF THE A.C.U. SIX DAYS' TRIALS.

CONTINUATION OF SCOTTISH TRIALS REPORT.

A STUDY IN CARBURETTER DESIGN.

Mont Ventoux Hill-climb.

The date of the Mont Ventoux hill-climb has been altered from August 9th and 10th to August 23rd and 24th. This is to allow competitors in the French International Cup Race at Le Mans who will also compete in the climb to have time to get to Mont Ventoux and make their trial ascents before the date of the event.

The Next B.M.C.R.C. Meeting.

The sixth members' meeting will take place on August 9th. The programme is:

Event 1.—The 350 c.c. 10 mile Record Race and Sealed Handicap, for motor cycles of Class A or B.

Event 2.—The 500 c.c. 10 mile Record Race and Sealed Handicap, for motor cycles of Class C.

Event 3.—The 1,000 c.c. 10 mile Record Race and Sealed Handicap, for motor cycles of Class D or E.

The above three races will provide an opportunity for establishing a ten-mile standing start record in each class.

Awards of gold, silver, and bronze medals will also be offered in each class, both as scratch race and as a handicap.

Event 4.—An Allcomers' Three-lap Handicap.

Entries close first post, Tuesday, August 5th.

Another Motor Cycle Club.

It is proposed to form a club for riders living in the neighbourhood of Belsize Park, N.W. Those interested should apply to Mr. G. O. Duggan, 11, Belsize Park Gardens, Hampstead, N.W.

International Cup Race.

Forty-four entries have been received for the Coupe Internationale des Motocyclettes and Motocycles, organised by the Automobile Club de Sarthe, which will be held on August 4th on the Circuit du Mans. Motor cycles will race over 324 kilometres and cycle cars and sidecars 270 kilometres. The entries are evenly divided between the solo and passenger machines. The classes will be divided as follows: Motor bicycles, 250, 350, and 500 c.c.; sidecars or tricars, 350, 500, 750, and 1,000 c.c.; cycle cars, 750 and 1,100 c.c. Competition will be keen between the Peugeot, Clément, Alcyon, and Griffon firms in the motor bicycle class. In the cycle car class, the Singer Co. has entered one of the four-cylinder cycle cars, and Peugeot Frères will race with three of the four-cylinder Baby Peugeots, which will be their first appearance in an important race. Among other four-wheelers will be a Belgian-made Fif, four cylinders, 59×100 mm., a vehicle new to British readers. In this race the competitors in each class will be started together, commencing with the speediest, so that spectators will be able to follow the results better.

FUTURE EVENTS.

Aug. 2-4.—M.C.C. Devon Trial.
" 4.—English-Dutch International Trial. Starting Point Oxford.
" 4.—B.A.R.C. Meeting at Brooklands.
" 9.—B.M.C.R.C. Race Meeting.
" 9.—Liverpool A.C.C. Open Trial.
" 9.—Nottingham and District M.C.C. Open One Day Trial.
" 9.—Herts. County A.C. Open Hill-climb at Kop Hill.
" 18-23.—A.C.U. Six Days' Trials. Carlisle as Centre.
" 30.—Streatham and District M.C.C. Annual Open Hill-climb.
" 30.—Hertfordshire M.C.C. Open Trial.
Sept. 6.—Coventry and Warwickshire M.C. Annual Open Hill Climb.
" 13.—B.M.C.R.C. Race Meeting.

Inter-club Team Trial.

For the inter-club team trial, organised by the Brookdale club for August 9th, the following have promised teams: Streatham and District, Woolwich, Plumstead and District, Purley and District; and the following are likely entrants: Surrey, Cardiff, and Tunbridge Wells. The promoting club will, of course, also put up a team. The course is a thoroughly sporting one, with a number of severe hills, and there are no secret checks, as it is anticipated that no team will finish complete. Teams consist of six, at least one of which must be a passenger machine.

Tourist Trophy Car Race in 1914.

A Tourist Trophy Race for cars is to be organised by the Royal Automobile Club, and will be held in the Isle of Man in June, 1914. The regulations will be issued at the end of next week. The Society of Motor Manufacturers and Traders and the R.A.C. are in entire accord concerning the regulations. The race will be a two-day event, for cars fitted with four-cylinder internal combustion engines, about three hundred miles being run each day.

SCOTTISH TRIALS. Hugh Gibson (3½ Bradbury sidecar) followed by a Bat sidecar on Glendoe Hill.

OFFICIAL MAPS AND CONTOUR SECTIONS OF THE ROUTE FOR THE A.C.U. SIX DAYS' RELIABILITY TRIALS.

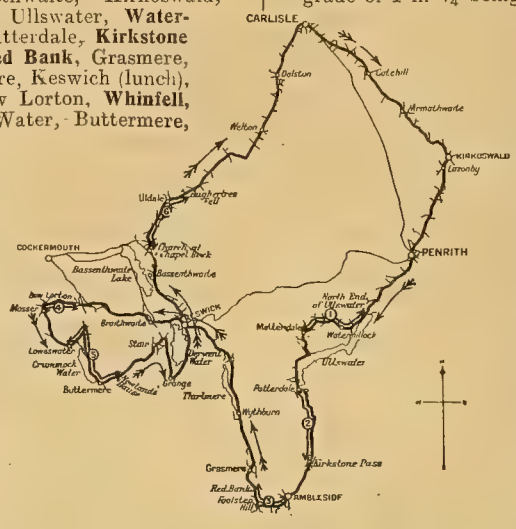
This week we are able to give the official routes and daily distances of the annual Six Days' Trials of the Auto Cycle Union, to be held chiefly in Lakeland, from Monday, August 18th, to Saturday, the 23rd. This year the first five days only will be devoted to testing the machines, and in that period a total of 783 miles will be covered. The sixth day will be devoted to a minute inspection of the machines, and marks awarded accordingly.

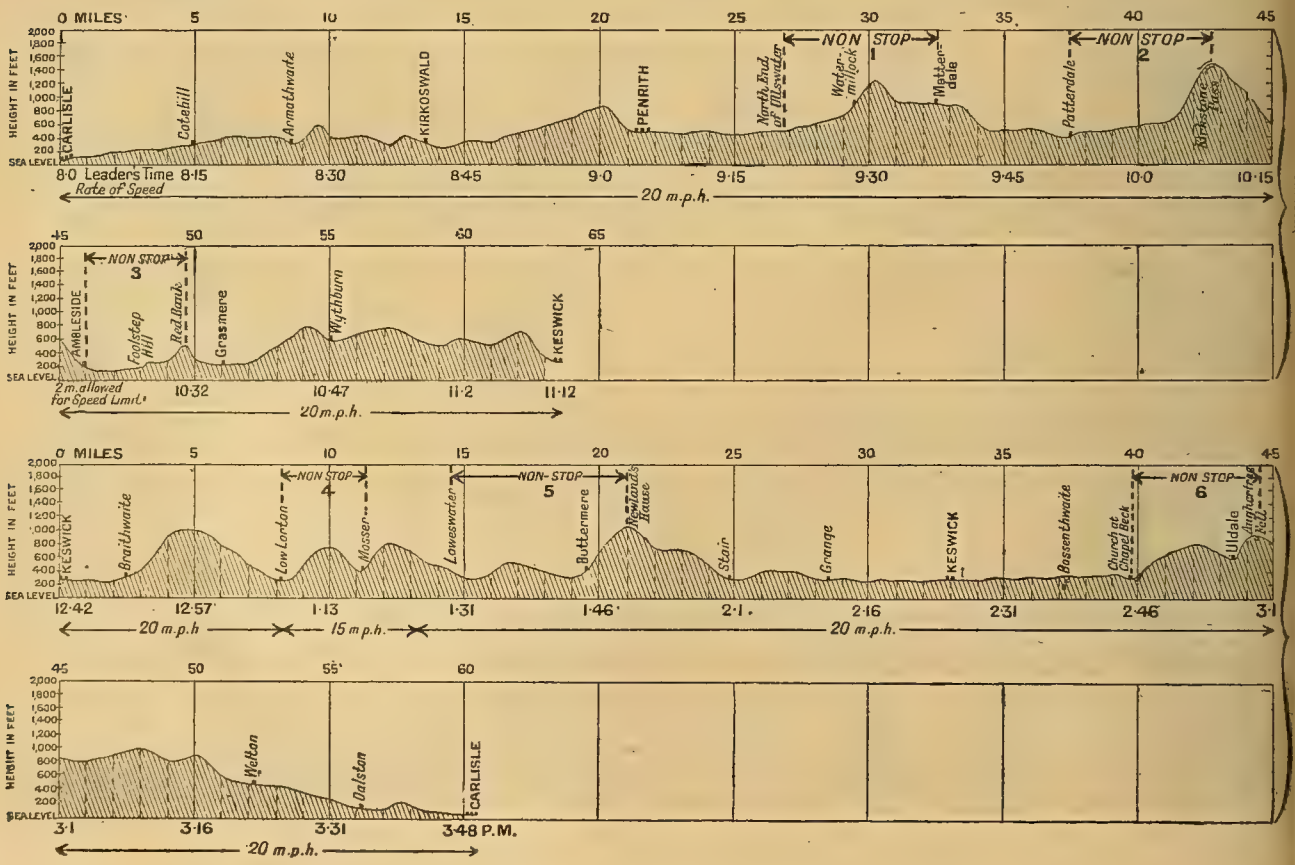
The description of the route, as well as the maps, are exclusive to "The Motor Cycle." The double lines on the maps refer to non-stop sections.

MONDAY (124 miles).

ROUTE: Carlisle, Cotehill, Armathwaite, Kirkoswald, Lazonby, Penrith, North End of Ullswater, **Watermillock,** Matterdale, Ullswater, Patterdale, **Kirkstone Pass,** Ambleside, **Foolstep Hill, Red Bank,** Grasmere, **Dunmail Raise,** Whitburn, Thirlmere, Keswich (lunch), Braithwaite, **Whinlatter Pass,** Low Lorton, **Whinfell,** Mosser, Loweswater, Crummock Water, Buttermere, **Buttermere Hause,** Newlands, Stair, **Gutherscales Hill,** Grange, Derwent Water, Keswick, Bassenthwaite, **Uldale, Aughertree Fell,** Welton, Dalston, and Carlisle.

Monday will be spent entirely among the lakes and hills of Cumberland. Until Ullswater is reached the road presents no difficulties, and the first climb will be **Underwood Hill** to **Watermillock Hause,** nearly a mile and a quarter in length, the upper portion, which contains three sharp turns, being the most difficult. The steepest pitch has a gradient of 1 in 4½. At Matterdale there is a turn to the left, and the lake is regained by descending the hill from Dacray, which passes near Aira Force. **Kirkstone Pass,** from the Ullswater side, is a long steady climb, the steepest grade of 1 in 4¾ being near the top. This is followed by the steep descent to Ambleside. **Foolstep** is a short hill, but it contains a sharp double turn near the top with a gradient of 1 in 3½. **Dunmail Raise,** should present no difficulty to the modern machine with its straightforward rise and good surface, 1 in 7 being the steepest grade. Then follows a beautiful run past Thirlmere to Keswick, over **Whinlatter Pass,** which rises nearly 720 feet in two miles, with two steep pitches (the worst being 1 in 5½) in the lower part. On the other side of Lorton Valley Whinfell (1 in 4½) has to be crossed. The road by Crummock Water to Buttermere is charming. Here a sharp turn to the left brings the riders on to **Buttermere Hause,** one of the stiffest hills in the Trials. There is a rise of 700 feet in less than a mile and a half, there are corners on a 1 in 4½ grade, eight deep water channels cut across the road, and a short rocky stretch of 1 in 3¾.



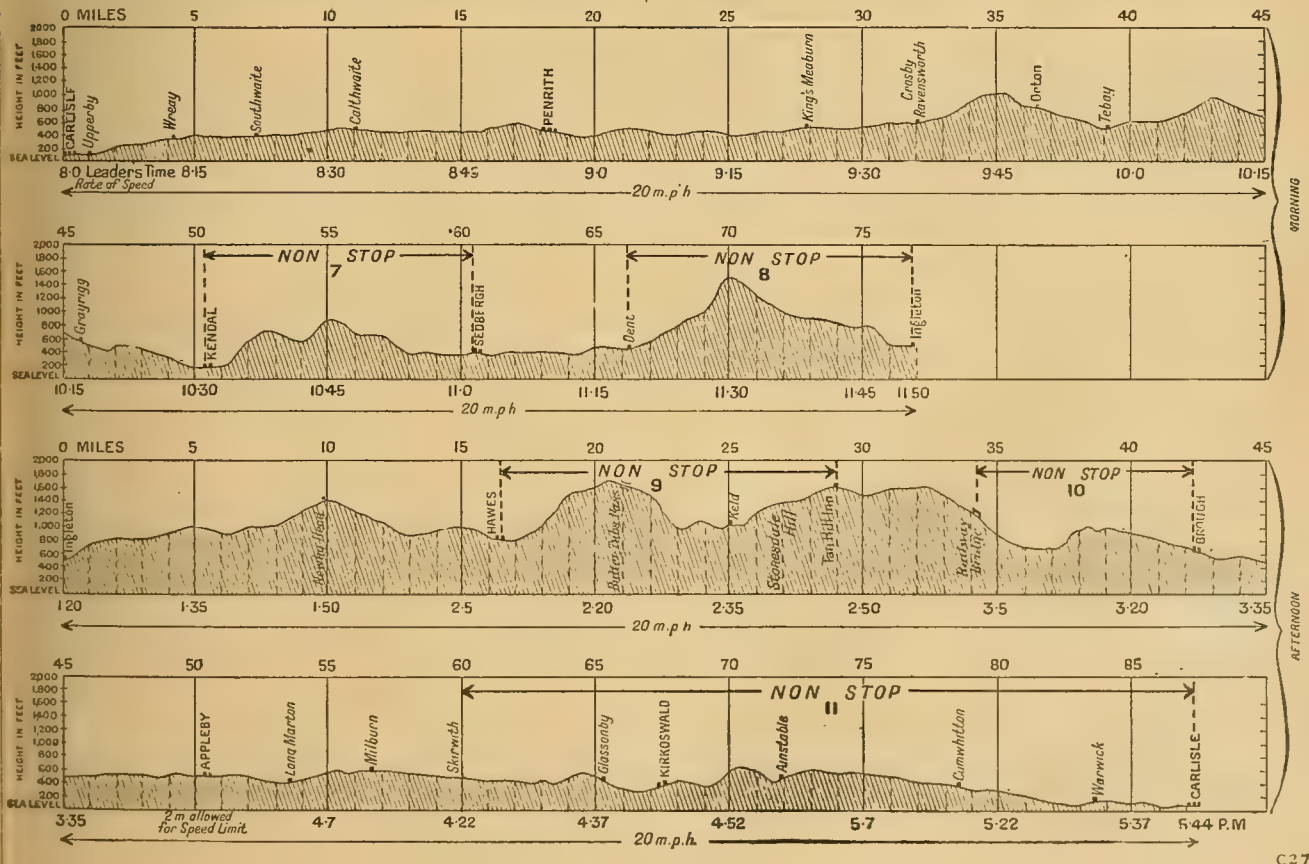


TUESDAY (164 miles).

ROUTE: Carlisle, Upperby, Wreay, Southwaite, Calthwaite, Penrith, King's Meaburn, Crosby Ravensworth, Orton, Tebay, Grayrigg, Kendal, Sedbergh, Dent, **White Shaw Moss,** Ingleton (lunch), **Newby Head,** Hawes, **Butter Tubs Pass,** Keld, **Stonesdale Hill, Tan Hill Inn,** Brough, Appleby, Long Marton, Milburn, Skiwith, Glassonby, Kirkoswald, Ainstable, Gumwhitton, Warwick, Carlisle.

On Tuesday the road lies through several counties and touches the Pennines as well as the Cumbrian hills. As before there is little of note until after passing Penrith, which is reached by byroads. Beyond Crosby Ravensworth there is a two and a half mile climb on moorland roads over the fell, followed by a drop to Orton and a second to the River Lune, near which the road lies for some miles till, with a right-hand turn, the ascent past Grayrigg Common commences, followed by about five miles of hilly road to Kendal. In Kendal a turn is made eastward and the ascent to **Park Head,** a rise of 500 feet in about a mile, begins almost immediately. Then follows a switchback road over the fells, with many turns and sharp rises to Sedbergh (known for its school).

At Sedbergh a sharp turn is made to the right and the road through Milnthorpe is taken up Dentdale and Deepdale. The road has been rising for some miles, but there is much more to come, as the pass over **White Shaw Moss,** between Whernside and Foul Moss has to be crossed. This is about 1,700 feet above sea level, more than 200 feet higher than Kirkstone Pass, and contains an S bend on a steep grade above Gastack Beck. Thence there is a long descent past Long Gill and Kingsdale Beck to Ingleton and the lunch stop. The afternoon's run begins with a long pull to Scar Close, a short drop to Ribble Head, and another long rise to **Newby Head,** after which there is a descent of five miles or so down Widdale to Hawes. Crossing Wensley Dale the riders at once begin the ascent of the **Butter Tubs Pass,** which was described fully in our issue of Nov. 7th, 1912, and then, drop into Swale Dale, and making for Keld and West Stones Dale face the long ascent to **Tan Hill Inn,** about 1,700 feet above sea level. The road now turns to the left over Causey Moss, maintaining a high level until the five-mile descent to Brough is reached. The more severe hills are now past, but there is much more minor climbing in the lanes between Appleby and Carlisle.



WEDNESDAY (147 miles).

ROUTE: Carlisle, Dalston, Welton, Warnell Fell, Caldbeck, Hesket Newmarket, Mungrisdale, Threlkeld, Wythburn, Dunmail Raise, Grasmere, **Red Bank**, Skelwith Br., Coniston, Torver, Blawith, Lowick, **Kirkby Moor**, Beckside, Ulverston, (lunch), **Higher Lath**, Grizebeck, Broughton-in-Furness, Ulpha, **Kiln Bank**, Broughton Mills, Broughton-in-Furness, Ulpha, **The Seat**, Eskdale Gn., Gosforth, Calder Br., **Cold Fell**, Ennerdale Bridge, **Crossdale**, Lamplugh, Mockerkin, Cockermouth, Bothel, Mealsgate, Red Dial, Thursby, and Carlisle.

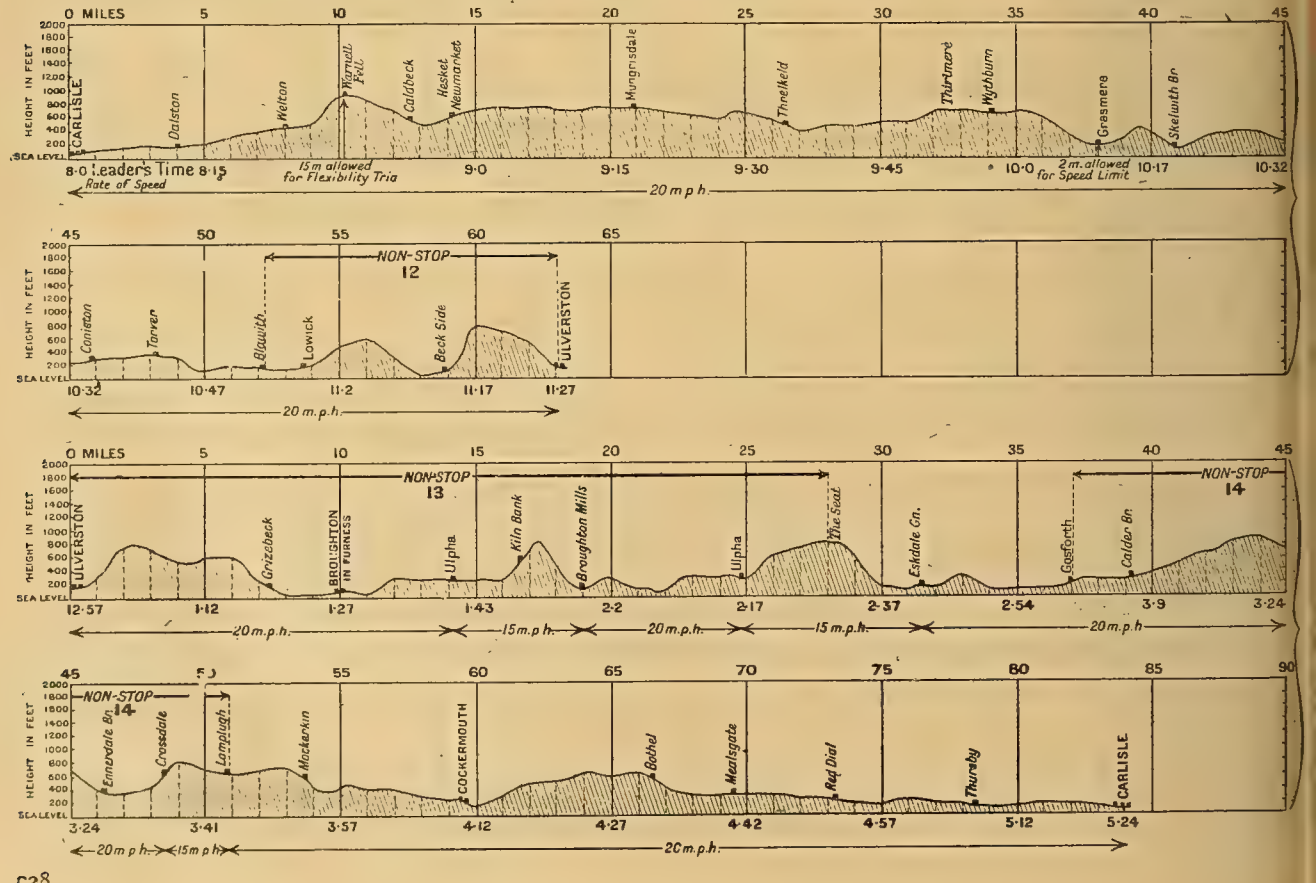
On Wednesday, the second day amongst the Lakeland hills **Red Bank** will be the first interesting climb. It will be reached by Caldbeck, St. John's Vale, and the easy side of Dunmail Raise. Red Bank usually troubles some or other of a company of riders. The surface is splendid and the corners are not troublesome; simple steepness is the feature of this well-known hill. The middle section is the most trying of all, the steepest gradient being 1 in $3\frac{2}{3}$.

Oxenfell is a main road hill which will be crossed on the way over to the Coniston Valley from Skelwith Bridge. It is nearly half a mile long, and has two hidden corners and a gradient on the upper part of 1 in 5.

After a pleasant run by Coniston Water and down the valley to Lowick, where a turn is made to the right, Kirkby Moor has to be crossed to Beckside and the fells recrossed to Ulverston.

Kirkby Moor Hill is practically two miles in length. Though not excessively steep it is a trying test for air-cooled engines. There are long stretches of 1 in $4\frac{1}{2}$ and 1 in 5 during the ascent from practically sea level to a height of nearly 900 feet. The surface is good. The same may be said of **Higher Lath Hill**, which will be climbed at the outset on the return journey northward from Ulverston. The latter hill is decidedly curly, and an upper sharp turn to the left, where a farmhouse stands on the right, will prove a problem to many. The middle part of the hill has a gradient of 1 in $3\frac{3}{4}$.

Dudden Dale is now ascended to Ulpha, where a circuit will be made to include **Kiln Park Brow**. This is a long, engrossing climb, full of sharp turns, abounding with gradients of 1 in $4\frac{1}{2}$. The surface is good. The fells are then crossed to Eskdale, and a pretty road is followed to Calder Abbey, where the ascent of **Cold Fell** begins. The surface is good, but there are about fifty water courses cut across the road. About 1 in 5 is the steepest gradient. The last climb is **Crossdale Hill**, near Ennerdale, with four turns and a gradient of 1 in 4 at the steepest part. Then follow some pretty but twisty lanes through Lamplugh to Cockermouth, a little town on the Derwent, whence the main road over Moota Common leads to Carlisle.



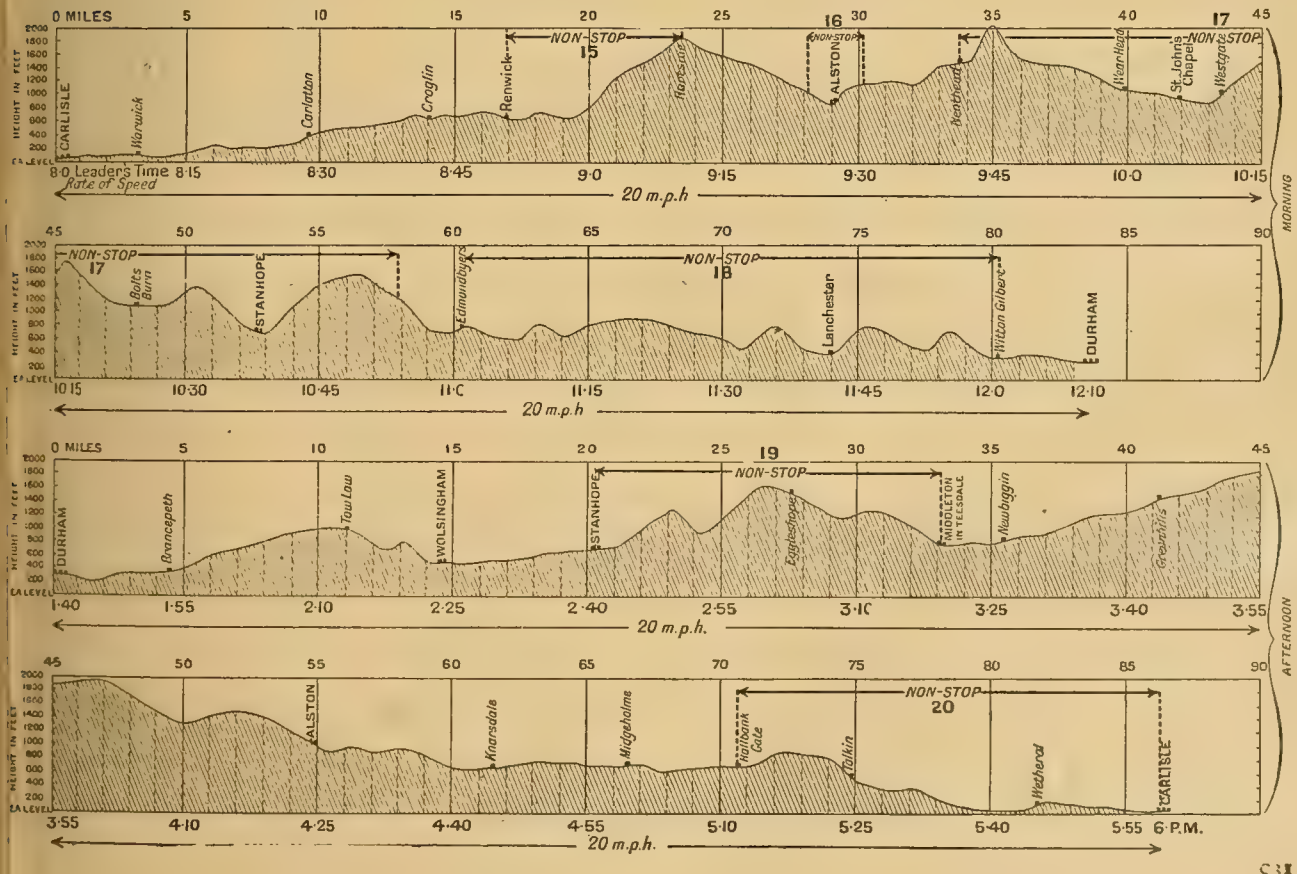
THURSDAY (170 miles.)

ROUTE: Carlisle, Warwick, Carlatton, Croglin, Renwick, **Hartside,** Alston, Nenthead, **Slate Hill,** Wear Head, St. John's Chapel, Westgate, **White Edge,** Bolts Burn, Stanhope, **Horseshoe Hill,** Edmundbyers, Lanchester, Witton Gilbert, Durham (lunch), Brancepeth, Tow Law, Wolsingham, Stanhope, Eggleshope, Middleton-in-Teesdale, Newbiggin, Greenhills, **Grass Hill,** Alston, Knarsdale, Midgeholme, Hallbank Gate, Talkin, Warwick, detour to Wetheral, and Carlisle.

Thursday's work begins with a long rise from Carlatton and short drop into Croglin. On the other side of Renwick a three-mile rise of about 1,100 feet will be encountered to **Hartside,** the top of which is 1,886 feet above the sea; then follows a long drop to Alston—nearly 1,000 feet in five miles. Moorland roads are traversed to Nenthead over **Slate Hill,** 2,056 feet above sea level, the highest point reached in the trials, through Wear Head and into Wear Dale, which is followed to Westgate, where a left turn again brings the riders on to moorland roads, and face to face with a severe ascent past Crook's Altar and over **White Edge,** 1,769 feet above the sea, to Bolts Burn. Wear Dale is regained at Stanhope, but a turn northwards is there made, and more climbing indulged in over Stanhope

and Muggleswick Commons and **Horseshoe Hill.** From Edmundbyers the road is hilly to Lanchester, but easier to Durham, the lunch stop. In the afternoon a rise of about 670 feet from Brancepeth to Tow Law will have to be climbed, followed by a drop to Wolsingham and a run up Wear Dale to Stanhope, where a turn to the left again brings the competitors on to the moorland roads, of which they will by this time have had much experience. A 400ft. rise is first encountered; the road then drops to a ford, rising again over **Bollihope Common** to a height of 1,678 feet above sea level, and dropping through Eggleshope to Middleton-in-Teesdale. From this place the road gradually rises to **Grass Hill,** whence it rises and falls, principally the latter, to Alston. The worst is now over for the day, and the valley is followed through Knarsdale, and so to Midgeholme, Talkin (the end of the fell road), and Warwick, where a detour is made to Wetheral and Carlisle. The feature of this day's run will be the moorland roads at high altitudes and of indifferent surface over the Pennine Range, known as the backbone of England.

The Auto Cycle Union invite the assistance of helpers at different points on the course. Readers willing to assist should write to the A.C.U. Secretary, Mr. T. W. Loughborough, 89, Pall Mall, S.W.



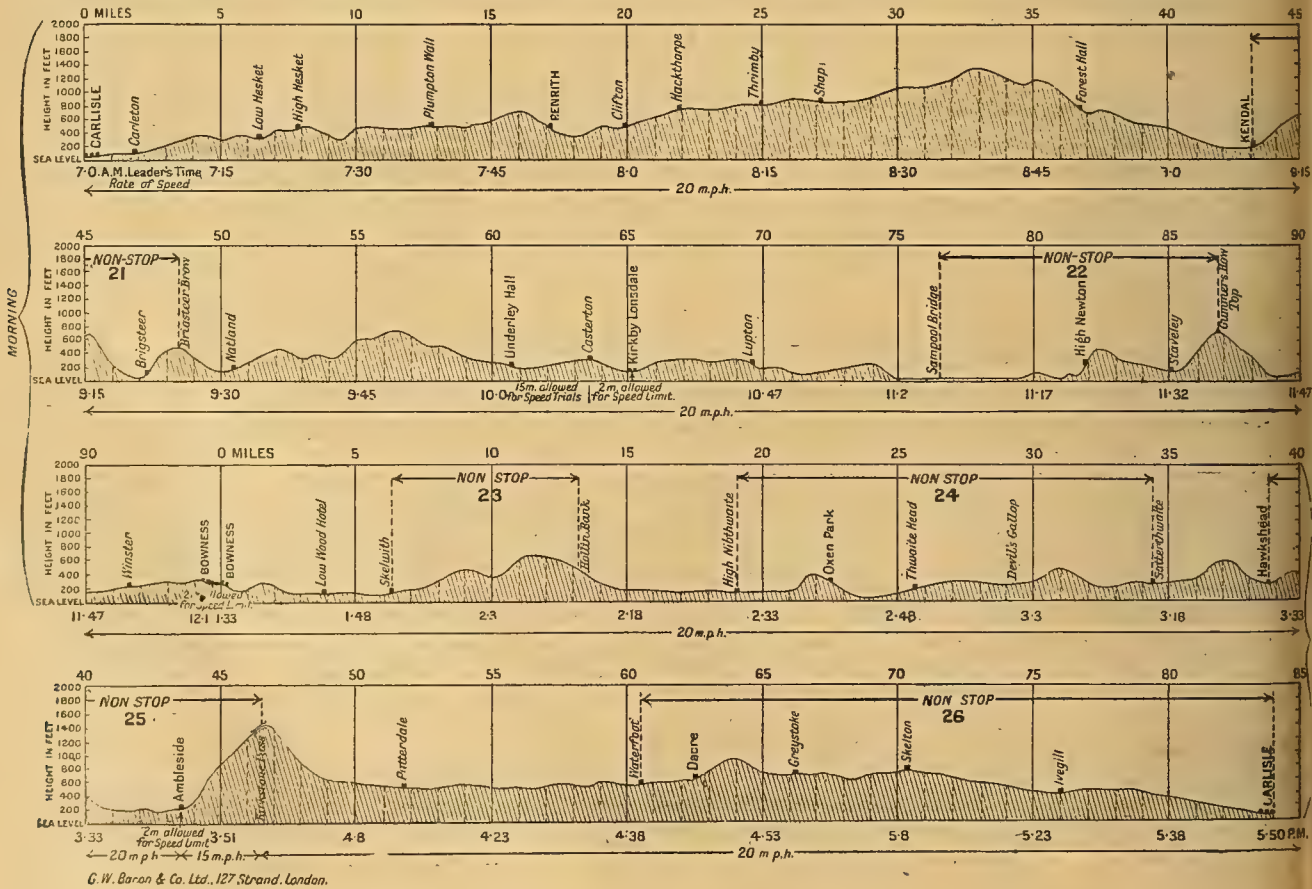
FRIDAY (178 miles).

ROUTE: Carlisle, Carleton, Low Hesket, High Hesket, Plumpton Wall, Penrith, Clifton, Hackthorpe, Thrimby, Shap, Forest Hall, Kendal, Brigsteer, **Brigsteer Brow**, Natland, Underley Hall (speed trials), Casterton, Kirkby Lonsdale, Lupton Sampool Bridge, High Newton, Staveley, **Gummer's How**, Winster, Bowness (lunch), Low Wood Hotel, Skelwith, **Hollin Bank**, Coniston Water, High Nibthwaite, Oxen Park, Thwaite Head, **Devil's Gallop**, Satterthwaite, Hawkeshead, Ambleside, **Kirkstone Pass**, Patterdale, Ullswater, Waterfoot, **Dacre Bank**, Greystoke, Skelton, Ivegill, and Carlisle.

The first ascent of any note is Brigsteer Brow, for although Shap Fell has to be crossed before Kendal is reached, this is no longer the problem that it used to be. The speed trials, which take place on this day at Underley Hall, will be interesting and instructive in view of the hill-climbing and other hard work to which the machines have been put. Though still somewhat rough, the surface of Tow Top has recently been improved. Thus many of the twelve corners have lost much of their difficulty, of which the ninth is probably the most awkward of all. The steepest gradients on the hill are 1 in $3\frac{3}{4}$.

Passing the foot of Windermere, the riders tackle **Gummer's How**, which, in contradistinction to twisting Tow Top, is a straightforward hill, with a lumpy surface but few loose stones. It rises almost 550 feet in a mile. The steepness is felt almost immediately, for there is a gradient of 1 in $4\frac{3}{4}$ quite low down. The lake is regained through Winster, and the stop for lunch is made on its shores at Bowness. The afternoon's run begins with a run along the lake side to Low Wood, after which Hollin Bank is crossed to Coniston Water, the shore of which is followed to High Nibthwaite, and the fells are crossed to Oxen Park. At Thwaite Head there is a maximum gradient of 1 in $4\frac{1}{2}$. The road then returns almost to Windermere, when it bends northward to **Devil's Gallop**, near Esthwaite Water, southward to Satterthwaite, and again northward to Hawkeshead. Nibthwaite to Satterthwaite, being a non-stop section, will require care. The steepest side of **Kirkstone Pass** is the next climb to be negotiated, namely, the precipitous rise from Ambleside. There is a rise of 1,300 feet in two miles seven furlongs. The surface is good as a rule in spite of the coach traffic, but the coaches do not as a rule descend this way and cut up the road with their skids. The steepest gradient is 1 in $4\frac{1}{4}$. This is a stiff proposition, as the Americans say, at the end of 700 miles or so.

After the beautiful ride along the shores of Ullswater, **Dacre Bank** will be the last of the Lakeland hills to be climbed. It is threequarters of a mile in length, and in that distance rises nearly 400 feet, finishing with a rise of 1 in 4. The surface is good, and from the crest of the Bank there is a magnificent last outlook over the mountains of Lakeland, whose heights and intricacies will be remembered by the Trials riders for many a day.



G. W. Baron & Co. Ltd., 127 Strand, London.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Is the Three-wheeler a Cycle Car?

Sir,—The reference to Mr. Parnacott's Cycar as a three-wheeled machine in my letter published July 24th is obviously a typist's error, as the machine is well known to be a four-wheeled machine.

For the Hon. Sec. of the Cyclecar Club,
A. C. ARMSTRONG.

Audible Warning.

Sir,—I have just been reading a paragraph by "Ixion" in *The Motor Cycle* for July 17th, referring to "Exhaust Whistles," which, although written in a humorous strain, is unfortunately the grim truth with regard to most of such fitments, and this was the reason why the Klaxon Co., Ltd., experimented for two years with the idea of applying the well-known principles of the patented Klaxon warning signals to a mechanically operated device for the use of motor cyclists, with the result that last June the Cycle Klaxon was placed upon the market.

The Cycle Klaxon is a particularly neat aluminium instrument, fitting on to the girders of the front fork, and controlled by a small Bowden thumb lever and wire.

In operation a friction disc is brought into contact with the rim of the front wheel, causing a ratchet or toothed wheel to revolve at a very high speed within the instrument, making contact with a button riveted to the centre of a chrome vanadium steel diaphragm, the vibration of which gives a prompt, impressive, and penetrating note which can at speed be heard upwards of a mile.

STEPHEN SHERMAN.
THE KLAXON CO., LTD.

A 10 h.p. Singer making fastest time in Class D of the Leicestershire A.C. hill-climb last Saturday.

The Irish End-to-end Trial.

Sir,—In your account of the Irish End-to-end Trial I notice you state I was knocked out through tyre trouble; this is not correct. What happened was, I had the misfortune to run into the stones that were deliberately placed on the road during the night, and was thrown off the machine, injuring my lamp in the fall. I had, therefore, to travel very slowly for about two hours in the dark and could not reach Cork in schedule time. J. ATKINSON.

Formula Results of the Cyclecar Club's Hill-climb.

Sir,—I am surprised to see in your issue of July 24th that you put the results of this club's hill-climb at South Harting under the heading of "*Revised* Official Results." Owing to the cubical capacity of some engines being erroneously stated on the entry forms, and having to be verified, and there were also chassis weights to be tested, it was not possible to issue immediately after the hill-climb anything but preliminary results. I beg to call your attention to a letter sent you on June 30th, enclosing these results, in which it was distinctly stated that "these results are provisional, and have not yet been passed by the judges."

The results which we had the courtesy to send you last week are the *first official results* that have been issued. The only competitor who apparently has been displaced, apart from the entrant whose machine was disqualified, is Mr. J. F. Buckingham, and he knew before the preliminary results were published that he had not the highest figure of merit, the former result being a fairly obvious error.

For the Hon. Sec. of the Cyclecar Club,
A. C. ARMSTRONG.

[Our correspondent is in error. As we pointed out on page 962 last week, in addition to Mr. Buckingham's position being altered from first to second in Class 3, Messrs. Lambert and Spencer change positions in Class 4. —ED.]

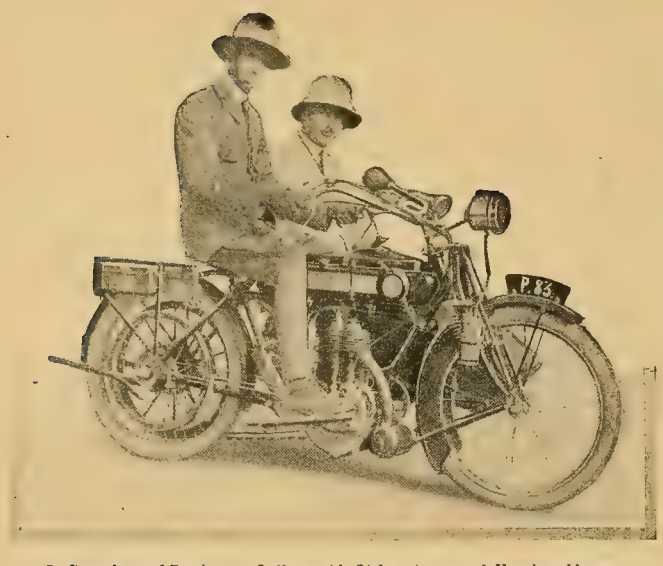
Fair Treatment.

Sir,—Having been a subscriber to your valuable paper for several years now, and seeing lately the comment on fair treatment, I should like to say that recently I had a sidecar connection break, which I returned to the Gloria Cycle Co., Coventry, and asked them to send me a new one to replace. This they forwarded free of charge and by return of post.

F. C. ANSTEY.

Sir,—Recently, whilst on a tour in the South of England, I had the misfortune to experience a breakage in a vital part of my Xl'All saddle, a fracture I must put down to my being a novice with a turn for speed, and running over a bad bump when my speedometer was indicating a velocity well above the limit of the law. Further progress was out of the question until the saddle had been repaired, so I went without loss of time to the agents of the Xl'All in London, Messrs. E. S. Thomas and Co. At their hands I received the most courteous treatment, as they, without referring to the head office, where the saddle had originally come from, repaired it free of charge whilst I waited. I may add that I have no interest in the firm.

H. E. WORTHAM.



C. Gonsalves, of Pershawar, India, on his 3½ h.p. two-speed Humber sidecar on which he recently climbed the Khyber Pass. The approach to the pass is by a road 24 miles in length which rises 1,700 feet. We understand that this is the first 3½ h.p. motor cycle and sidecar to make the ascent.

Glengesh Hill.

Sir,—In view of the photograph of Glengesh Hill, Co. Donegal, which appears in *The Motor Cycle* of the 17th inst., the enclosed drawing may interest your readers. The hill was included in both this year's and last year's Irish Open 24 Hours' Trial, and coming as it does in the wee sma' oors of the morning, after a long night's gruelling it really forms an exceedingly stiff test. I was unfortunately not able to be present this year, but last year I went over to the hill to see the competitors go up. The night was very stormy and wet, and most of the riders arrived at the hill in an exhausted state, and only three or four succeeded in climbing it. Healy's performance on a single-geared 3½ h.p. Rudge was a perfectly marvellous exhibition of skilful riding; he took the two S bends without falter. I was too far away to hear if he cut out, but, judging from the speed at which he came round, I should say not. The steepest portion of the hill is shown in your photograph—it is the part just coming up to the lower hairpin bend, and is 1 in 3.6. Just at the bend on the inside, it is, of course, much steeper.

To my mind, however, the most meritorious performance on the hill was that of Hugh Gibson with a 3½ h.p. Bradbury and sidecar with passenger, fitted, I believe, with Sturmey-Archer three-speed gear (the bicycle of course I mean, not the passenger). He *almost* made a perfect climb, took the hairpins in fine style, but just when about 150 yards from the top his engine showed signs of faltering, and he had to hop off and run alongside for about twenty yards until the engine picked up again, after which he sailed merrily to the top. After this the rank and file began to arrive with conking engines, and had to be assisted to the top. It is no light task to shove a 3½ h.p. single-geared machine up 1 in 5.

One incident of the day I have not seen mentioned in any account of the run. The doctor in Ardara most kindly sent his man to the top of the hill armed with a large bottle of the "juice of the country," and this was very much appreciated by both competitors and assistants after pushing machines up the hill.

The climb itself took place in more or less fine weather, but soon afterwards the rain came on again heavily, and those competitors who went on and completed the run certainly earned their medals. IH 94.

Simple Tip for Amateurs.

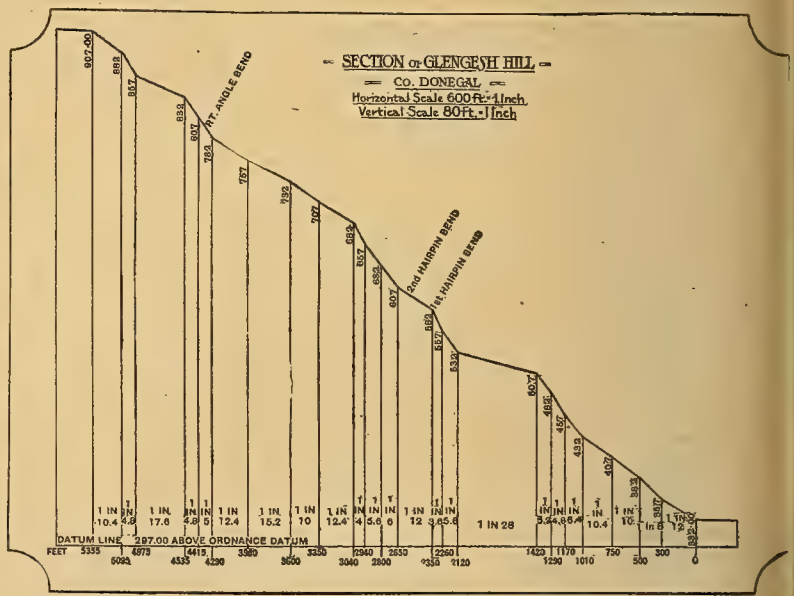
Sir,—Referring to the article by "Ubique," the one showing the making of paper washers for crank case and cylinder, although extensively practised, is not to be recommended, particularly to beginners who do not realise the force of a hammer blow.

I have actually come across several cases of the flanges being burred up so that the addition of the washer would not form an oil-tight joint owing to the cylinder being prevented from seating correctly. A sharp tap with the hammer penetrating the paper soon burrs up the sharp edge, and, for this reason, to use a file and erase the paper, although probably taking off the corner slightly, is far preferable.

While on the subject of tips, I would like to mention one which has proved useful on several occasions; it is a comparatively common occurrence for the nipples on the exhaust cable to come adrift through the chafing of the wire next the nipple. This has happened to me, and I mended it in the following manner: Cutting the ends of the inner wire clean and taking about half an inch off the outer covering I tied a piece of wire round the inner cable, about a quarter of an inch from the end, and then doubled over the strands and again tied the wire round, twisting it fairly tight with the pliers. This made a really good nipple, so good that I have not taken the trouble to alter it. A. BULL.

Dr. Low's Formula.

Sir,—Dr. Low has replied to his critics. As mistakes were made in working out the results some of the criticism was unfair, and as one of the critics I apologise. But surely the fact that such mistakes occurred and were not at once detected condemns the formula as too complicated for every day use. A formula not easily understood by the people or even by the majority of club secretaries, labours under grave disadvantage. The man in the street should be able to verify results for himself. He will not always trust the experts. Also, I should like to ask Dr. Low this question. Suppose that the G.N. (I won't mention the Morgan) has taken 98 lbs. ballast to equalise weights, in what time must it have climbed South Harting hill in order to beat the Cycar? The time taken by the Cycar was, roughly, four minutes, and, after subtracting the constant 200, the cylinder capacity of the G.N. was about three times that of the Cycar. Therefore, if T = time required, the equation $\frac{W}{31 \times T^{1.75}} = \frac{W}{12 \times 41.75}$ will give the answer. My mathematics are rusty, but I make the answer to be about 68 seconds, which is obviously impossible. Can Dr. Low correct these figures appreciably? H. GEORGE MORGAN.



Family Sidecar Outfits in the West Country.

Sir,—I herewith send you a photograph showing the way exes are used as waggonettes in the hilly West Country. he four Rex Sidettes shown carried thirteen people, in- uding tent and camping outfits. H. HOLMES.

Photograph accompanying Mr. H. Holmes' letter.

Benzole.

Sir,—Mr. Robinson's letter in your issue of July 17th makes my mouth water."

300 miles with sidecar on 3½ gallons of benzole sounds nderful. I also was touring at Whitsuntide out in N. ales. My consumption of Shell for 370 miles was nine llons, with sidecar of course, but only nineteen stone of ssengers. Would benzole show to such an advantage on two-stroke as it apparently does on a P. and M.?

C. S. BIRT.

ou cannot expect to improve your consumption more than 20% by the use of benzole.—ED.]

Sir.—In reply to your correspondent "B 1117," I write tell him and other users of Douglas machines that I have d benzole and find that on exactly one measured gallon this fuel I cover 172 miles at an average speed of 23 .h., and that under only fair atmospheric conditions; s was on a two-speed 1913 model with a Douglas car- retter. I have been told that with benzole the engine is lined to overheat; my experience is that it does not over- at an engine any more than petrol. I have fitted a smaller for benzole, and with this the engine will take a little re air than with a medium jet and petrol. With benzole engine will start, when warm, quite as easily as with rol, but when cold one has to walk about six steps instead two. If any user of a Douglas ever suffers from misfiring either cylinder, and if all four tappet rods and all four ve stems are working freely in their guides, the trouble almost certain to be an air leakage at the induction pipe. e should then wrap each end with insulating tape, and n it is a hundred to one that the misfiring will be cured.

A THREE YEARS DOUGLAS RIDER.

Tyres and Accessories in the T.T. Races.

Sir,—I should like to reply to Mr. Gordon L. Fletcher's ter in your issue of July 17th.

Like "H.G.L." on July 3rd, I was interested in the letter the Palatine Rubber Co., and felt that the question so cerned the ordinary rider, that no harm could be done hearing all sides through the columns of your interesting per.

am afraid Mr. Fletcher has missed my point. If he ers to my letter he will note I distinctly stated "some" n. It is not to be supposed for a moment every com- itor would be so foolish, but the fact that a few would so, if the inducements were tempting enough, introduces o the race a grave element of danger, not to themselves y, but to other competitors. I am not finding fault with e manufacturers who offer *prizes* to the winners using ir productions—that is perfectly legitimate and fair. complaint is the *wholesale subsidising of competitors*, various ways, whether they win or lose.

I am as fully aware as Mr. Fletcher of the huge expense any entrant for the T.T. has to face, and cannot blame, in a sense, any competitor who obtains assistance if he can. It is a serious problem, and one which will have to be faced.

I cannot agree with the remark that I show considerable bias in my preference for British made tyres; I said there were many British covers of far better quality than foreign ones, and I am prepared to prove it, and because I prefer to be patriotic I fail to see where bias comes in. I differ with him when he states that other makes had an equal chance. They *would* have, if the makers were prepared to subsidise competitors in the same manner as the foreign firms in question.

My point is, that if a firm of tyre manufacturers is able, by monetary inducements, to get the majority of competitors in a race to use its goods, any result it obtains is fictitious. That is my personal opinion, and is shared by others.

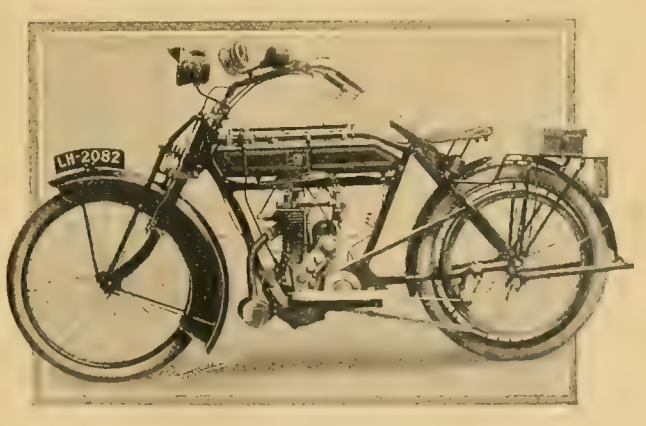
I may say I am not interested in any tyre company, or motor cycle business, beyond being an enthusiastic motor cyclist of thirteen years' experience, and one who has attended all the T.T. races for pleasure and sporting purposes only. FURTHER INTERESTED.

Falls and Footrests.

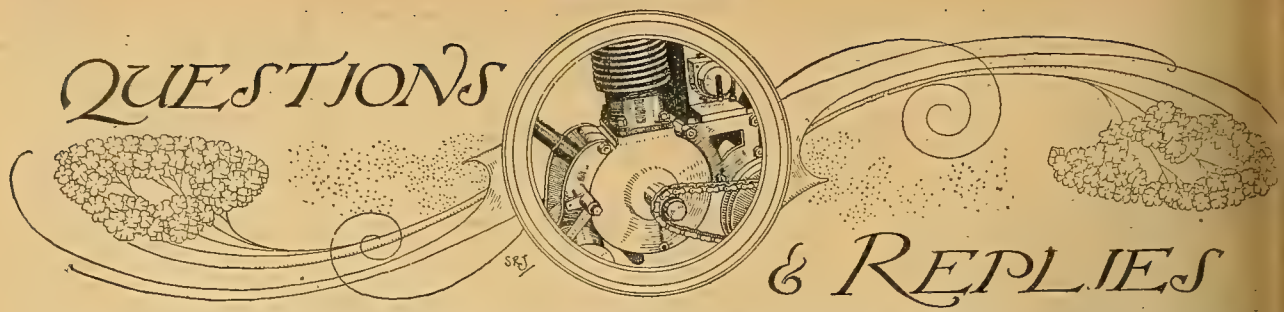
Sir,—I read "Ixion's" remarks in *The Motor Cycle* of 10th July, *re* his annual tumble, with interest, more especially as I was suffering from the effects of one taken on the 5th inst. When I descend from my machine hurriedly over the handle-bars I always try to roll. On the 5th I succeeded nicely, and should have escaped damage, but unfortunately I was carrying a couple of spare belts, and had stupidly coiled them round my waist. These belts seem to have been crossed behind my back, for as I rolled they hit me across the small of the back, getting well home with a beautiful "kidney punch" every time. I believe this punch is now illegal in boxing and am not surprised.

Owing doubtless to the fact that a well known rider, who should have known better, carried in the T.T. race, tools, etc., round his waist, this practice seems to be fairly common, and I think you might draw attention to the danger or annoyance it may cause.

"Ixion's" remarks *re* footrests were also excellent. There is one point, however, he did not mention. That is the absurdity of attaching controls, brakes, etc., to footrests. Every experienced rider knows the advisability of having his rear brake control clear of the footrests and manufacturers should know also. The actual T.T. machines are made with controls attached separately, but there are numerous 1913 machines with rear brake pedal attached to footrest. Climbing Amulree in a recent competition, I skidded on the first bend; my inside footrests struck the ground, but I somehow managed to keep going and found my wee 2¾ Douglas had averaged over 30 m.p.h. I did not think anything about it; but while descending I found my rear brake useless, and had difficulty in slowing sufficiently by braking with my feet on the ground, to get round the corners. I would like to suggest that the A.C.U. should debar all 1914 machines with controls attached to footrests from taking part in any competition held under its rules. If this were done *now* manufacturers would have no excuse in 1914. A.B.



The Armstrong—a standard design of motor cycle, embodying the 2¾ h.p. Villiers power unit.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Adapting Carburetter for Benzole.

I am thinking of using benzole on my 1913 6 h.p. A.J.S. Would you kindly answer the following questions? (1.) Would the carburetter (Amac) require to be especially adjusted; if so, how? (2.) What sized jet should be used?—J.S.O.

(1.) You might have to weight the float slightly. (2.) This can only be found out by experiment. Probably you will find that the machine will run without any alteration at all. On the other hand, you may, in addition to weighting the float, have to get an extra air inlet.

Machine Catching Fire.

I have a 3½ h.p. motor cycle which caught fire. Can you tell me the cause? It caught fire as I was attempting to start it on the stand. There has been a leakage of petrol into the lubricating oil; would this have caused it? I failed to put the fire out with water, and in case I have a similar occurrence, which is the best way to put it out?—J.D.

Probably the fire occurred through the inlet valve sticking up and the charge blowing back through the carburetter. It could not well be caused by a leakage of petrol into the lubricating oil. The only thing to do with a petrol fire is to smother the flames, either with a cap, cloth, sand, or use a chemical extinguisher. Do not, of course, use sand if you can possibly help it.

Steering with Sidecar.

I have a motor cycle with sidecar attached (rigid type), but, although it is apparently connected up with both bicycle and sidecar wheels perpendicular and parallel, I find the greatest possible difficulty in turning a corner to the left. The apparent tendency to fall outwards is such as to make turning corners or passing other vehicles when there is any camber at all on the road a veritable nightmare. I should be very glad if you could give me any hints as to the best method of getting over this trouble.—E.S.

Without actually seeing the machine it is almost impossible for us to tell what is the matter with it. You should carefully test the alignment with the aid of a straight piece of wood and a vertical setting of both motor cycle and sidecar with a plumb line. Provided the alignment is correct and the sidecar is properly attached to the machine, there should be no appreciable tendency to lean outwards. Take the machine to your local dealer and he will probably fix it up for you in a few minutes.

A Question of Wear.

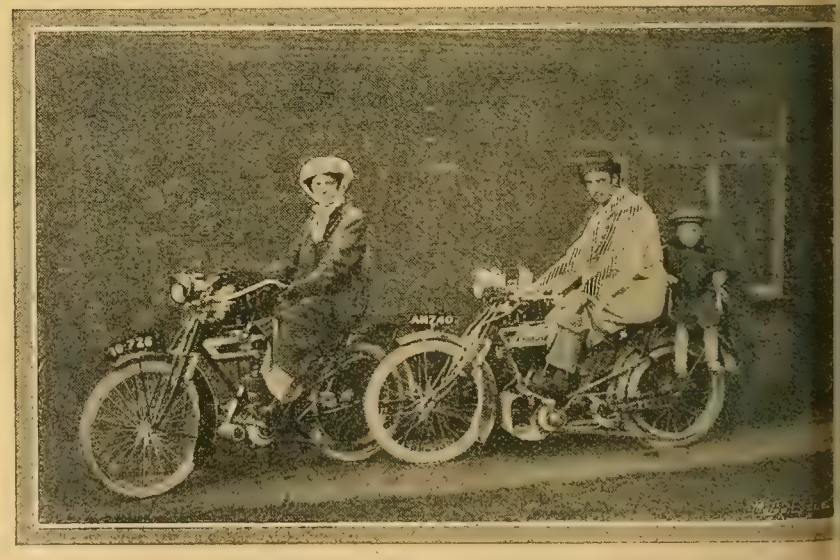
(1.) How far should an engine run, with roller bearings to both ends of the connecting rod, without attention to connecting rod bearings (with sidecar)? (2.) What is the usual life of the gear wheels driving the magneto from the engine? (3.) Which end of the connecting rod should be the quicker to wear? (4.) Are pistons with one ring at the top only satisfactory?—J.F.D.

It is difficult to give you any approximate idea how long the roller bearings will wear. Properly lubricated, they should not need any attention for ten or fifteen thousand miles. The life of gear wheels driving a magneto can be safely taken as being equal to the life of the engine. The small end of a connecting rod is most likely to wear first, as it may not get such good lubrication as the big end. The piston you mention can be taken as satisfactory, though two rings will probably give better service.

A Taxation Question.

I should appreciate replies the following queries: (1.) I ha bought a motor cycle (parts) a assembled machine, but not succeeded in making it go m than a few yards on a private ro Ought I to register and pay the t seeing I may eventually fail and ha to scrap it? (2.) I fancy a 2¾ h.p. o frame Douglas; would this be up thirteen stone? (3.) I prefer to enj scenery and throttle down to 12 a 15 m.p.h. for long stretches. this slow running harmful? Believing large belts to be m economical, is there any harm in fitti a 2¾ h.p. with pulley and belt rim 1in. or 1½in.?—Opoponax.

(1.) The point is a knotty one, but believe that you need have no licen until you leave the private road. however, there is a public right of w over the road, this will probably al the case. (2.) The machine you ment would be quite suitable for you. There is no harm in running slowly. 1in. and 1½in. belts would waste a lot power on so small a machine. We wo not recommend anything above ¾in. the machine in question.



MARRIED COUPLES WHO MOTOR CYCLE.

Mr. and Mrs. L. C. Rumens of Cranbrook, Kent, and their mounts — a 3½ h.p. Zenith and a 2½ h.p. three-speed Premier. Incidentally Mr. Rumens mentioned in a letter that he has never missed a number of "The Motor Cycle" since 1903.

The Law and Licences.

I should be much obliged if you could answer the following questions: (1.) Can a policeman stop you to ask to see your licence? (2.) Is he entitled to ... any more than just see you have ne, *i.e.*, can he take it out and examine ? (3.) For what offences can your cence be endorsed?—A.S.G.

A policeman in uniform is entitled stop a motorist at any time at his ction, and ask to see your licence, ch you are bound to produce on and. (2.) The law does not compel to hand your licence into the hands the policeman, nor is he entitled to mine whether it has any endorsements the back; but it is sufficient that he that you have it, and that its date es it valid. (3.) Your licence can endorsed for any offence for which are convicted under the Motor Car of 1903, except for exceeding the d limit -first offence—and for not ing a tail lamp alight.

Touring in France.

I should be glad of the following information: An outline of my way from Southport to London; main towns *en route* will suffice. London to Dover d time of boats to Calais; and Calais Paris and mileage. Are there any xes to pay, and has petrol to be ken out of the tank at Dover? Any lvice you can give will be most accept-le.—W.T.

r best route would be as follows: hport, Ormskirk, Preston, Rainhill, cot, Rainford, Warrington, Tar-ey, Nantwich, Woore, Pipe Gate, e, Weston, Rugeley, Lichfield, along ling Street, through Atherstone, entry, Weedon, Towcester, Fenny ford, Dunstable, St. Albans, London. not take your machine from Dover Calais, but from Folkestone to ogne, as they are more accustomed andling motor bicycles by this route, the sea journey is only half an hour r. Boats leave Folkestone at 11.55 and 4.10 p.m. All petrol has to be emptied out of the tanks. You have to take out an international pass, which is obtainable from the Royal Automobile Club (89, Pall Mall, S.W.), or the Automobile Association and Motor Union (Fanum House, Whitcombe Street, W.). It would be advisable for you to become a touring member of the Auto-Cycle Union (89, Pall Mall, S.W.), which costs but 5s., and they will obtain this pass for you through the R.A.C., and help you considerably as regards your tour. They also issue a special customs card admitting the machine into France free of duty.

Taking Machine to Australia.

I am anxious to take a second-hand motor cycle from England to Australia. Will you kindly advise me—(1.) If it can be shipped as personal effects. (2.) If the machine must be freighted and the cost of same. (3.) Are second-hand motor cycles admitted into Australia duty free? (4.) How long must a motor cycle have been used to be regarded as second-hand? (5.) If there is any duty on second-hand machines, what percentage on value is charged for same? (6.) What is the duty on new machines imported into Australia? (7.) What would be the best and cheapest method of packing and transmission of a motor cycle from Stockton-on-Tees to London and thence to Australia?—S.S.A.

(1.) No, we do not think motor bicycles can be shipped as personal effects. (2.) The cost of collecting, packing, and sending the machines to Australia from London would be about £2 7s. (3.) Second-hand machines pay duty according to their value. (4.) If you use the machine for a week or two, we should say it would count as a second-hand afterwards. (5 and 6.) The duty is reckoned at 25% on the value if of British manufacture; 30% if of foreign manufacture. (7.) We should recommend you to get into communication with Messrs. Davies, Turner and Co., Ltd., International Carriers, 52, Lime Street, E.C. You had better send the machine by rail and get it collected at the station.

Loss of Power.

I have a second hand 1910 3½ h.p. Quadrant, magneto ignition. It has lately shown a marked falling off in power when hills are reached. The machine gets very hot over the exhaust valve; in fact, red hot after a good run. When I stop, after a run of, say, eight miles, smoke issues from the crank case, coming out around the pulley and the joints; it also blows out a little when going. Even when I get off and run with it there seems scarcely enough power to take the machine up the hill; this is after it has been running for a few miles. There are practically no signs of it firing past the piston, but I can put the cylinder over the piston rings without pressing them in their grooves at all. I have a No. 30 jet on, and can give more air than throttle when on the level.—W.M.

The trouble is probably due to too weak an exhaust valve spring, or the exhaust valve not having sufficient lift. Also see that the cylinder head and piston are clear of carbon deposit. If the engine is suffering badly from overheating you should immediately take steps to discover the cause. From what you say about the piston rings, it seems as if these ought to be renewed. The carburetter adjustment seems to be about right.

READER'S REPLY.

Decompressors and Easy Starting.

I notice "W.M.P.'s" query *re* decompressor on 3½ h.p. Hobart. I have a 3½ h.p. Hobart 1912 three-speed and side-car, and find an Endrick decompressor a great advantage, being able to take the machine out and start up at a walk when cold. I think "W.M.P." would not regret fitting one.—J.H.C.

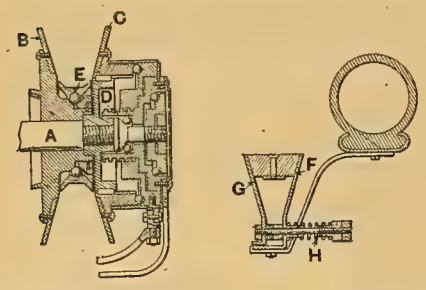
If "H.H.W.," "F.N.G.," "E.F.," "E.F.W.," "G.D.," "G.W.L.," "W.H.W.," "A.E.K.," and "R.E.M.," will conform to our regulations and send a stamped addressed envelope, they will receive a reply to their questions.

AN INCIDENT OF A LONG DISTANCE RELIABILITY TRIAL.

Competitors, too early, are waiting outside a check. The village is Colsterworth, near Grantham, and the competition the Bradford M.C.C. team trial from Bradford to London and back.

An Expanding Pulley Gear.

This gear is of the type in which the engine crankshaft A has fixed to it one pulley flange B, whilst the other C can be adjusted towards or away from the flange B to vary the effective pulley diameter. This is brought about by moving angularly the screwed sleeve D by means of a control lever arranged at the side of the machine. At E is a ball



bearing ring, upon which the belt rests when the pulley is fully expanded, so that the engine may then run free. To take up the slack of the belt the rear pulley is caused automatically to contract. The flange F of the rear pulley is fixed, but the flange G can move away from the flange F when the belt becomes tight. When the belt is slack the pulley flanges move towards one another by the action of the springs H.—F. W. Peterson, No. 25,901, 1912.

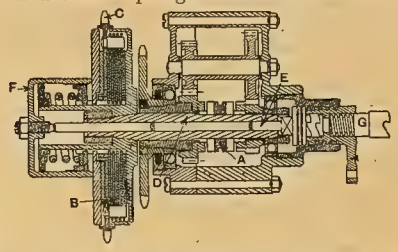
PATENTS

BY

ERIC W WALFORD. F.C.I.P.A.

A Countershaft Gear.

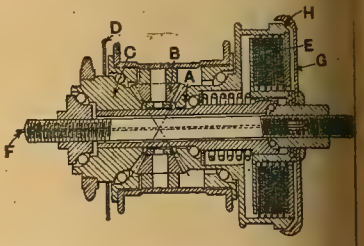
The change speed gear is of the lay shaft type, and the dog clutch A is moved to the left for the top speed and to the right for the reduction. Outside the gear box is arranged a plate clutch B which normally clutches the sprocket C (by which the power is transmitted from the engine) to the driving-shaft D. By moving the rod E to the left the casing F and clutch spring are also moved to the



left and the clutch is released. This is effected by moving the arm, which is fixed to a screw device through which passes a short starting-handle shaft G, which engages the clutch-actuating rod E at a point where this has a non-circul action with the driving-shaft D. T chain sprocket on the engine-shaft driven through a slip device.—E. Jardi and E. Watchorn, No. 11,529, 1912.

A Two-speed Gear and Clutch.

The gearing is of the bevel type, co prising a sun pinion A, planet pinio B carried by the hub shell, and a drivi pinion C attached to the driving slee which carries the belt pulley which



attached to the disc D, and also t pedalling chain sprocket. When the pla clutch E is engaged the gear revolves a solid mass, but by drawing the rod to the left the clutch is disengaged a the disc G is also moved to the le giving the free engine position. further movement of the rod F to t left the conical surfaces at H are brou into engagement with one another so th the sun pinion A is held stationary a the hub driven through the gearing L. Lamblin, No. 25,265, 1912.

Benzole in Oxford.

We are informed that benzole may be obtained in Oxford at the Morris Garage, Longwall Street. The proprietor of this garage Mr. W. R. Morris is well-known in connection with the Morris-Oxford light car.

Mabon's New Address.

Messrs. Mabon Motor Works, makers of the Mabon Controllable Pulley, have changed their address from 34, High Rd., North Finchley to 29a Woodside Gardens, Bruce Grove, Tottenham, N.

Gears for Cycle Cars.

Messrs. A. W. Wall, Ltd., Hay Mills, Birmingham, whose Roc gear on motor cycles has been so well known for a number of years, have now produced a gear on the epicyclic principle, embodying two speeds forward and a reverse, which is built specially for cycle cars. The gear set can be supplied either in conjunction with a differential back axle and shaft drive, or for use with a combined chain and belt drive, and should prove a useful set for cycle car makers in want of this particular type of gears.

A Trip by Cycle Car.

Mr. P. Maas, of the Swift Co., has recently accomplished a journey of 3,235 miles on a Swift cycle car without any mechanical trouble. His route was from Coventry, through London, Folkestone, Calais, Lille, Amiens, Dieppe, Havre, Trouville, Caen (where a steep hill was climbed without a falter), Cherbourg, St. Brieuc, Brest, Paris, Brussels, Utrecht, Amsterdam, Arnhem, Rotterdam, Hull, and back to Coventry. The longest day's run was 156. Both the Swift cycle car and its Dunlop tyres, we are assured, were in perfect condition at the end of the trip.

SPARKLETS

Gears in the T.T.

Messrs. Philipson and Co., the makers of the Philipson automatic governor pulley, desire us to state that the only machines fitted with their standard type pulley in the Tourist Trophy Race were the three Rovers which won the team prize.

Tyre Successes.

In the Spanish Tourist Trophy Race, the result of which was published in our last issue, the winner, F. A. Applebee (Scott), and T. E. Greene (Rudge), who was third, both used Continental tyres.

C. F. Halsall's 8-10 h.p. Wilton light car, which won Class D (powerful motor cycles and sidecars and cycle cars) in the Hertfordshire M.C.C. 100 miles half-day reliability trial, speed test and hill-climb, July 19th, was fitted with Clincher tyres.

An Echo of the Grand Prix.

It is interesting to note that the first three riders in the 350 class in the Grand Prix used M.A.G. engines, and also Enfield gears, which are now being placed on the market to be sold as a separate fitting. Enfield gears, whose worth has long been known, certainly scored a signal success in this the most important motor cycle road race held in France.

Brisk Demand for Sidecars.

Another indication of the prosperity the sidecar trade is the experience Messrs. Mead and Deakin. Two ye ago they were making one sidecar week; now they have their fine new wo at Tyseley, are employing ninety han and this year's output will exceed 3,0

A New York motor cyclist who wis "to take off his hat to England and t great British producers of the A motor cycle" writes that he sent for so spare parts for his Ariel, which, arrival, fitted perfectly. He also s that he is able to run away from mot cycles of higher power than his own.

Popularity of Xl'All Saddles.

The new premises of Xl'All, Ltd., H Green Works, Birmingham, which w taken over last week, are an instance the popularity of this original type saddle. Five hundred saddles are t present weekly output of the compa but as the sales of 1913 are 1,200% advance of 1911, readers can appre the need for the works extensions.

Featherweight Pistons.

Whatever the merits of steel as c posed to cast iron for pistons for ord ary use, there is little doubt that racing or fast riding, when a very lig and strong piston is required, steel a great deal to recommend it. T Oxygen Welding Works, Ltd., Sum Lane, Birmingham, make a specialit supplying steel pistons for motor cycl and we learn that the recent succes obtained by A. B. Wade at Caerphi and Porthcawl on his Zenith we achieved with the use of steel piste supplied by this firm. These pistons a known as the Simplex patent feath weight steel pistons.

Beldam Side Grip for Side Slip.

The deep clear cut "V's." give a splendid side grip for side slip. You ride on greasy roads and take sharp corners with the utmost confidence. Quality of workmanship and materials is of the very best.

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ENDURING RELIABILITY OR PROHIBITED SPEED

Reliability is the first and last essential of a touring motor cycle. It is, coupled with efficiency, the first and last demand of the great majority of motor cyclists. The greater its reliability and efficiency, the more desirable the machine.

Speed is a secondary factor with motor cyclists who ride for pleasure. As long as the engine is capable of developing a good turn of speed when desired, power on hills and enduring reliability are the first and principal need.

A motor cycle built more for speed is quite unsuited to hard road conditions. It cannot withstand the severe strain for any length of time. Such a machine is too "highly strung"—the mechanism is too delicate—it requires skilful handling and constant attention in order to be free from endless trouble. And it is efficient in one respect only—roaring speed, which serves no practical purpose, is dangerous to life and limb, and is prohibited on the broad highway.

Again, like a speed machine, the sensation of mercurial travelling is short-lived; hence the limited demand for this class of machine. We say "limited demand" advisedly, because certain manufacturers have mistaken the public demand, and have heavy stocks of motor cycles on hand for which there are few buyers, and which are offered at reduced prices.

We have concentrated our knowledge and attention in producing a motor cycle fit for **all** roads and conditions—home and colonial—with power to take the stiffest hills, strength to withstand the hardest usage, efficiency and reliability to render a completely satisfactory service without hesitancy.

Our efforts have been rewarded with unqualified success—evidenced by the unbroken successes of the L.M.C. in hill-climbing contests, in endurance trials, in petrol consumption tests, and, finally, in the greatest of all tests—the service of the private owners, all of which express their delight and appreciation of the splendid behaviour of the L.M.C. on all occasions.

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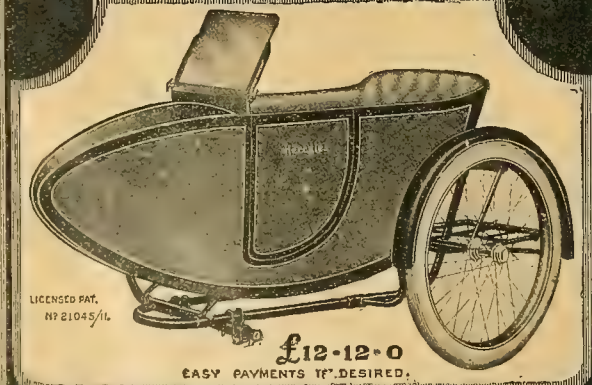

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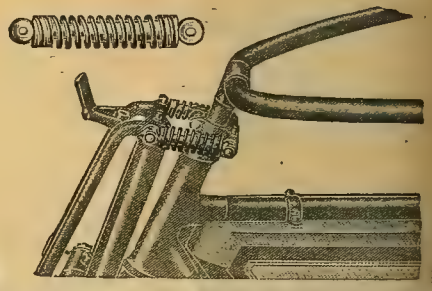

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IMMEDIATE possession of any of these Motor Cycles on payment of a ⅛ of its cost.

Payment of the balance can be extended over a year. For this added convenience we charge **2½% on the balance only.**

The extra is only 2%, or less, on the entire cost of your machine. The greater your original deposit, the less your machine costs in proportion.

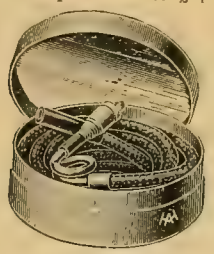
DOUGLAS, Model O, 2¾ h.p., 2-speed	**£48 0**
DOUGLAS, Model R, 2¾ h.p., 2-speed	**£52 0**
DOUGLAS, Model P, 2¾ h.p., 2-speed	**£48 0**
TRIUMPH, 3½ h.p., 3-speed	**£59 15**
REX, 6 h.p., 2-speed	**£62 10**
INDIAN, 7 h.p., 2-speed	**£70 0**
SINGER, 2½ h.p., fixed engine	**£39 0**
ARIEL, 3½ h.p., 3-speed	**£59 10**
B.S.A., 3½ h.p. 2 speed	**£60 0**

TRIUMPH, INDIAN, and B.S.A. Motor Cycles supplied on Makers' terms.

SELFRIDGE & CO., Ltd., OXFORD ST., W.

SPECIAL BARGAINS.

	Usual Price	Reduced to
LEA-FRANCIS, 3½ h.p., twin-cylinder, 2-speed, countershaft gear, chain drive	£68 5 0	**£63 0**
NEW HUDSON, 3½ h.p., 3-speed, belt drive ...	£60 18 0	**£56 5**
SUNBEAM, countershaft gear, 2¾ h.p., 2-speed ..	£63 0 0	**£58 5**
MARTIN-JAP, 8 h.p., fitted with speedometer ..	£64 6 0	**£59 10**

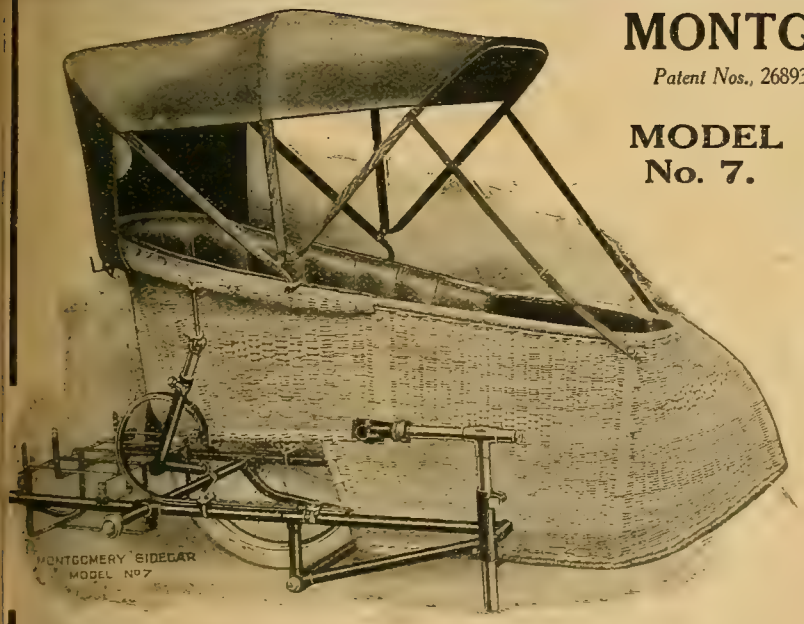


REPAIRLITE. A portable light for use on the road. Can be fitted to any acetylene generator, and packed up neatly in a flat circular tin .. **1/9.**

JACK for Sidecar (as sketch), very light in weight and convenient for travelling, taking up little space, **3/6.**

MONTGOMERY SIDECAR

Patent Nos., 26893/10, 26894/10, 26895/10. *Prov. Patent*, 24482.
Regd. Nos., 610486, 610485.



MODEL No. 7.

This is an entirely new model, produced in response to numerous enquiries for a sidecar of light construction for use with the standard 3½ h.p. motor cycle, but strong enough for hardest work, and which can be driven with confidence at the highest speed. Our registered design frame has enabled us to do this, and we strongly recommend it.

SPECIFICATION.—Code Word, "STATING."

CHASSIS.—New model register design girder frame, giving a wide margin of strength for use with machines capable of high speeds. Made of finest quality weldless steel tubing. Extended at back for luggage.

SPRINGS.—Double leaf "C" springs, finely tempered and enamelled black. Front of body supported on our well-known patent transverse foot spring.

BODY.—New pattern best quality wicker, with deep seat and ample leg room, providing most comfortable riding. Upholstered, in best style and material, red, green, or tan to order. Complete with cushion and coverall apron in motor twill.

WHEEL.—26 x 2¼in., black enamelled rim, specially strong dustproof hub, axle turned from the bar. Michelin beaded-edge motor cycle tyre, or to order.

MUDGUARD.—Large size, brought well down over the wheel, and firmly secured to the frame.

ATTACHMENTS.—New patent quick-detachable attachments, provided with double security locks and our latest type of back fitting, which enables the axle to be adjusted in perfect alignment with the ground.

LAMP BRACKET.—Fitted on frame in front of mudguard.

FINISH.—Best black enamel, or colour to order. Usual parts heavily plated.

WEIGHT.—About 78 lbs. **WIDTH.**—37in. overall, but will pass through 34in. doorway.

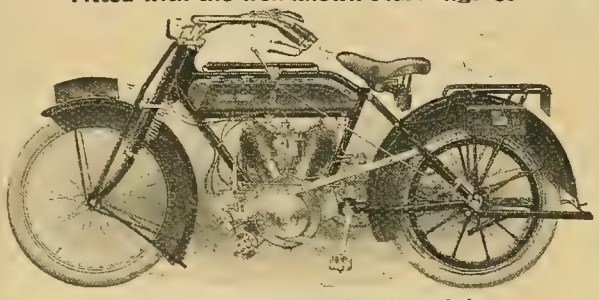
Price £12 0 0 as Specification.
„ £15 5 0 with Coach-built Body.
„ £15 5 0 with Art Cane Body.

W. MONTGOMERY & Co., Patentees and Manufacturers, COVENTRY.

CAPE TOWN, S.A.: Messrs. T. Cook and Sons, 18, Strand Street.
ITALY: Signor Piana-Lazzari, Via della Dogana C, Florence.
FRANCE: Societe Francais des Cycles, Clement and Gladiator, Grand Rue 76, Pre St. Gervais (Seine).
CANADA: W. Porter, 5, Brunswick Avenue, Toronto, Ont.
For the AUSTRALASIAN TRADE all enquiries to Bennett and Wood, 284 and 6, Pitt Street, Sydney, N.S.W.

ROYAL RUBY

Fitted with the well-known J.A.P. Engines.



Copy of Unsolicited Testimonial.

The Manchester Wheelers' Club,
June 20th, 1913.

Dear Sirs,

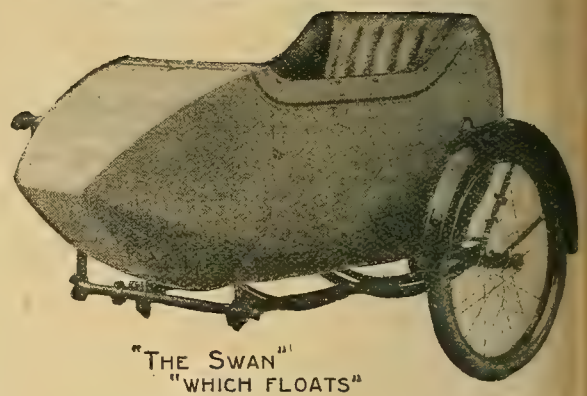
"In January last, I purchased from you one of your Royal Ruby 6 h.p. Models, with Coach-built Sidecar. I have now run considerably over 7,000 miles with this, and should like you to know how extremely pleased I am with it. I have never had a mechanical stop on the road, and could almost say never a misfire. It is the finest machine I have ever had the good fortune to ride, and I may say I have been riding motor cycles for over twelve years. If speed is wanted, well! 50 with sidecar and passenger, and 65 solo should be enough for most people, it is for me, and I can drop to 5 miles per hour on the top gear if necessary. It will be a pleasure to me to recommend your machines to any friend of mine, and if this letter is of any use to you, you have my permission to make what use of it you like. Thanking you for your courtesy to me in all our dealings, I am, Yours faithfully,

F. CURRIE."

Manufactured by

THE ROYAL RUBY CYCLE CO.,
RUBY WORKS,
Cannel Street, ANCOATS, MANCHESTER.

"THE SWAN."



"THE SWAN"
"WHICH FLOATS"

Because you have purchased a motor cycle with a good name, this does not necessarily justify your looking to the makers of that machine for your sidecar attachment. The design and construction of that motor cycle monopolised their every effort, their craft—their sidecar was an after thought with them—its construction a secondary consideration.

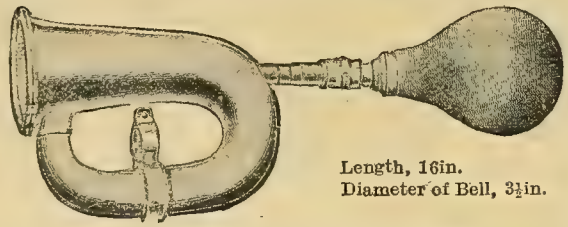
Does it not stand to reason, therefore, that we, who have devoted our whole time and thought to the production of the one thing—a perfect attachment—can in turn give you a sidecar that carries with it as good a name as does their motor cycle?—but the "Swan" bears out the truth of this statement.

Price of Sidecar £13 - 10 - 0.

Catalogues from Midland Motor Co., Oxford

Sole London Agent: A. P. REY, 173, Great Portland St., W.

ROTAX MOTOR CYCLE SPECIALITIES.



Length, 16in.
Diameter of Bell, 3½in.

ROTAX CLARIONETTE HORN.

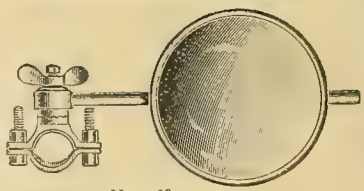
Compact design. The tube passes through the bell of the horn instead of by the side of it. Nickel plated. Fitted with dust cap, and best quality rubber bulb.

From your agent, **18/9**

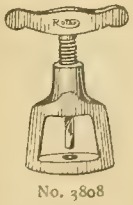
ROTAX MOTOR CYCLE MIRROR.

Nickel plated. Fitted best quality convex glass. Rod and glass adjustable, handle-bar clip, fitted rubber protector.

From your Agent, **5/3**



No. 4687



No. 3808

ROTAX BELT DRILL.

To take bolts up to one inch. Drills a neat clean hole. Best finish. From your Agent, **1/3**

Complete list post free.

ROTAX MOTOR ACCESSORIES CO.,
43/45, Great Eastern Street, LONDON, E.C.

"The Motor Cycle Journal of Canada," for April, 1913, says:—

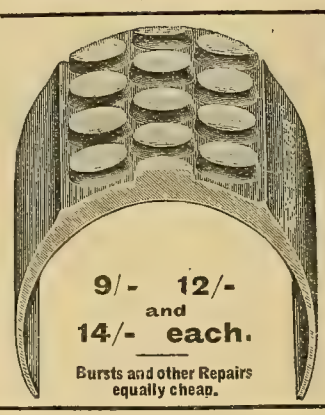
COVENTRY CHAINS

"A large number of the racing machines in the States are fitted with **COVENTRY** chains. One rider, Ray Peck, used this chain on his mount all last summer and

DID NOT SUFFER A SINGLE BREAK

in any of his many races.

"THE COVENTRY" CHAIN CO., LTD.,
COVENTRY, England.



9/- 12/- and 14/- each.

Bursts and other Repairs equally cheap.

RETREADING
MOTOR CYCLE COVERS.

—o—

We have specialised in all kinds of TYRE REPAIRS —— FOR 15 YEARS. ——

—o—

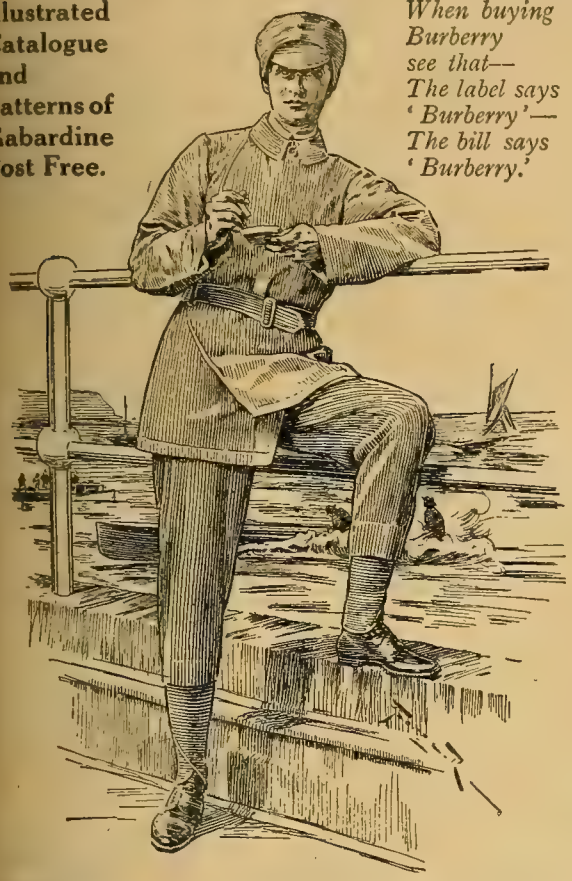
Send for Sections and all particulars to—

The Excelsior Tyre and Rubber Co.,
Hurst St., BIRMINGHAM.

BURBERRY
TIELOCKEN COAT.

Illustrated Catalogue and Patterns of Gabardine Post Free.

When buying Burberry see that—The label says 'Burberry'—The bill says 'Burberry.'



BURBERRYS LATEST INVENTION for the Motor Cyclist or Motor Boatist—a double-breasted, buttonless coat, designed to provide unequalled security and comfort under the severest conditions.

BURBERRY WEAVE-PROOF GABARDINE, lined with proofed wool or camel-fleece, makes the Tielocken Coat a perfect safeguard against driving rain, chilling wind, dust, or spray.

LIGHTWEIGHT, YET WARM, Burberry Gabardine provides efficient protection against the worst weather vicissitudes, yet ventilates like ordinary cloth, thus preventing all danger of overheating or chill.

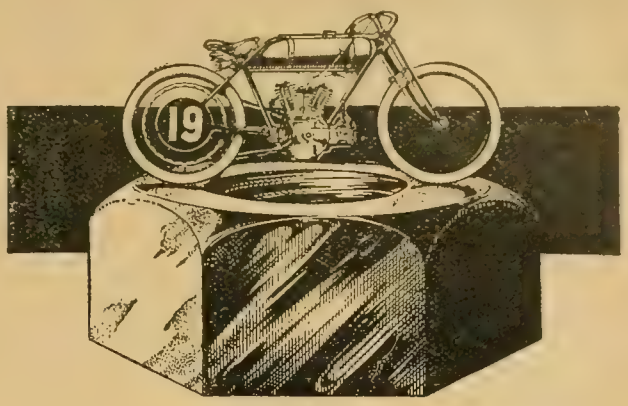
THE TIELOCKEN COAT, fastened with single strap-and-buckle, is easily put on or taken off. Worn with Trouserettes of Gabardine and Tielocken Gaiters, it supplies the finest protection available against the ill effects of exposure to wet or cold.

TIELOCKEN DUPLEX PROTECTORS, an application of the same principle, provide a four-fold yet airy safeguard of proofed Gabardine and proofed wool for keeping the knees and thighs dry in the heaviest rain.

PRICES: Tielocken Coat in Gabardine, lined proofed wool, 63/-; Gabardine Trouserettes, 31/6; Protectors, 15/-; Motor Cycle Cap, which can be readily transformed into a snug-fitting helmet, 15/-.

BURBERRYS Haymarket, LONDON;

8 and 10 Bd. Malesherbes, PARIS, and Provincial Agents.



EVERY NUT ON THE N.U.T.

RECEIVES THE SAME CARE AND ATTENTION IN CONSTRUCTION AS THE MOST VITAL PART.

Hence its remarkable efficiency, speed prowess, and endurance powers—as proved by its triumph in the classic event of the year, when the

WON THE JUNIOR T.T. RACE.

The Isle-of-Man Race proved the efficiency and endurance of the N.U.T. on the road, and the

TEN WORLD'S RECORDS

created on

BROOKLANDS TRACK

on the 16th proved its reserve of power and speed capabilities.

SIR WM. ANGUS, SANDERSON & CO., LTD.

St. Thomas' Street, NEWCASTLE-ON-TYNE.

Telegrams—"Phaeton." Telephone—100 Central

AGENTS WANTED.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To insure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmorland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

WAUCHOPE'S

BARGAINS SATISFY EVERYBODY

Because in every case they are Bargains that offer most reliable quality at lowest price, latest models of newest machines and the most satisfactory second-hands that can be purchased, all thoroughly overhauled, repaired and fully guaranteed. Any machine new or second-hand sold in

WAUCHOPE'S EASY WAY—

¼ DOWN & 11 EASY EQUAL PAYMENTS

Write for full particulars, order form, and to-day's bargain list, which includes :—

7327	3½ h.p. 1911 2-speed	**CALTHORPE**	£30	0
7332	8 h.p. 1913	**HUMBERETTE**	£105	0
7336	2 h.p. 1912	**HUMBER**	£24	0
7339	3½ h.p. 1913 3-speed	**TRIUMPH**	£48	0
7302.	3½ h.p. 1909	**TRIUMPH**	£25	0
7307.	3½ h.p. 1912 2-speed	**HUMBER**	£38	0
7311.	6 h.p. 1912 2-sp.	**BAT** and Sidecar	£60	0
7312.	3½ h.p. 1913	**SCOTT**	£55	0
	6 h.p.	**ANTOINE**	£15	0
	2¾ h.p. 1912 2-speed	**ENFIELD**	£35	0
	2¾ h.p. 1912 3-speed	**HUMBER**	£36	0
7253.	8 h.p. 1912 2-speed	**MATCHLESS** and Sidecar	£67	10
7256.	3½ h.p. 1912 F.E.	**TRIUMPH**	£40	0
7281.	3½ h.p. 1910 2-speed	**P. & M.**	£32	10
7282.	8 h.p. 1912 2-speed	**MATCHLESS** and Sidecar	£57	10
7284.	3½ h.p. 1912 F.E.	**TRIUMPH**	£40	0
5596.	3½ h.p. 1910	**KERRY ABINGDON**	£27	0
5621.	2¾ h.p. 1912 3-speed	**HUMBER**	£34	0
5742.	3½ h.p. 1910 T.T.	**TRIUMPH**	£29	0
6082.	5 h.p. 1908	**V.S.**		
6161.	3½ h.p. 1912 F.E.	**RUDGE**	£38	0
6170.	3½ h.p. 1911	**REX** tourist	£28	0
6176.	3½ h.p. 1912 free-engine	**RUDGE**	£35	0
6179.	3 h.p. 1912 2-speed	**N.S.U.**	£30	0
6276.	8 h.p. 1912	**ZENITH**	£55	0
6296.	3½ h.p. 1912 F.E.	**KYNOCH**	£35	0
6343.	8 h.p. 1911 3-speed	**CHATER-LEA** and Sidecar	£58	0
6378.	6 h.p. 1911	**ZENITH** and Sidecar	£50	0
6397.	8 h.p. 1912 3-speed	**CHATER-LEA** and Sidecar	£65	0
6421.	3½ h.p. 1908	**MINERVA**	£18	0
6516.	8 h.p. 1911 3-speed	**CHATER-LEA**	£47	10
6543.	3½ h.p. 1911 2-speed	**ALLDAYS** and Sidecar	£35	0
6584.	2¾ h.p. 1911 2-speed	**DOUGLAS**	£30	0
6646.	5-6 h.p. 1911	**A.C. SOCIABLE**	£52	10
6799.	7 h.p. 2-speed and F.E.	**INDIAN**	£40	0
6834.	5-6 h.p. **F.N.** and Sidecar		£23	10
6837.	3½ h.p. 1911 F.E.	**RUDGE**	£35	0
6857.	5-6 h.p. 1910	**A.C. SOCIABLE**	£55	0
6863.	3½ h.p. 1910	**BAT**	£27	0
6900.	3½ h.p. 1912 F.E.	**ROVER**	£38	0
7043.	3½ h.p. 1912	**ZENITH-GRADUA**	£38	0
6079.	3½ h.p. 1910	**TRUMP**, Mabon gear	£32	10
7080.	6 h.p. 1912	**GLYNO** and Sidecar	£55	0
7081.	3½ h.p. 1909 2-speed	**TRIUMPH** and Sidecar	£32	10
7098.	3½ h.p. 1911	**ZENITH** and Sidecar	£37	10
7108.	3 h.p.	**GIVAUDAN**	£20	0
7110.	1½ h.p. 1909	**MOTOSACOCHE**	£14	0
7116.	3½ h.p. 1912 2-speed	**BRADBURY**	£39	0
7124.	3½ h.p. 1911 T.T.	**BRADBURY**	£30	0
7181.	2¾ h.p. 1912 2-speed	**ENFIELD**	£35	0
7185.	2 h.p. 1910	**MOTO-REVE**	£14	0
7186.	4½ h.p. 1913 2-sp.	**LINCOLN ELK**	£35	0
	6 h.p. 1910 2-speed	**MATCHLESS** and Sidecar	£45	0

Telegrams :
"Opificer, London."
Telephone :
5777
Holborn.

9 SHOE LANE. FLEET STREET LONDON.E.C.

IMPORTANT NOTICE

Owing to August Bank Holiday, the issue of "The Motor Cycle" for August 7th must be closed for press earlier than usual. All copy and instructions for paragraph advertisements in that issue must therefore be in our hands not later than first post on Thursday, July 31st.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters ma addressed to numbers at "The Motor Cycle" When this is desired, 2d. will be charged for registr and three stamped and addressed envelopes must b for forwarding replies. Only the number will appe the advertisement. Replies should be addressed, ooo, c/o "The Motor Cycle," Coventry" or if "Lon is added to the address, then to the number given " The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown pe may deal in perfect safety by availing themselves Deposit System. If the money be deposited with Motor Cycle," both parties are advised of this rece

The time allowed for a decision after receipt o goods is three days, and if a sale is effected we rem amount to the seller, but if not we return the a to the depositor, and each party to the transaction carriage one way. For all transactions exceeding £ value, a deposit fee of 2s. 6d. is charged, when £10 the fee is 1s. All deposit matters are dealt wi Coventry, and cheques and money orders should be payable to Iliffe & Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and recei answer to their enquiries are requested to regar silence as an indication that the goods advertised already been disposed of. Advertisers often recei many enquiries that it is quite impossible to reply to one by post.

MOTOR BICYCLES FOR SALE

SECTION I.

Northumberland, Cumberland, Durham, Westmorland.

3½ h.p. Bradbury, new, shop-soiled, 1912 model; £38.

3½ h.p. Bradbury, new, shop-soiled, 1912 model, 2-gear; price £43.

2½ h.p. Motosacoche, new, shop-soiled, 1912 price £52.

2 h.p. Lady's Motosacoche, new, shop-soiled, model; price £36.

APPLY, Angus, Sanderson, and Co., Ltd., St. St., Haymarket, Newcastle-on-Tyne.

1913 Douglas, T.T. model, excellent order; Jackson, New Rd., Kendal.

NEW Douglas, model R, in stock, can deliver diately.—Walker, Fishburn, Ferryhill. [X

TWO 1911 P. and M.'s, 2-speed, £38; 1911 free engine Premier, £27; 1911 Douglas, st model, £24; 1910 T.T. Triumph, £25; 1912 Scott fect, £45.—Walker, Fishburn, Ferryhill. [X

REX, 3½h.p., accumulator, B. and B., Triumph adjustable pulley, splendid order; bargain, £1 Also

5 h.p. Air-cooled Sarolea Twin, in good order; Patton, Woodhorn Rd., Ashington. [X

TURVEY and Co. have the following new 1913 motor cycles in stock for immediate delivery

3½ h.p. 3-speed Triumph, £59/15; 3½h.p. 3-speed ber, £57/10; 3½h.p. 2-speed B.S.A., £60; h.p. 2-speed B.S.A., £60, chain drive; 3½h.p. 3- Rover, £58; 5h.p. 3-speed twin Hazlewood, 65 3½h.p. 3-speed Humber and sidecar, £63/16; 5h. speed twin Hazlewood and sidecar, £78/10; Humb and Perry cycle cars.—Write, wire, or 'phone, T and Co, The Motor House, Sunderland. [X

NTEREST YOU?

rand New 1912 6 h.p. 2-sp. **REX** de Luxe	£62 10 0
15 % cash discount	9 7 6
	£53 2 6
llowance for your 1912 2-sp. Douglas or similar type of machine	£38 2 6
Cash required	£15 0 0

NEW 1913's

RIUMPH, 3½ h.p., 3-speed Sturmey	£59 15
EX, 6 h.p., 2-speed, de luxe	£62 10
EX, 6 h.p., 2-speed, de luxe, chain drive	£67 15
EX, 4 h.p., 2-speed, de luxe	£56 0
OUGLAS, 2¾ h.p., 2-speed	£48 0
RADBURY, 3-speed	£60 0
RADBURY, 2-speed, kick starter	£60 0
EX-J.A.P., 6 h.p., 2-speed	£71 8
EX-J.A.P., 8 h.p., 2-speed	£73 10
.S.A., 2-speed, free engine	£60 0
VILLIAMSON, 8 h.p., L75, water-cooled	£82 10
VILLIAMSON, 8 h.p., w.c., and sidecar	£97 10

Easy Payments from £10 deposit.

MISCELLANEOUS MACHINES.

Cash, Exchange, or Easy Payments.

.S.A., 1913, 2-speed, 2½in. tyres, 750 miles	£49 10
COTT, water-cooled, 2 speeds, 1910	£29 10
RIUMPH, 1912, 3½-h.p., plate clutch	£44 10
UDGE Multi, 1912, and sidecar	£47 10
EX, 4 h.p., 1912, the Big Single (NEW)	£39 0
EX, 5 h.p., 1911-12, 2-speed, NEW	47 Gns
RANDEX-PRECISION, 1912, 3½ h.p., Sturmey-Archer 3-speed gear	£35 10
COTT, 1910, 2 speeds, recently overhauled	£29 10
RECISION, (Ivy), Druids, h.b. control	£32 10
EX, 1913, 6 h.p., 2-speed, twin	£54 10
OVER, 1911, clutch model; cost £55	Offers.
AMES, 1910, 3½ h.p. magneto	£19 10
EX, 5 h.p., 1909, 2-speed, de luxe	£29 10
. & M., 3½ h.p., 2-speed, and Sidecar	£25 10
ENITH, 1911, 3½ h.p., and Sidecar	£39 10
LYNO, 1912, and special cone Sidecar	£49 10
UGEOT, 3½ h.p., magneto, 2 speeds	£22 10
EX, 1913, 4 h.p., 2-speed, de Luxe, chain drive, nearly new	£49 10
EW HUDSON, late 1911, 3½ h.p., 3-speed	£37 10
EX, 1911, 2-speed, twin, de luxe	£38 10
RIUMPH, 3½ h.p., 1910, 3 speeds	£36 10
EX, 5½ h.p., twin, spring forks	£15 10
RIUMPH, 1908, 3½ h.p., and Sidecar	£31 0
RIUMPH, 1908, 3½ h.p.	£27 10
A.P., 6 h.p., M.O.V., free engine, spring fks.	£34 10
OTO-REVE, twin, lightweight, runs well	£13 10
INCOLN-ELK, 3½ h.p., 1912, F.E. engine	£26 10
INCOLN-ELK, 3½ h.p., 1911, F.E., as new	£29 10
INCOLN-ELK, 3½ h.p., 1913, 2-speed	£35 10
RADBURY, 1913, 3-speed Sturmey	£47 10
UADRANT, 1912 free engine	£35 10
EX, 1911, twin, de luxe, and new £10 10s. Sidecar, specially good condition	£45 10
EX, 3½ h.p., magneto, spring forks, 1908	£19 10
EX, 2½ h.p., magneto, lightweight, h.b.c.	£15 10
.S.U., 3½ h.p., magneto	£17 10
.S.U., 1911, 3 h.p., 2-speed	£29 10
.S.U., 5½ h.p., twin, 2-speed	£27 10
.S.U., 5½ h.p., 2-speed, and Sidecar	£31 0
EX, 3½ h.p., spring forks	£12 10
h.p. **PRINCEPS,** vertical engine	£8 0
h.p. 2-speed **BAT,** wants attention	£6 6
UMBER, 2 h.p., wants attention	£4 10
N., lightweight, battery ignition	£8 10
N., magneto lightweight	£14 10 0

Make your old machine up-to-date by fitting a

£5 10 1912 **ARMSTRONG** 3-speed Gear, Brand New, and complete with belt rim and controls.
Mark II., **£5 10 0.**
Mark III., **£6 2 6.**
1913 Mark VI., **£10 10 0.**
Usual price **10** gns. and **12** gns.

Y WAIT? Despatch from stock. Trade supplied.

SUNDRIES.

wheel Monacar Chassis with body, wheels, steering, and Bowden 2-sp. gear	£4 10 0
w F.R.S. Standard 800ft. Lamp, with grid generator; usual price, 53/6; clearance price	35 0
w Avon (Druid) 26 x 2 Non-skid Covers	12 11
yer's Motor Cycle Stand	3 3
w 26 x 2 and 26 x 2½ Avon Tubes	5 9
derick Decompressor latest type	8 6
w Car Speedometer	£2 12 6
w Triumph Pattern Horns..... 3/- and	3 9

The Halifax Motor Exchange

Largest Rex Dealers,
, WESTGATE, HALIFAX.
hone 706. Telegrams: "Perfection."

MOTOR BICYCLES FOR SALE.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

TRIUMPH, free engine, 1910, new Dunlop belt and tyre; £32.—Below.

TRIUMPH, free engine, 1911, done only 2,000; £35 10.—Below.

ROC and Sidecar, 4½h.p., 2-speed, new Whittle, £18/10.—Below.

F.N., 4-cyl., 1909, just overhauled, new Palmer cord on back; £16.—Below.

1911 Rex 6h.p. Twin, 2-speed, and coachbuilt sidecar, splendid condition; £43.—Below.

TRIUMPH, 1912, free engine, £40.—Below.

1913 New Orton, 2¾h.p., not been ridden; £29/10.—Davis, Garage, Tamworth. [X4401

1913 B.S.A., 2-speed, belt drive, done 500 miles; £48.—Scott, Shardlow, Derby. [X4286

ROYAL Enfield, 2¼h.p., late 1910, perfect order; £20.—W. Fryer, Dale Abbey, near Ilkeston. [X4368

BARGAIN, £9; 3h.p. Quadrant, perfect condition, must sell.—F. Lightfoot, Winsford, Cheshire. [X3879

1908 Triumph, 1912 cylinder and piston, perfect, do 50 m.p.h.; £21.—Johnson, Furnisher, Whitchurch. [X4465

TRIUMPH, good condition, Mabon clutch, 1910 fittings; £16.—Hackett, 487, Hempshaw Lane, Stockport. [X4348

TRIUMPH, 1911, F.E., Cowey, Lucas, tools, horn, carefully kept; best offer over £32.—Vickers, Newport, Salop. [9415

PHELON and Moore, 3½h.p., September, 1911, 2 speeds, grand condition; £35 cash.—Shone, 70, Watergate, Chester. [9451

CLEMENT-GARRARD, 2h.p., handle starting, chain drive, Bosch, perfect; £16.—Marle, Woodbank, Great Boughton, Chester. [9429

TRIUMPH, 3-speed, Phelon and Moore, Scott, Williamson, and Bat, new 1913 models, in stock; trade supplied.—Moss, Wem. [X4351

1911 2¾h.p. A.J.S., in good running order, excellent condition, tyres nearly new, all accessories; bargain, £20.—Laverton, Uttoxeter. [X3887

4½h.p. Excelsior Sidecar Machine, new Sturmey 3-speed gear, free engine, Palmer studded tyres; price £65/12/6; immediate delivery.

6h.p. Rex, accumulator ignition, machine just overhauled, and sidecar; price £20.—The Crescent Motor and Cycle Co., Shotton. [X3880a

A CLEAN, straight deal is what you want, and what you get, if you buy from The North Wales Motor Exchange, Holt St., Wrexham. Tel.: 283.

IF your Own Experience is too limited to guide you, let us assist you; we guarantee you satisfaction. Exchanges a speciality.

WE have the following new and second-hand machines in stock, and invite your inspection: 1913 Douglas, Model O, £48; 1913 A.J.S., Model B, £48/6, 1913 6h.p. Rex de Luxe, and Swan sidecar, complete with speedometer and lamp, ridden 50 miles, £72/10; 1913 3h.p. N.S.U., single-cyl., £43/10; 1913 2½h.p. Singer tourist, £39; 1913 A.S.L., 3½h.p. Precision, £45; 1913 3½h.p. N.S.U., 2-speed, kick starter, £55; 1913 Rudge Multi, £60; 1913 Bradbury, free engine, £54/10; 1913 2¾h.p. Humber twin, T.T., £43/10; 1913 Rover, free engine, £55.

1911 8h.p. Matchless, 2-speed, and sidecar, just been overhauled by makers, £55; 1912 Rudge Multi and sidecar, absolutely like new, £12 sidecar, £55; 1912 2½h.p. T.T. Singer, hot stuff, £30; 1912 Clyno and sidecar, £65; 1912 free engine Rudge and sidecar, complete with speedometer and lamp, £45, a snip; 1910 twin Enfield, mag., etc., £18; twin Moto-Reve, mag., £12; 3h.p. Rover, accumulator, a good honest bus, £9; canoe-shaped sidecars, in stock, £7/7. Let us have your enquiries; prompt attention to every detail. [X4447

1912 Scott, August, run under 2,000 miles, Cowey speedometer, horn, perfect condition; £46.—Apply, 95, Darlington St., Wolverhampton. [9516

TRIUMPH, 1912, free engine, unscratched, £40; with Stewart speedometer, Lucas lamp, horn, spares, £45.—104, Birmingham Rd., Walsall. [9528

MATCHLESS-J.A.P., 6h.p., 1912, 2-speed, new tyres; any trial; £52, offers; or exchange for 1913 Triumph.—Burton, 40, Stafford St., Derby. [9395

TRIUMPH, T.T., 1911, special, any reasonable guarantee, just thoroughly overhauled, complete horn, lamp, etc.; £38.—C. Mellor, Barrowcroft, Hale Rd., Hale, Altrincham. [X4339

B.S.A., as new, with 2-speed, complete, £45; 5 to 6 h.p. twin Rex, overhauled throughout, bargain, £18; new X'all saddle, £1; new retreaded Dunlop cover, 12/-; exchange entertained.—W. Blackshaw, 198, Bond St., Macclesfield. [X4250

REY

The noted firm. Established in the Motor Trade since **1900** and known throughout the country for quickest delivery of any Motor Cycle or Cycle Car.

5, Heath St., Hampstead, N.W.; and 173, Gt. Portland St., W.

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Clearance Sale of shop-soiled Machines and Sidecars.

EXCEPTIONAL BARGAINS MAY NOW BE SECURED.

Motor Cycles and Sidecars for Hire.

TERMS ON APPLICATION.

Sole London Agents for—

Canoelet Sidecars from	**£12 12**
Swan Sidecars from	**£13 13**

Also Folding Sidecars for Immediate Delivery.

EASY PAYMTS. FROM 2% EXTRA.

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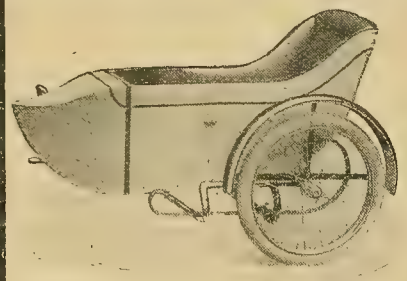
LIGHT & STRONG!

FARLOW SIDECARS

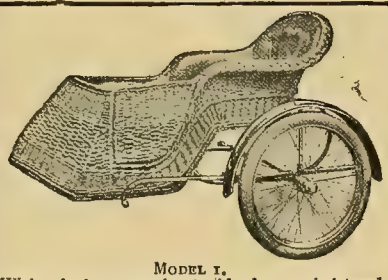
are noted for their **beauty, comfort, security,** and **perfect springing.**

Our booklet is free for the asking.

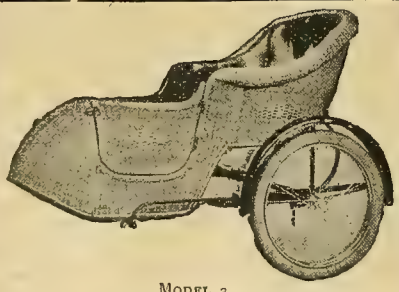
WE CAN DELIVER ANY MODEL FROM STOCK.



MODEL 4.
Underslung chassis (patent 5070), light coachbuilt body, spring cushion, two tool boxes fitted.
10 guineas.



MODEL 1.
Wicker body, canoe front, side door, upholstered and lined inside right down to the toe.
£6 5s. 0d.



MODEL 3.
Reed cane body with roll top, thickly upholstered and lined right down to the toe.
£8 10s. 0d.

Models Nos. 1 and 3 can be fitted with our underslung chassis (patent 5070/12) for **10s.** extra.

All Carriage Paid, and complete with mat, stand, quick detachable joints, and Michelin **Motor Cycle** Tyres. Trade supplied.

MOTOR CYCLE FRAMES.

We have a quantity of frames by well-known maker. Two styles to choose from.
PRICE 32/6 EACH.
Rigid forks, **7/6** extra. Druid forks, **45/-** extra. Enamelled and plated in first-class style.

ODD BARGAINS.

Cowey Speedometer, done 3,000	£3 0
Sidecar Aprons	7/6
Cowey Speedometer, done 100, perfect	£3 10
New Rubber-studded Covers, 26 × 2¼, beaded	17/6
Triumph Pattern Handle-bar, new	6/6
New Prested Trembler Coil	15/-

Farrar's Motor Exchange

19, 21, 23, 25, Hopwood Lane,

Telephone 919. **HALIFAX** (Two minutes from G.P.O.)

MOTOR BICYCLES FOR SALE.

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

B

COLMORE Depots, 31, Colmore Row, Birmingham; 49, John Bright St., Birmingham; and 62, High St., Leicester.

NEW and 2nd-hand at the leading depots for the Midlands; agents for Douglas, Scott, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, Birmingham and Leicester. [X6047

SCOTT, 1913, 3¾h.p., 2-stroke, 2-speed, and water-cooled; this machine cost £68 a month ago, owner buying big twin so will accept £55.—Colmore Depot, 49, John Bright St., Birmingham. [X4460

1913 3½h.p. Premier, fitted with 3-speed, free engine, etc., and only done 400 miles, a splendid sidecar machine; £46.—Colmore Depot, 49, John Bright St., Birmingham. [X4461

DOUGLAS, 2¾h.p., 1912, 2-speed, free engine, etc., just overhauled and tested, etc.; £37.—Colmore Depot, 49, John Bright St., Birmingham. [X4462

TRIUMPH, 1912, 3½h.p., free engine, etc., just overhauled and tested, a thorough good machine; £35 to clear.—Colmore Depot, 49, John Bright St., Birmingham. [X4463

SECOND-HAND Bargains.

TRIUMPH, 1911, 3½h.p. free engine, 1912 spring fork, perfect condition; £32.—Below.

MATCHLESS-J.A.P., 4h.p., 2-speed, mag., B. and B. carburetter, Whittle belt; £18.—Below.

DOUGLAS, 1911, 2¾h.p., open frame (ladies' model); £26.—Below.

REX, 1909, 5h.p. de luxe model, 2-speed; £18.—Below.

MATCHLESS-J.A.P., 1912, 8h.p., 2-speed, special sidecar machine; £45.—Below.

REX-J.A.P., 1912, 8h.p. de luxe, 2-speed; £45.—Below.

HUMBER, 1911, 3½h.p., 2-speed, and sidecar; £34.—Below.

BRADBURY, 1912, 3½h.p., 2-speed, and torpedo coachbuilt sidecar; £38.—Below.

ANY of the above machines sent on approval against deposit. Full detailed list of nearly 50 machines free on application.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0316

WEST'S Garage, Lincoln.—1913 Scott, latest model; just arrived.

WEST'S Garage, Lincoln.—1913 Enfield 6h.p. combination, latest model; just arrived.

WEST'S Garage, Lincoln.—1913 B.S.A., chain drive, demonstration model; £10 off list.

WEST'S Garage, Lincoln.—1913 Ariel, 3-speed, demonstration model; £10 off list. [X4454

TRIUMPH, free engine, 1913 model, only run 50 miles; £50.—Robbins Garage, Rugby. [9210

B.S.A., 2-speed, 1913 model, not yet run 50 miles; £55.—Robbins, Garage, Rugby. [9211

HUMBER, 1911½, 3½h.p., mag., 2-speed; £23.—Gilbert, 112, High St., King's Heath. [X4387

TRIUMPH, standard, 3-speed Sturmey, just delivered from works.—39, Constitution Hill, Birmingham. [X4457

4-CYL. F.N., as new, a bargain; immediate delivery of 4-cyl. models.—Heath, Salford Priors, Warwickshire. [X4149

1910 Triumph, practically unscratched, new belt, tyres; £24.—Jeffreys, Metropolitan Bank, Birmingham. [X4389

1913 Lincoln Elk, 3½h.p., clutch model, accessories, all new; £28.—Wingad, 6, Bowyer Rd., Saltley, Birmingham. [X3894

3¼h.p. Fafnir, saddle, tank, new, mag.; £14.—Hextall, Fern Rise, Garden Suburb, Humberstone, Leicester. [X3901

SUNBEAM and Campion, 4h.p. J.A.P., chain drive, 2-speed gear box, new; offers; exchange and cash.—Watson, Tuxford. [X4365

PHELON-MOORE, 1912, perfect, little wear; £46/10; Canoelet, separate.—90, Linden Rd., Bournville, Birmingham. [X4367

4h.p. Singer, 2-speed (countershaft), new, slightly shop-soiled, 52 gns., or with new cane or coachbuilt sidecar 62 gns.—Below.

2½h.p. Singer, 1912, clutch model; 30 gns.—Below.

2h.p. Humber Lady's 3-speed, in nearly new condition; 30 gns.—Below.

2¾h.p. Douglas, 1910, in good condition; £18.—Main, 36, Parade, Leamington. [X3424

MOTOSACOCHE, 1910, 1½h.p., Bosch, Whittle belt, Druid forks, take any hill, excellent condition; £13.—Sibson, Bond St., Leicester. [X4381

FARRAR'S ANNUAL SALE

DISCOUNT TO CASH BUYERS.

The following are complete with sidecars:

1913 8 h.p. **ZENITH** and 15 guineas Sidecar	£
1910 3½ h.p. **P. & M.,** 2 speeds and Sidecar	£
1912 6 h.p. **CLYNO** and Sidecar	£
1912 6 h.p. **REX** and Sidette Sidecar	£
1911 8 h.p. **MATCHLESS,** 2 speeds, and Sc.	£
1912 3½ h.p. 3-speed **SINGER** and Sidecar	£
7 h.p. **ROC,** 2 speeds, and Sidecar	£
1911 4 h.p. 2-sp. **QUADRANT** and Sidecar	£
1909 5 h.p. **REX** de Luxe and Sidecar	£
1908 5 h.p. **REX** de Luxe and Sidecar	£
1908 5 h.p. **REX,** Roc, 2 speeds, and S'car	£
1910 5 h.p. 2-speed **VINDEC** and Sidecar	£
1910 3¼ h.p. 2-speed **SCOTT** and Sidecar	£
4 h.p. 2-speed **N.S.U.** and Sidecar	£
1908 5 h.p. **REX,** clutch model, and Sidecar	£

All have variable gears except the last-na
We will sell any machine without sideca

CYCLE CARS.

8 h.p. **BLUMFIELD,** 2 speeds, etc.	£
1913 **CHOTA,** a beauty	£
1913 **MORGAN,** lot of extras	£

We have the following New 1913 Machine Stock:

6 h.p. **A.J.S.,** 3 speeds, kick starter	£
3½ h.p. **PHELON & MOORE,** kick starter	£
1913 3½ h.p. 3-speed **HUMBER**	£
1913 2¾ h.p. **SUNBEAM,** 2 speeds	£
1913 3½ h.p. **NEW HUDSON,** 3 speeds	£

Easy terms quoted. Discount for Cash.

MORGAN CYCLE CARS.

8 h.p. J.A.P. engine, best of everyt

85 guineas.

—— Delivery from stock. ——

THIS WEEK'S BARGAINS.

1911 3½ h.p. **ARIEL SWIFT,** free engine	£
1912 6 h.p. **CLYNO,** 2 speeds, kick starter	£
1912 6 h.p. **REX** Sidette, 2 speeds	£
1910 5-6 h.p. **VINDEC,** 2 speeds	£
1909 5-6 h.p. **REX** de Luxe	£
5-6 h.p. **REX** de Luxe, 2 speeds, etc.	£
4 h.p. **N.S.U.,** Bosch, N.S.U. two speeds	£
3½ h.p. 1912 **SINGER,** 3 speeds	£
3½ h.p. 1907 **TRIUMPH,** magneto, spring fks.	£
One Ditto, very good	£
4 h.p. 1911 **QUADRANT,** Roc 2 speeds	£
5-6 h.p. Twin **REX,** magneto and clutch	£
3½ h.p. 1909 **REX** Tourist, good	£
3½ h.p. 1908 **REX** Tourist, 1909 engine	£
3½ h.p. 1910 **REX,** fine goer	£
5-6 h.p. **REX** de Luxe, 1908, 2-speed model	£

We have a few Brand New Clearance Cl
Rubber-studded 26 × 2¼ Covers to fit 26 × 2¼
Usual price **45/6** each.

Our price 25/- each.

Approval willingly.

£7 DOWN SECURES ANY OF TH BALANCE 30/- MON

3½ h.p. 1908 **REX £19**	4 h.p. 2-speed **N.S.U**
3½ h.p. 1909 **REX £21**	3½ h.p. 1910 **REX**

MISCELLANEOUS BARGAINS.

Roc Back Wheel with Clutch	
Clincher Clearance 26 × 2¼in. Rubstud Covers	
New Bosch Twin Magnetos D.A.V., any angle or rotation, fully guaranteed	£2
New Bosch magneto, suit V. twin engine	
New Bosch magneto, suit single-cyl. engine	
A1 Mudscreen, good	
Farlow Sidecar, good	
Wicker Sidecar Body	
26 × 2¼ Rub-stud Continental Cover, new	
Rex Pattern Foot Brake, new	
New Motor Cycle Frame	

Farrar's Motor Excha

19, 21, 23, 25, Hopwood La

Telephone 919. **HALIFAX** (Two mi from G.

FOR BICYCLES FOR SALE.

ON and Moore, August, 1912, perfect condi- best offer over £40; bought 1913.—Burns, Newbury [X4354

AM, 2¾h.p., bought June, never used; cost accept nearest offer.—Taylor, 129, Bartholo- Newbury [X4355

NS'.—Douglas, model O, 2-speed, 1913; de- from stock; £48; exchanges, easy payments. Bicester, Oxon [8987

NS'.—Sunbeam, 1913, 2¾h.p., 2-speed, kick , used 20 miles only; cost £63, price £55.— Bicester, Oxon. [X1735

NS' Scott, late 1911, good condition, engine lamp, horn, etc.; £35.—Laytons', Oxon [X1736

NS'.—Triumph, 1913, delivery of two 3-speed from stock; £59/15; exchanges, easy pay- Laytons', Bicester, Oxon. [X1739

NS'.—Scott, 1913, one machine just received; gns.; exchanges, easy payments.—Laytons' Oxon. [X1740

Multi.—Deliveries from stock; trial runs ; exchanges entertained; trade supplied.— cent, Barnes, Slough. [9139

3½h.p. Humber, 2-speed, free, new cylinder, piston, tyres good, little used, accessories; £25.— & Co., Southampton St., Reading. [9510

WELLS' Garage, Chipping Norton.—Triumph Douglas agents; also agents for Swift cycle Banbury, Burford, and Chipping Norton.

IPH, 3-speed, 3½h.p., free engine, clutch; in ; £59/15.—Hartwells'.

LAS model O, £48; in stock model R, £52. rtwells'.

LD Autolette in stock, £138.—Oxfordshire Hartwells'.

IPH, 1912, free engine, in fine order through- new 1in. Dunlop belt, lamp, horn, and tools; rtwells'. [1786

IPH, 1911, free engine, splendid condition, lamp, tools, many spares, overalls; £37.— chtonhurst, Waverley Rd., Bournemouth. [X4246

1913, 3½h.p., T.T. model, picked engine, ery from stock; price £50; maximum allow- second-hand machine.—Laytons', Bicester, Oxon [X4358

T.T. Roadster Triumph, with decompressor, in ndid condition, not ridden 1,000 miles; am, 45 gns.—Ricketts, The Beeches, Whit- Thames. [X4257

Engine Rudge, 1912, run few hundred miles, plating, and enamelling as new; expert n invited; sacrifice £37.—Box 3,751, *The* Offices, Coventry. [X3882

Singer, mag., h.b.c., 1912 variable jet carbu- splendid condition, Palmer tyres; any inspection; ride 50 miles to intending pur- 12.—Godfrey, 13, Park Ter., Swindon. [4312

, 1913 3½h.p., 3-speed model (Armstrong Mark hub, kick starter, decompressor, spring seat balloon tyre, very fine sidecar machine, perfect complete with lamp and horn; cost £63, —Tolladay, Bicester, Oxon. [X4357

SECTION VIII.

d, Essex, Middlesex, Surrey, Kent, Sussex.

ETT'S Have Levis Motor Cycles in stock.

ETT'S Have Arno Motor Cycles in stock.

ETT'S Have Humber Motor Cycles in stock.

ETT'S Have Rudge Motor Cycles in stock.

ETT'S.—1912 3½h.p. chop-coiled Arno; £36, £47/10.

ETT'S.—1912 Grandex-Precision, 2½h.p., 2- £25

ETT'S.—1911 Triumph, F.E.; £35.

ETT'S.—1911 Kerry-Abingdon, 3½h.p.; £26.

ETT'S.—1911 F.N., 2¼h.p., 2-speed; £22/10.

ETT'S.—1912 Fafnir-Chater-Lea, perfect; £

ETT'S.—1910 Enfield lightweight, twin; £17.

ETT'S.—1910 Quadrant, 4½h.p., 2-speed gear; 10.

ETT'S.—1912 3½h.p. 3-speed Arno and side- £53.

ETT'S.—1911 Bat and sidecar, 6h.p.; £45.

ETT'S.—1911 Zenith and sidecar, fine order;

ETT'S, 2 and 3, Parade, High Rd., Kilburn. 4807. [9661

FREE

COULD YOU DO WITH A 6 H.P. 3 SPEEDS COMBINATION MODEL 'CLYNO' : MOTOR : BICYCLE AS LISTED AT £75 FOR NOTHING

?

We are offering no less than

10

SUCH MACHINES as Prizes in one of the easiest, simplest, and fairest Competitions ever run.

Ask your local cycle or motor dealer for the particulars; if he has not got them, tell him he is missing the chance of a lifetime, and then write us.

"Robbialac" Competition Dept.,
COUNTY CHEMICAL CO., LTD.,
CHEMICO WORKS,
:: BIRMINGHAM. ::

FREE

MOTOR BICYCLES FOR SALE.

REX, magneto; £16; cycle part exchange.—Surridge, Ongar, Essex. [9650

REX, 3½h.p., battery ignition, good riding order; £6; bicycle part.—Surridge, Ongar, Essex. [9651

MOTOSACOCHE, magneto; £10; take cycle part exchange.—Surridge, Ongar, Essex. [9652

2½h.p F.N., battery ignition, belt drive, excellent running order; take cycle part exchange.—Surridge, Ongar, Essex [9653

1907 Triumph, new cylinder and piston and overhauled; £20; take cycle part exchange.—Surridge, Ongar, Essex. [9654

TRIUMPH, late 1909, perfect; £27/10.—Petty, 3, Norbury Parade, S.W. [9401

MINERVA, 3½h.p., B.B., h.b.c., very low, perfect, new tyres; £11.—Petty, 3, Norbury Parade, S.W. [9402

TRIUMPH, free engine, brand new, horn, lamp, tools; £47, a bargain.—Below.

J.E.S. Auxiliary Set (12 gns.) and complete machines (19 gns.); immediate delivery of limited number, new and second-hand; fit any push bike.—Demonstration machine at Olympia Mart, Addison Bridge Place, Kensington, W. [9529

MODEL R Douglas, in stock, new.—Morriss, 139, Finchley Rd., N.W. [X3874

3½h.p. Rex, mag., tyres and belt nearly new; £16.—94, Adelaide Rd., Leyton. [X4480

4h.p. Roc, free engine, mag., variable speeds.—19, Deerbrook Rd., Herne Hill. [9544

1912 Brown, 3½h.p., perfect condition, spares; £25.—81, Drakefell Rd., New Cross. [9643

REX, good condition, ideal machine for learner; £10 —27, Hercules Place, Holloway. [X4451

3½h.p. Excelsior, powerful, and most reliable; £6/10. —40, Carlton Rd., East Sheen. [9574

SCOTT, late type, w.c., 2 speeds, all complete; accept £22/10.—16, Hampstead Rd., N.W. [9638

INDIAN, 5h.p., good condition; £35, cost £60.—Scott Abbey Mill Lane, St. Albans. [X4304

BRADBURY 3-speed Models are perfection.—Agents, Bright and Hayles, Camberwell.

BRADBURY Spares and Repairs.—Agents, Bright and Hayles, Church St., Camberwell. 'Phone: Hop 50. [9519

A.J.S. 6h.p. and 2¾h.p. 3-speeders in stock.—Crow Bros., 190, High St., Guildford. [9202

DOUGLAS, 1913, Model P, slightly used, exceptionally fast, speed trial winner; £41.—190, High St., Guildford. [9203

EAGLES.—Bradbury, 1912, N.S.U. 2-speed gear, free engine, had little use; £35.

EAGLES.—Matchless 1911 6h.p. twin, J.A.P. engine, N.S.U. 1913 2-speed gear, free engine, with side car, fine condition; any trial; £47/10.

EAGLES.—Enfield 2¾h.p. twin, late 1912, 2 speeds, free engine, chain drive, handle starting, footboards, nearly new; £31.

EAGLES.—Rover, late 1912, free engine model, new condition; £37.

EAGLES.—Zenith-Gradua, 3½h.p. J.A.P. engine, fine condition, all accessories; £29/10.

EAGLES.—N.S.U. 4h.p. twin, T.T. model, m.o.v., Bosch mag., enamelled grey; £19/10.

EAGLES.—Rudge 1912 T.T. Model, fast machine, excellent condition; £31.

EAGLES.—N.S.U. 3½h.p. Popular, new last year, improved spring forks, 1in. belt, adjustable pulley; £23.

EAGLES.—N.S.U. 3½h.p. Popular, mag., adjustable pulley, 1in. belt; £16.

EAGLES.—L.M.C., 3½h.p., 1910, Bosch mag., spring forks, variable pulley, rubber studded tyres; £22.

EAGLES.—N.S.U., 6½h.p. 1912½ twin, latest improvements, spring frame, 2-speed gear, free engine; £42.

EAGLES.—Rover, 1913, 3-speed model, as new; £50.

EAGLES.—Swift, 3½h.p., new last year, fine condition, variable gear, free engine, decompressor for easy starting; £27/10.

EAGLES.—Any of the above can be purchased by deferred payments, one quarter of amount down.

EAGLES for prompt delivery of 1913 Bradbury, Douglas, N.S.U., Rover, Singer, Triumph, and other makes; best exchange terms.

EAGLES and Co., High St., Acton.—N.S.U. West London District Agency. Tel.: 556 Chiswick [X4411

2h.p. Motosacoche 1910 gutwenght mag., spring forks, grand condition; £15.—Below.

3h.p. Kerry, mag., low built handle control, good condition; £10/10.—Below

2¾h.p. Royal Enfield Lightweight, 1911, twin engine, new condition; £18.—Below

3½h.p Triumph, mag., spring forks, stand carrier, lamp, generator, new condition; £24, bargain.—Murray's, 37a, Charles St., Hatton Garden, Holborn [4425

All letters relating to advertisements should quote the number at the end of each advertisement, and the date of the issue.

MOTOR BICYCLES FOR SALE.

DOUGLASES, all 1913 models, from £48, or 55/- monthly exchanges entertained.—Lamb's, below.

B.S.A.'s, all models, from £48/10, or 70/- monthly; exchanges.—Lamb's, below.

HUMBERS, all models, from £35, or 40/- monthly; deferred payments no extra. Exchanges entertained.—Lamb's, below.

JAMES, all models, from £48, or 50/- monthly; deferred payments, no extra; exchanges.—Lamb's, below.

ENFIELDS, all models, from 50 gns., or 60/- monthly; exchanges; no extra for easy payments.—Lamb's, below.

NEW Hudsons, all models, from 47 gns., or 55/- monthly; no extra for deferred payments.—Lamb's, below.

ARIELS, all models, from £47/10, or 60/- monthly; deferred payments, no extra; exchanges.—Lamb's, below.

TRIUMPHS, all models, from £49/5, or £3/5 monthly; exchanges entertained.—Lamb's, below.

MOTO-REVE, April (1913) model, 2½h.p., 3-speed, as new; £35; deferred payments.—Lamb's, below.

BROWN, 1912, 2¾h.p., quite new; reduced to £33.—Lamb's, below.

BROWN, 1913, 3½h.p. twin, 3-speed, and sidecar, £48; deferred payments.—Lamb's, below.

NEW Hudson, 1912, 4h.p., 3-speed, shop-soiled only; with Canoelet sidecar; £65; deferred payments.—Lamb's, below.

HUMBER, 1913, 2¾h.p., 3-speed, shop-soiled only; £47.—Lamb's, below.

ARIEL, 1913, 3½h.p., 3-speed, spring seat, decompressor, shop-soiled only; £56.—Lamb's, below.

ROYAL Enfield, 1912½, 2-speed, F.E., footboards, French grey finish; £38/10; deferred payments.—Lamb's, below.

SINGER, 1912½, 2½h.p., smart machine; £35; deferred payments.—Lamb's, 151, High St., Waltham stow. 'Phone: 169 Walthamstow. [8846

DOUGLAS, special T.T., 1912, splendid condition and fast; £36/10.—14, Barnsbury Grove, N. [9576

MINERVA, 3½h.p., m.o.v., h.b.c., low, powerful, new tyres; £10.—23, Stafford Rd., East Ham. [9575

£10.—3½h.p. M.M.C., mag., 26in. wheels; cheap.—Lacock, 52, Lausanne Rd., Hornsey. [9632

3½h.p. Mag. Minerva; £13/10, offers, cash wanted.—4, The Broadway, Addiscombe, Croydon. [9486

5h.p. Twin Vindec Special, Bosch mag., good running order; £15.—Knight, Church St., Reigate. [9561

£6/10.—Motor cycle, 2¾h.p., B. and B., h.b.c., perfect order.—2, Penge Rd., Upton Park, E. [9444

BRADBURY, 1912, 3½h.p., T.T. model, in good order; £27/10.—118, Hampstead Rd., N.W. [9655

CONNAUGHTS, in stock, immediate delivery.—118 Hampstead Rd., N.W. [9659

NEW Hudson, 3 speeds, 1912, brand new. — 118, Hampstead Rd., N.W. [9660

3h.p. Werner, fine machine, fast and powerful; bargain, £6/15.—Speechley, 45, Church Rd., Acton. [9501

1913 2-speed Douglas, T.T., Model P, equal to new, all spares; £45.—14, Somerby Rd., Barking. [X4345

TRIUMPH, 1911, F.E. clutch, excellent condition, accessories; 32 gns.—91, Birkhall Rd., Catford. [9554

ENFIELD Lightweight, 2¼h.p., 1910, perfect; £20; weekdays only.—290, Milkwood Rd., Herne Hill. [8771

DOUGLAS, 1912½, standard, perfect condition, mileage under 3,000; £26.—13, Pembury Rd., Hackney, N.E. [9577

MOTO-REVE, 2¼h.p., 1910 model; bargain to clear, splendid condition, £15.—16, Hampstead Rd., N.W. [9637

LEVIS 2-stroke, the ideal lightweight, quick delivery; postcard.—Harry Walker, The Garage, Muswell Hill. [X1996

ENFIELD Twin Lightweight, 1911, just thoroughly overhauled; what offers?—4, Elmcroft Av., Golder's Green. [X4283

TRIUMPH, 1912, clutch model, good condition, perfect order; £40.—191e, Uxbridge Rd., Shepherd's Bush. [X4280

3½h.p. Werner, twin, good condition, also tyres; £12/10.—5, Devonshire St., Colebrooke Row, Islington. [X4455

SINGER 3½h.p., clutch model, 1913 Sensspray, speedometer, done 2,200; £37.—35, Tasman Rd., Stockwell. [X4494

TRIUMPH, 1911, free engine, splendid condition, only used week-ends; £32.—36, Rye Lane, Peckham. [9380

ZENITH, 1912, 6h.p. racked engine, new condition; £52, offers.—C. Thomas, St. Bartholomew's Hospital, E.C. [9550

TRIUMPH, 1910, clutch, Cowey, accessories, excellent condition; £30, near offer.—265, Coventry Rd., Ilford. [X4423

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COLMORE DEPOT
BIRMINGHAM

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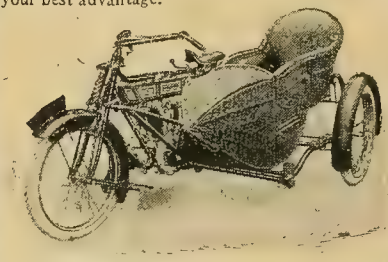

The **ENFIELD COMBINATION** with luxurious sidecar, **80 Guineas.** The Sidecar Outfit de Luxe.

DOUGLAS, SCOTT, MATCHLESS, BAT, PREMIER, CHATER LEA, CLYNO, NEW HUDSON,

etc., and the Featherweight with a big heart—the Valveless **LEVIS.**

The Aristocratic **P. & M.** in Stock..... **£65.**

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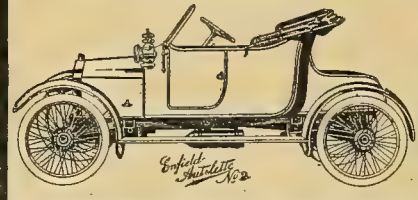
The **A.C.** Sociable, at **£75.**



The Bijou car, the **ENFIELD AUTOLETTE, £138.**
The **PREMIER, 100 gns.** and the new 4-wheeler **A.C., £100.**

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SECOND-HANDS.
£10.....£65.

Call, write or 'phone. We can supply what you want.

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49, JOHN BRIGHT STREET
261, DEANSGATE, MANCHESTER.
31, RENSHAW STREET, LIVERPOOL.
62, HIGH STREET, LEICESTER.

MOTOR BICYCLES FOR SAE

MORGAN and Maxwell, The Motories, 80, H Streatham.—Keen prices, quick delivery.

MORGAN and Maxwell.—Bat-Jap, 8h.p., ar ford, nearly new; £70.

MORGAN and Maxwell.—Bradbury, 1912, a car; £36.

MORGAN and Maxwell.—Clyno, 5-6h.p., 19 coach-built sidecar, 2-speed, Binks; £50.

MORGAN and Maxwell.—Royal Enfield, 191 2-speed; £68.

MORGAN and Maxwell.—F.N., 2¼h.p., 1910, £19.

MORGAN and Maxwell.—Humber, late 1911 speeds; £30.

MORGAN and Maxwell.—Indian, latest 191 and sidecar; £75.

MORGAN and Maxwell.

MORGAN and Maxwell.—Ivy-Precision, late free engine, 3¾h.p.; £28.

MORGAN and Maxwell.—L.M.C., 1913, Arms speeds; £45.

MORGAN and Maxwell.—Matchless, 6h.p., Gradua 6 speeds; £65.

MORGAN and Maxwell.—Motosacoches, two, 1912; £20.

MORGAN and Maxwell.—N.S.U., 1908, mag. £9.

MORGAN and Maxwell.—Peugeot, 7-9h.p., Anme; £20.

MORGAN and Maxwell.—Rexes, two, 3½h.p. £25.

MORGAN and Maxwell.—Rudges, two, 1911 free engines, with or without sidecars;

MORGAN and Maxwell.—Singers (2), one 19 1913, 2½h.p., free engines; £30 and £3

MORGAN and Maxwell.—Triumph, T.T. mode semi-racing, special fittings; £34.

MORGAN and Maxwell.—Two 1910 standa umphs; £26.

MORGAN and Maxwell.—One new 1913 fre Triumph; £59/15.

COME Over Here! To Morgan and Maxwell, Rd., Streatham, for J.A.P.'s, Rexes, Br Indians, speedometers, lamps, new and used acc large stock, cheapest and best of all.

WANDSWORTH Motor Exchange.—Great sale; no reasonable offers refused; mus Below.

WANDSWORTH.—Zenith, latest 1912, mag., Gradua gear, nice order; £36.—Bel

WANDSWORTH.—Rex, latest 1911¾, 7-9h. m.o.v., mag., nearly new; £35.—Below.

WANDSWORTH.—Indian (late), 5-6h.p. twin mag., re-enamelled, made new; £29/15.—

WANDSWORTH.—N.S.U., 1910, 3½-4h.p., mag., 2 speeds, perfect; cheap, £19/10.—

WANDSWORTH.—Roc (latest), 6-7h.p. twin mag., 2 speeds, beautiful; £33/10.—Belo

WANDSWORTH.—F.N., 4½-5h.p., 4-cyl., h.b.c., spring forks, runs well; £12/15.—

WANDSWORTH.—N.S.U. Lightweight, 2h.p new tyres, nice little machine; £11/15.—

WANDSWORTH.—Singer, 3½h.p., Bosch and B., good order, runs splendidly; £ Below.

WANDSWORTH.—Clyde, 3½h.p., mag., S fine tyres, re-enamelled, made new; £ Below.

WANDSWORTH.—Bat-Jap, 1911, 3½-4h.p., mag., drip feed; bargain, £27/10.—Below

WANDSWORTH.—J.A.P., 2¾h.p., mag.; £8/ changes.—Wandsworth Motor Exchange, St., Wandsworth Station.

IF You Want Bargains in 2nd-hand motor cy can get them at Wauchope's, 9, Shoe Lan St., London.

ARIEL, 3½h.p., B. and B., h.b.c., low, jus hauled; £7/15; after 8 o'clock.—24, Sidn Forest Gate.

2½h.p. Premier, 1912, enamelling unscratche good, new belt; £20.—Benfield, Vine Wateringbury.

2½h.p. A.J.S., 1911, belt, fully equipped, e condition; £18/10.—Taylor's, Store St., ham Court Rd.

ZENITH, 6h.p., in splendid condition, speed all accessories; £38.—Bowes, 39, Albany R Kent Rd., S.E.

£27/10.—A.S.L.-Precision, 3¾h.p., shop-soiled machine; correspondence ignored.—16, Ha Hill, Hampstead.

MINERVA, 2¾h.p., vertical, V.S., spring fork perfect machine; £8/10, offers.—Croft, 53, dale Rd., Nunhead.

TRIUMPH, 1911, free engine, all accessories, lent condition; what offers?—Keith Kennard Farleigh, Maidstone.

AUGUST 7TH, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND FORTY-FIRST CONSECUTIVE ISSUE.

Subscription Rates: Home, 6s. 6d.; Canada, 8s. 8d.; Foreign, 17s. 4d. per annum.

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AUSTRALIA.—Gordon and Gotch, Ltd.; Melbourne (Victoria), Sydney (N.S.W.), Brisbane (Queensland), Adelaide (S.A.), Perth (W.A.), and Launceston (Tasmania).

NEW ZEALAND.—Gordon and Gotch, Ltd.; Wellington, Auckland Christchurch, and Dunedin

SOUTH AFRICA.—Central News Agency, Ltd. PARIS—Smith's English Library, 248, Rue Rivoli.

ADDRESS: 20, TUDOR STREET, LONDON, E.C.

The Question of Hub Gears.

THE question of a change-speed device on motor cycles is one of paramount interest, and finality in design of this part of their construction is certainly far distant. Probably the most popular type in point of numbers fitted is the epicyclic ar in the hub. These gears really came into promi nce after the T.T. Race and Six Days' Trials of 11, where they came out, generally speaking, with ng colours, and ever since in the hands of the blic they have continued to give fairly satisfactory vice.

Our own experiences with hub gears not having en of the most satisfactory kind, we have made it special business in past reliability trials to observe critically the similar fitments on competitors' chines. We have found out that nearly all experi ed riders carefully abstain from using their clutches all. We have several times been informed that this the salvation of the gears, and, although in the ttish Trials just concluded fifteen machines so fitted ned gold medals, it must not be assumed that the ers had every cause to apply unstinted praise to their ange-speed hubs. One of their greatest drawbacks the time involved in withdrawing the wheel when ertaken by back tyre trouble, and this is a serious isance indeed. It should be quite possible to sign frames and gears so that this difficulty is overme. And it is also necessary to strengthen the pping power of the average rear fork end, or trouble e to twisting gears will inevitably come sooner or er.

The alleged drawback due to bouncing owing to the ight in the rear hub is, we think, exaggerated in the se of a touring machine. In racing the objection doubtedly applies. The gear striking rod and toggle int should in almost every case be made stronger, d should be kept as short as possible. These are e drawbacks of this type of gear. The advantages e that with an adjustable pulley very wide gear tios may be obtained, and this gear can be fitted to isting machines fairly easily, and, owing to their neficial effect, many an old $3\frac{1}{2}$ h.p. machine is now oudly drawing a sidecar with comparative ease.

All things considered, we are inclined to the belief at a counter-shaft gear is the more likely type to rvive, and that it will embody not less than three eeds, but in the meantime the hub gear will continue to hold sway. We believe that if the question of quick detachability of the rear wheel fitted with this type of gear were seriously tackled its popularity would receive an enormous fillip. And we also incline to the belief that the clutches fitted to the majority of hub gears are of insufficient surface for the loads they are often called upon to take up.

The Twin-cylinder Tendency.

IT is sufficient proof that our recent remarks concerning the growing popularity of multi-cylinder machines were not far short of the mark to refer readers to the current issue in which we describe two new twin-cylinder motor cycle engines by leading firms in the industry. We could go further at this moment and give names of other firms who are either experimenting or have under consideration the production of a multi-cylinder engined machine for 1914. Personally, we welcome the move as a tendency in the right direction. The old theory that double the number of working parts means a duplication of troubles with engines is now spent, and, though a rider may expect to have to devote a little extra attention to a twin machine, the benefits to be derived are, to most owners' minds, more than compensated for by the much smoother running, the fascination of an engine which "purrs," and the seeming absence of effort so noticeable with a multi-cylinder engine.

In connection with this multi-cylinder tendency, we notice with much satisfaction the originality which is being displayed in design. The copyist is always a year behind the times, and we do commend those designers who have the courage to depart from orthodox lines. The motor cycle engine has not yet reached that happy stage that it cannot be improved upon. In particular the life of bearings must be lengthened, and the question of lubrication opens up channels for improvement. Just as 1912 was a sidecar year, next year bids fair to be a twin-cylinder year. We have always been of the opinion that not enough attention has been devoted by the big manufacturers to multi-cylinder engines, and have held the opinion for a long time that some day or other they would come into their own. At any rate, between now and the date of the Olympia Show, readers may expect to learn of a number of new multi-cylinder machines, including not a few with horizontal engines.

SIDECARING FOR LADIES.

A NOVITIATE'S EXPERIENCES.

SOME little time ago I was consumed with a desire to drive a motor cycle, which, on the arrival of a 5-6 h.p. Clyno and sidecar, developed into a burning passion.

As a perfect novice, without any particular inherent faculty for matters mechanical, my heart ebbed rather low at the possibility of handling this fearsome-looking machine with, to me, such an apparent nest of complications. After one or two rides in the sidecar, when in the open country, I was persuaded to enter on my first drive.

Having been initiated into the mysteries of tickling the carburetter, I succeeded, after one or two attempts, in starting the engine by means of the kick-starter and was agreeably surprised and not a little proud of myself to hear the engine purring gently, and metaphorically champing at the bit, ready for the actual start.

I must confess that it was with great trepidation that I pushed down the low gear pedal—my feelings at the moment might well be compared with those of a person compelled to press the button for electrocuting himself—but, contrary to expectation, nothing happened save that the combination glided away like a young Rolls-Royce, and, after changing into high gear, we soon picked up speed, and I experienced that thrilling feeling of having managed it.

Getting Used to It.

For some miles I was quite content to run with the gas lever about a quarter open and spark lever half advanced, which gave us about twenty-five miles per hour, as the roads were winding, and I did not want to stain my reputation with a spill on the first ride.

Never before had I realised the real pleasure of having a throbbing fount of energy under one's control ready to respond to the smallest touch of a lever, and capable of doing a good forty miles per hour, or slowing down to an ordinary walking pace with such a range of control that makes one feel perfectly safe under all conditions.

Gradually I am acquiring the reason why of various things, and have obtained much useful advice by studying *The Motor Cycle* week by week, which I now look forward to with the pleasure known only to the devotees of a hobby.

It must be confessed that it took me some while to appreciate the necessity of retarding the spark when the machine slowed down up a steep hill, the paradox to me being that you advanced the spark for more power and more speed, and yet at the very time you wanted most power you had to retard. This problem caused me to enquire in my own mind what retarding and advancing are, and why they are necessary? A solution of which made matters quite clear.

Six Horse-power Quite Easy to Handle.

There was a time when I thought a lady could never tackle a heavy sidecar machine of nearly six horse-power, even if she could ride a lightweight, on account of it being so much more difficult to handle, but I am now quite convinced that a sidecar machine is easier for a lady, as she does not have to balance or do the hobby horse trick when starting and rounding greasy corners, and a heavier machine is steadier on bumpy roads. Again, I can arrange my skirt, then start the engine, and the machine glides off like a car,

The writer, Mrs. Montgomery Saxby, owner-driver of a 6 h.p. Clyno sidecar.

without performing a lot of gymnastic feats which, while being perhaps graceful in the male sex, are not exactly ideal from the feminine point of view.

A Suitable Costume.

A word as regards dress—exclusive to lady readers, of course. So far I have found the most satisfactory dress is a tweed costume which I had for push cycling, the skirt of which has a front panel. This panel I split on the left-hand side for about twelve inches, which allows the skirt to hang at each side nearly down to the ankle, well covering the cloth gaiters which I wear for warmth. When I leave the machine I fasten the split by means of buttons and button holes, which converts it into an ordinary skirt. A tight fitting bonnet with ends to tie under the chin completes the outfit.

I should very much like to see more ladies driving, as I feel sure they would enjoy their outings a lot more, and in the case of a sidecar machine they have every opportunity of being initiated into the gentle art.

OCCASIONAL COMMENTS
by "IXION"

Adjustable Belt Fasteners.

I wonder how many sidecar owners have formed the habit of using two adjustable fasteners in each belt? I have been lucky enough to find an absolutely reliable belt fastener in the Forward, of which I have only broken one sample in several years of hard work. These fasteners have three adjustable links, and the change from the longest to the shortest link permits me to vary my gear from 4 to 5 to 1 without touching the belt itself; I simply lower the pulley and change the fastener link. A tourist who is using a 3½ h.p. machine with a sidecar often requires a lower normal gear than 5 to 1, whether he has a three-speed gear or not. If he is content to use one fastener, he must cut the belt or change it for another belt to obtain his lowest ratio; but if he fits two adjustable fasteners in the belt, he can drop from 4 to 6, or even 6½ to 1, by simply lowering his pulley and exchanging the two long fastener links for two short ones. The only demerit in the practice is connected with the carriage of spare belts; a belt with two fasteners in it is even more awkward to furl up and pack away than a belt with one fastener—and that is saying something.

Front Wheel Carriers.

A well-loaded motor bicycle is not a pretty object, nor is it specially comfortable to ride. When a rider starts on a long tour, his rear carrier is loaded up to the height of the Eiffel Tower, and if he is one of the old-fashioned brigade who regard a kick start, with or without the use of the stand, as the mark of a novice, he is apt to vault a trifle low at times in his jump mounts, since he is not accustomed to the huge pack astern. I cannot help thinking that there would be a certain demand for front carriers, designed to hold the toolkit, at any rate; such an innovation would keep the toolbags a great deal cleaner than they are at present. Under the present system we are bound to get our hands into a filthy condition, even if we do no more than get out a spare plug and a spanner from the aft locker, for the bag and its straps are covered with mud or dust after thirty miles. Supposing that a small platform were mounted sturdily above the front wheel, the entire mechanical outfit of tools and spare parts could be packed there in a suitable bag, and would keep fairly clean, while the long distance tourist would have the rear of his machine left free for a flat case on the carrier, and two deep pannier bags, which would hold all his requirements for a longish jaunt. This would incidentally cure the existing troubles which arise so frequently when dust jams the lock of a small rear pannier bag.

The Durability of Cycle Cars.

As cycle cars are at present in the callow stage inseparable from the youth of every species of animal or motor, truth has often compelled me to make harsh and critical remarks about certain features of the industry as a whole, and individual products in particular. I am the more pleased that a recent experience empowers me to pay a very high tribute to a certain cycle car. While I was in the Isle of Man this summer, a unique opportunity came my way. I went out on a cycle car which had covered no less a distance than 15,000 miles; it was one of the very first Morgan runabouts. Its owner challenged me to put it to any test I could devise, and we instantly headed for Sulby Glen. This climb is a reef-scarred, boulder-strewn by-lane, a kind of a backstairs to the summit of Snaefell; the collar work continues for three miles or more, and commences with some very ripe gradient indeed—it is probably all of 1 in 3 on the inside of the two worst hairpins, which are so abrupt and narrow that all cars have to reverse to round them, and that only a very clever motor cyclist can make a clean ascent under Queenberry rules, *i.e.*, without using his inside leg as a pivot to haul his machine round on. We first took the Morgan down the precipice to see how its

SCOTTISH TRIALS. Mrs. Baxter on the way to Applecross. This lady handled her 6 h.p. twin Rex very dexterously.

Occasional Comments.—

brakes were wearing, and it was always well in hand, though occasionally squeaking showed that the lining was worn down far enough for the rivets to scrape on the drums. Then we turned it round and gave the big J.A.P. engine its head on bottom gear. I was more than a little doubtful of success, because this particular Morgan was fitted with racing gears, as all self-respecting machines should be in the T.T. week, and the lowest ratio was no less than 7½ to 1. We bounced up with the engine revving into a scream; in fact, we were going a little too fast for at the second and worst hairpin we made too much vertical progress, and not enough horizontal sweep, with the result that we had to jam the brakes on to avoid collision with the wall. So we let the machine slide back two or three yards, caught it on the clutch, and put it at the awesome bend afresh, restarting with ease from rest on the evil grade. This time we went at the hairpin more cannily, and scraped round with about two inches of steerage room to spare. Even thus it was conceivable we might meet our Waterloo higher up, for on the worst knuckle of the steep gradient, where the heavenward ascent touches its steepest, there is a gulley a foot deep to rest the weary horse; and it was scarcely policy to rush this on a low, light cycle car, so we dropped gently into the gulley with the clutch out, and then smashed the throttle open for the poor engine to re-gather its revs. on its racing gear—and it did so. Evidently the Morgan is a staunch example of a durable cycle car. I have driven others which would not tackle this particular climb in that brief prime which occurs when a motor has been well run in, and yet has not had time to wear.

Reflex Mirrors Becoming Compulsory.

Now that some of the local authorities have made red reflex mirrors compulsory within their jurisdiction, it would appear that the trade should supply these fitments as part of the standard specification for 1914. Those who have to purchase them should tread warily. Finding myself in one of the compulsory areas last week, I went to the principal motor bicycle agent, and asked for a red mirror. He produced one, but my half-crown was scarcely in his till before I began to grumble; he reassured me by pointing out upon it the trade mark of a firm deservedly honoured and trusted throughout the industry, and I strolled back to my hotel, musing. When I came to fit it, my misgivings were more than justified. Its spring clip was even weaker than it looked, and after I opened it enough to get it round the carrier tube, what little temper if ever possessed was obviously lost for ever. Noting its flimsy construction, I was careful only to utilise upon it one of those handy little two-inch King Dick spanners, but the tiny torque of this wee implement was more than enough to loosen the stud in its stem; and when, after nightfall, I rode out of the town, the miserable little contraption tumbled off, and I was stopped by the police. Hastily mustering to my memory a few stray reminiscences of amateur theatricals, I played simple Giles to perfection. As I absent-mindedly lit a weed, I caught a glistening eye beneath the helmet, and Robert was invited to have a smoke—Flor Cabbageo, from the left-hand side of the case, reserved for cabbies and men I wish to injure. He told me there was a shop in the next town, where they sold red mirrors, and I avoided that town by an ingenious detour, and cleared the dangerous area in safety. Now I am enquiring for a really substantial red mirror, mounted in a flanged ring, designed to be riveted to the tail of my back mudguard.

Exhaust Whistles.

My recent criticisms of exhaust whistles were not based on an exhaustive test of every whistle on the market—life is too short for my writing to be based on a comprehensive deduction. So those inventors and makers who have written angrily to me may save their "hot air" as the Yankees call it. I merely described my experience with a few leading makes, because those experiences brought into high relief certain principles which may guide the sanguine amateur in his purchases, and save him good coin of the realm. I have just succeeded in making my last expensive whistle work well. Its main weakness was the fact that carbon deposits, accumulating at a distance of nearly three feet from the engine, well back along a lengthy rear pipe, prevented the valve shutting, since the return spring was ridiculously weak. I made the whistle work by getting a nice Terry spring, in shape and dimensions resembling a Zeppelin airship, and substituting this for the wee coil supplied by the vendors The valve cannot resist this spring but, *per contra*, my poor fingers can scarcely get the valve open against its drag, and I am now looking for a trigger with a greater leverage wherewith to operate the tiresome beastie. In all humility I suggest that so long as motor cycles unfortunately retain pre-historic lubrication systems, with their inevitable consequence of a dirty exhaust, the ideal exhaust whistle should be set as far from the engine as possible, and should be mounted in a by-pass from the main exhaust pipe, so that its working parts do not suffer from a perpetual deposit. Otherwise they should certainly include an easily removable gauze filter, such as was employed on motor cars under the old method of feeding petrol by exhaust pressure.

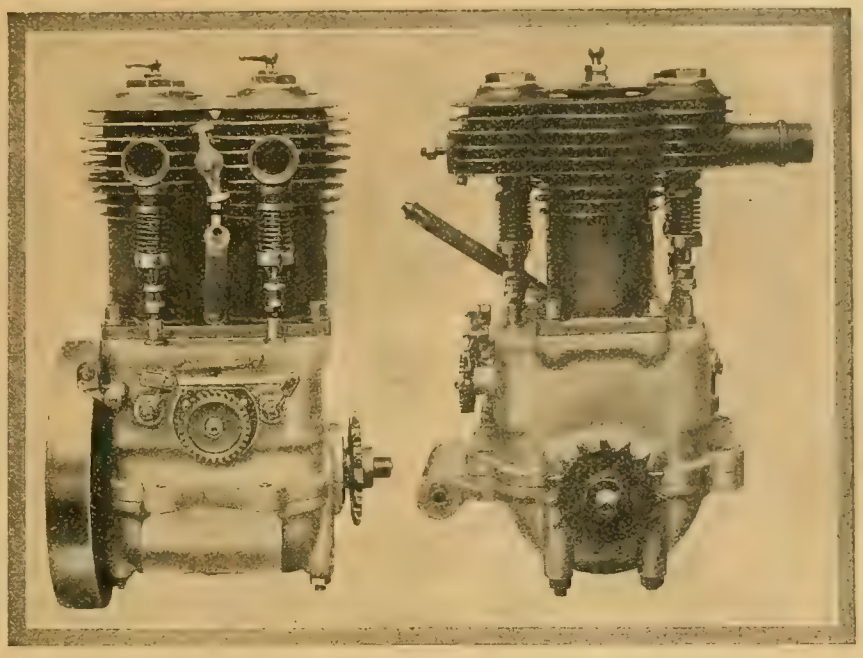
Mrs. A. T. Jenkins, who, with Miss Spink as passenger, drove through the Leeds M.C.C. reliability trial to Edinburgh and back last month. They received a great reception on arriving at the finish. The machine is a 1913 three-speed Triumph with Gloria sidecar.

A TWIN-CYLINDER TRIUMPH.

FEATURES: Side by side vertical engine of 4¼ h.p.; valves fore and aft; outside flywheel. To be adapted to a machine with chain and belt drive and three-speed counter-shaft gear.

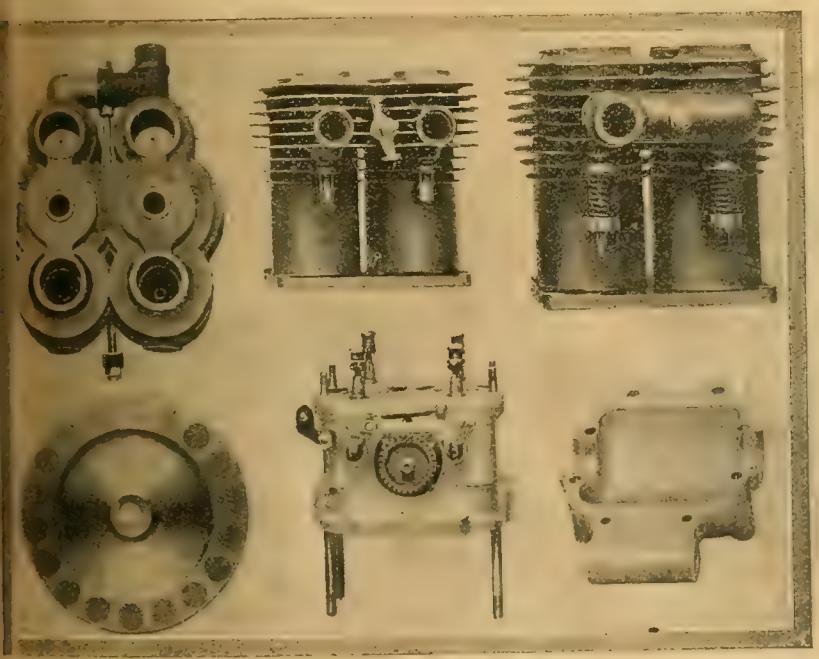
LTHOUGH it has been known for some time past that the Triumph Cycle Co., Ltd., Coventry, were experimenting a twin-cylinder engine of their own n and manufacture, it was not pated that an announcement would ade until towards show time; but week we are able to place before eaders an exclusive description and ations of a wonderfully clever original type of multi-cylinder e which the company in question evolved.

have long been cognisant of the that those responsible for the n of the Triumph have always a strong penchant for the vertical of twin-cylinder engine with double ngs. Experience with cars extend- over long distances has cultured view; consequently one may not be ised that this is the new type of cycle engine, which has now gone a long series of bench tests load, and has emerged with great ise. The next stage of its progress be exhaustive tests on the road. of the main advantages of the al type of twin engine is that e bearings of ample size may be and this is an important point, that even in these days, after years of experience with V type es, the big end bearing is the most rable point. Side by side vertical are not new to motor cycle prac- Old readers of this journal may ect the Werner and the Berkeley, those engines had enclosed fly- s.



Side and end views of the new 4¼ h.p. vertical twin-cylinder Triumph, with outside flywheel and valves fore and aft. The left hand illustration clearly shows the neat valve lifter.

But not only are the Triumph bearings of large dimensions, but they are further adjustable, and can be readily got at by removing the lower half of the crank case, as in many patterns of up-to-date cars. A motor cycle possessing this feature, however, will score over the car, for in case of necessity it would be possible to turn the whole machine upside down, and thus expose the crankshaft and its bearings as clearly as if they were on a bench. The engine is rated at 4¼ h.p., and, of course, mechanically-operated valves are used, situated fore and aft, the exhaust valves, naturally, being in the coolest position in front. The valves are operated by a single shaft placed in line with the frame, and driven by skew gearing from the crankshaft. The shaft itself has four cams (two at each end), the whole being cut from the solid. The central skew on the crankshaft is readily adjustable as to its position, so allowing an alteration of the valve timing, if need be. The magneto, which is driven by another skew gear from the rear end of the camshaft, is independently adjustable. Adjustable tappets are used, with fibre insertions in the top to reduce clatter. Ball bearings are used throughout the engine, with the exception of the small and big ends, which are of the plain bearing type. The crankshaft is formed out of a solid piece, the skew gear in the centre necessitating very accurate machining. The valves, which have heads measuring 1 5/16in. diameter, are of the ordinary type, and standard 3½ h.p. valve springs and cups are used. The cylinder is cast in one piece, and is as excellent a specimen of the foundry-worker's art as the standard 3½ h.p. cylinder, which is saying great deal. The radiating fins have been carefully



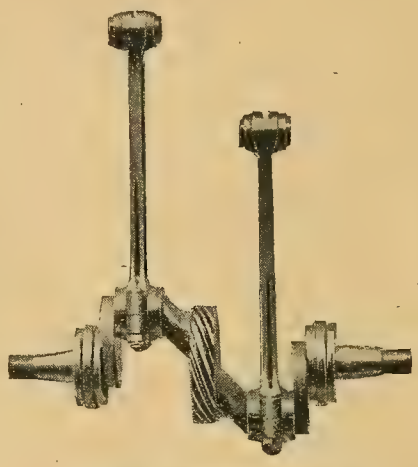
rts of the new Triumph twin. The top row of illustrations shows the single piece casting from ll ent aspects; bottom row, the flywheel with lead inserts, and top and bottom half of base chamber.

A Twin-cylinder Triumph.—

proportioned both as to the valve pockets and around the cylinders, and, of course, every opportunity has been taken to provide air passages between the cylinders to assist cooling.

On the first engine produced (which we examined in detail last week), the pistons rise and fall alternately, so that the firing is not absolutely even. This practice is adopted on many high-class cars, though one would imagine on first consideration that an engine which fired at equal intervals would give the smoothest running. One can, however, rely upon the Triumph engineers satisfying themselves before the new twin is marketed which system is the better. The lubrication of the bearings has received very careful consideration; not only are oil scoops provided at the bottom ends of the connecting rods, but channels are formed in the rod itself to conduct oil to the vital point. The pistons are of the flat-topped pattern, and are provided with a step cut ring top and bottom. The outside flywheel is of stamped steel with lead inserts. The valve lifting mechanism is of exceedingly neat design, the two levers being interconnected and having a beautifully smooth operation. As will be gathered from the illustration showing the square crank case with its horizontal division and the outside flywheel, advantage has been taken of the best car practice. In fact, briefly, the Triumph twin may be termed the embodiment of all that is good in a twin-cylinder car engine but with air-cooled cylinders. It is surely an attractive point to know that by removing the gudgeon pins and undoing the four nuts which hold the lower half of the crank case in position the crankshaft and connecting rods can be removed from the engine, leaving the top half *in situ*, the cylinders having first been removed.

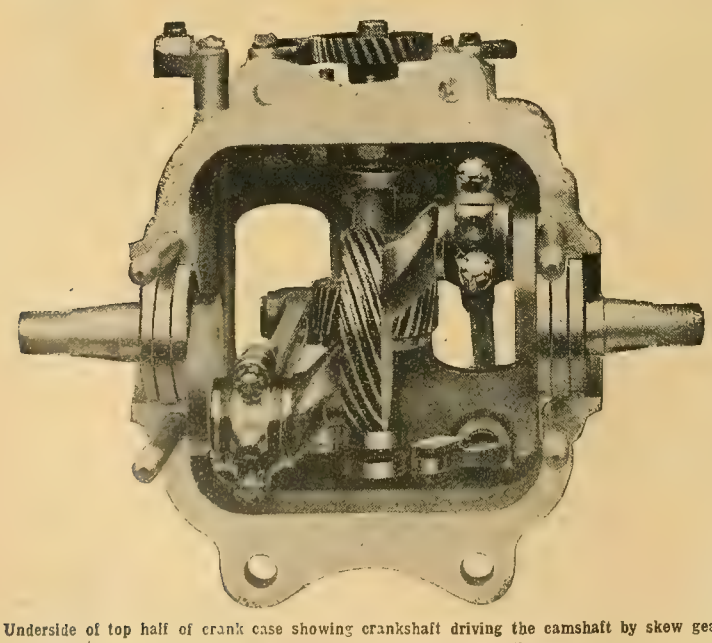
The engine having two cylinders facing the direction of travel necessitates a special design of frame. The engine, however, is so neat and compact that it does not look unduly wide. The new twin will be tested in conjunction with a new Triumph three-speed counter-shaft gear with chain drive from engine to counter-shaft and belt drive by large diameter pulley thereafter.



The twin-cylinder connecting rods and crankshaft.

At present, we are requested not to divulge the engine dimensions.

The advent of the Triumph twin engine will undoubtedly be hailed with delight; many are the letters we have received from readers imploring the Triumph Cycle Co. to produce a twin-cylinder engine of the same exquisite workmanship which is embodied in their world-famous 3½ h.p. single-cylinder machine. Readers may rely upon our keeping them in touch with developments in connection with this interesting and praiseworthy design, the originality of which will appeal to novice and expert alike.



Underside of top half of crank case showing crankshaft driving the camshaft by skew gearing. Observe the adjustable big end bearings and oil scoops.

SCOTTISH TRIAL ECHOES

W. Pratt's aluminium embossed numl plates were greatly admired. He al had his tank enamelled a delicate mau tint, and the general finish of his P. a M. was superb.

The little 2½ Connaught, which w fitted with a G.H. gear box, used ve heavy driving chains. Cocks admitted us that they were quite unnecessar heavy, but he meant to make certain being free from transmission troubl The running of this miniature two-stro engine was one of the surprises of t week.

The number of belts used up w appalling, and really could not have be necessary. One rider of a big variat geared mount fitted a new belt nea every day! He said he was runni them in preparatory to the English Days' Trial. But why so many?

Hub gears came in for a good deal abuse. Apart from frequent adjustme being necessary, hub gears, for import trials run to time schedules, have disadvantage that they take a considera time to refix the wheel after tyre troubl

The P. and M. riders' habits of cle ing up before entering controls was c tagious, nearly everybody following th example. "Not that we want to," one rider said to us, "but we look jolly shabby in comparison if we don'

W. C. Brandauer, who won the spe prize for private owners, is an Austri He described the course as very l that which he is accustomed to arou Vienna. He is a real enthusiast, has owned several Indians. Althou able to speak five languages fluently, could not master Gaelic in the short ti at his disposal.

One excellent feature of the Trials w the way the officials themselves u motor cycles to go round. The secret covered the whole route on his Bat, the official cars were reduced to an ab lute minimum. This is as it should for the dust was bad enough with cars to make it worse. Besides, mo cycles were far better able to get course than cars were, in many of sections.

We rather fancy that a far grea number would have got through ordinarily careful driving had been served. A great many riders were too prone to rely on impetus on th climbs rather than on a low gear rat Impetus rather fails as an assistant 1 in 3 hairpins!

Lionel Martin's impromptu hill-cli ing exhibitions on the Singer cy car during the last few days of Trials were quite a feature. He repai his axle trouble by Wednesday, and Thursday gave a fine exhibition Applecross, climbing the hill w three up. On Saturday he took f up Kenmore. Anyone who knows eit hill will appreciate what this means.

:ottish Trials Echoes.—

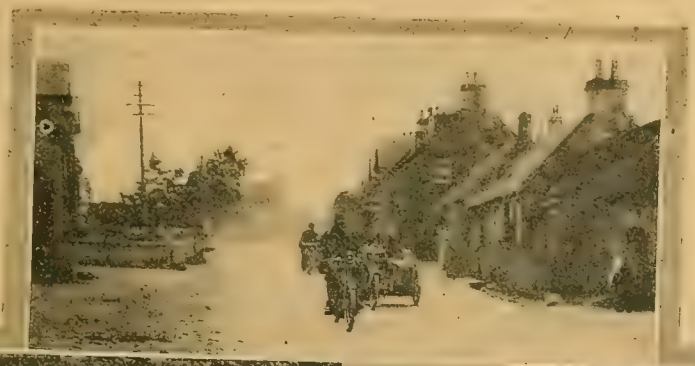
Which was the cycle car which shed s propeller-shaft descending a steep ıl through the driver applying his rear rakes so hard that the shaft slipped orward out of the axle? And was it ot a very smart repair that enabled im to check in correctly without losing arks?

The law concerning cut-outs is evi-ently not much observed in Scotland. o attempt to seal them was made, nd nearly everyone made the fullest se of them. But in some of the remoter parts of the journey the crackle was positive company. Our machine was not fitted with a cut-out, and we often wished it was, so strange was the Highland silence at times.

A slight amount of misunderstanding has been caused in some quarters by it having been announced that certain riders had gained gold medals, although published as having lost marks during the week. As a matter of fact, there were cases during the trials where riders who eventually won gold medals were posted at night as having lost marks, but on investigation later by the club these marks were restored to the riders on their entering a protest and sustaining it.

As there is no hotel at Applecross, competitors were treated to an *alfresco* meal by the seashore, but as the weather was tropical it was pleasant to be out of doors. One rather wonders how sufficient food for over one hundred hungry travellers was conveyed to this desolate spot, but there it was all right—another feather in the cap of the managing committee.

SCOTTISH SIX DAYS TRIALS.



(1) J. H. Begg (3½ h.p. Rudge), J. Chater-Lea (Chater-Lea sidecar) and another competitor passing through Dingwall.

(2) G. Featherstonhaugh and D. H. Noble, both riding 3½ h.p. Rovers, on Glendoe.

(3) A. U. R. Downie (2¾ h.p. A.J.S.) on the Bridge of Brown, Tomintoul.

(4) H. F. S. Morgan (8 h.p. Morgan) climbing Man Ratican, Glenelg.

(5) S. Wright (Humberette) in Glenelg.

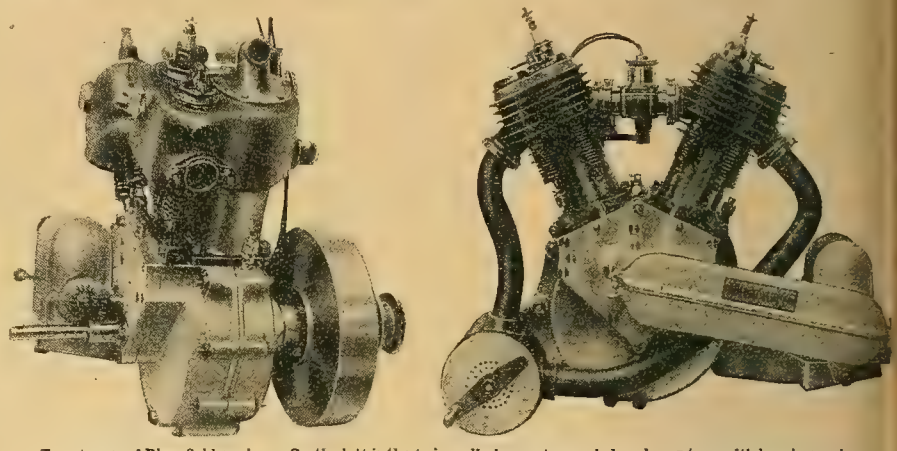
A NEW BLUMFIELD CYCLE CAR ENGINE.

ONE of the latest additions to the series of engines made by Blumfield, Ltd., of Lower Essex Street, Birmingham, is the 8-10 h.p. water-cooled cycle car engine. This is of the V twin type, with cylinders 81½ × 95 mm. bore and stroke = 991 c.c. The water outlets are clearly seen at the top of the cylinders, but they can also be taken from the sides if desired. The magneto platform is cast in one piece with the timing gear cover, and the armature is driven by bevel gearing from the half-time shaft. The crankshaft is extended in the front to take a starting handle, and, in addition to the inside bearing, is further supported in a long gun metal bearing bolted to the timing case. At the clutch end the crank case webs are lengthened and strengthened, and a bush inside the bearing takes the end thrust of the clutch when it is withdrawn.

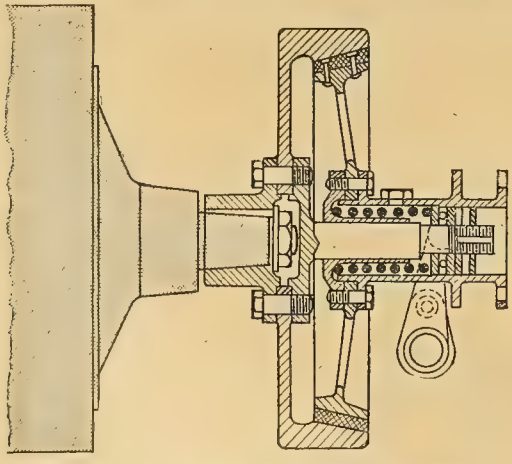
The engine is supplied with or without an exhaust valve lifter, and when furnished minus the lifter the valve tappets are adjustable. The connection for the carburetter is a reversible T piece, which enables the carburetter to be fitted either in front of or behind the cylinders.

The cone clutch is of the internal leather-to-metal type, and is provided with a Hoffmann ball bearing to take the end thrust of the clutch when the latter is withdrawn. Chrome leather is used to cover the clutch cone, and, owing to the nature of this kind of leather, it is said to run satisfactorily without constant dressing. The lever for operating the clutch is of hardened steel, and bears against the back end of the thimble shown, which is also hardened steel. To adjust the clutch spring without dismantling the clutch, a slot is cut in the thimble, through which is passed a cotter to prevent the adjusting nut from turning; the clutch is then turned while the nut is held, thus tightening or loosening the spring according t requirements.

As illustrated, the engine is intended for shaft driv but it is equally suitable for chain transmission, i which case it is fitted with a chain sprocket on a extension of the clutchshaft. One or two recer improvements have been made to the 5-6 h.p. twin ai cooled Blumfield engine, such as a new magnet platform, new silencer and arrangement of exhau pipes; these we illustrate. The magneto chain cov

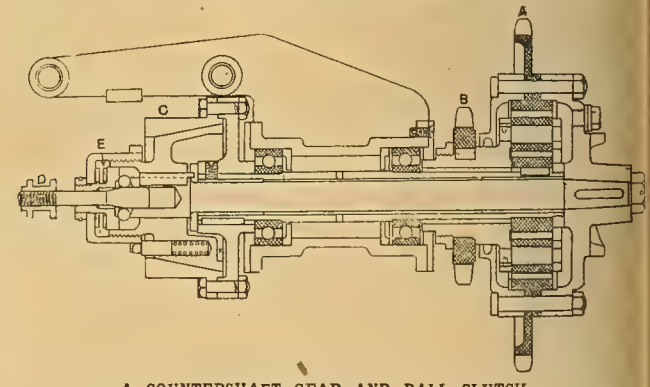


Two types of Blumfield engine. On the left is the twin-cylinder, water-cooled cycle car type with bevel gea drive to the magneto and cone clutch. Right, the twin-cylinder air-cooled motor cycle engine with chain-driven magneto.



The design of internal leather to metal clutch fitted to the new water-cooled Blumfield cycle car engine.

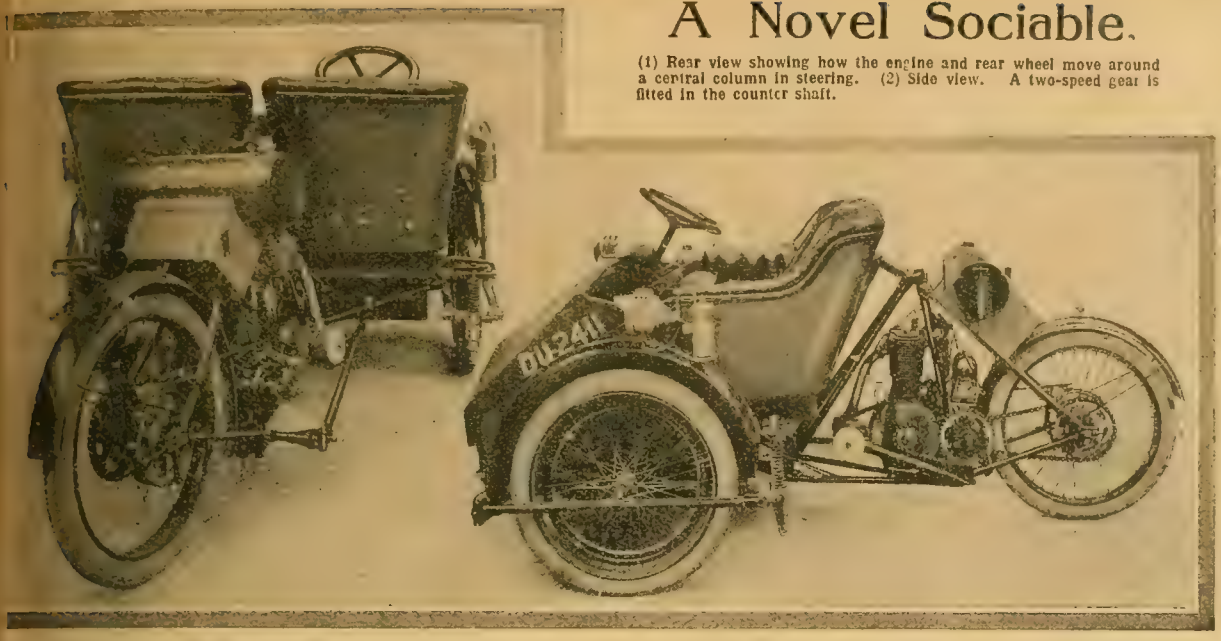
is divided horizontally in the centre, hinged at the re end, and fastened at the front by a hinged bolt an knurled nut. The top half can be instantaneous lifted up and hinged back. A cone formed on th timing cover and a corresponding cone in the ca where it fits over the driving sprocket renders the ca secure and prevents it from working sideways. Messr Blumfield, Ltd., are also at work on a four-cylind cycle car engine, the dimensions of which are 62 × 9 mm. = 1,088 c.c., which is expected to give abou 20 h.p. on test. From our inspection of the part this promises to be a fine piece of work indeed. W shall refer to the engine again very shortly. Incide tally, we may mention it is the usual practice of Messr Blumfield, Ltd., to file a record of the b.h.p. tests o every engine sent out, and none is allowed to pas without developing about double the nominal horse power at which the particular engine is listed.



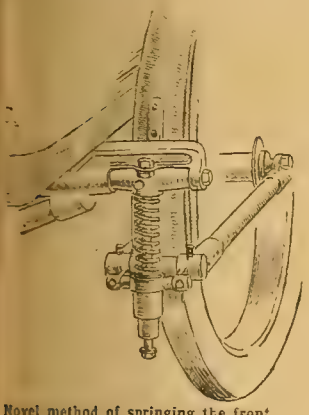
A COUNTERSHAFT GEAR AND BALL CLUTCH.
The above is a section of the gear fitted to the novel sociable described on page 1021.

A Novel Sociable.

(1) Rear view showing how the engine and rear wheel move around a central column in steering. (2) Side view. A two-speed gear is fitted in the counter shaft.

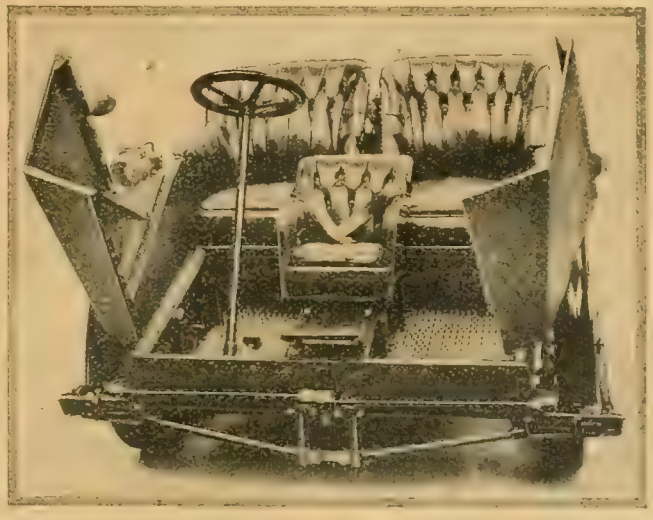


A FEW days ago we came across a very unusual type of sociable built by Mr. J. Dixon, of 43, Northumberland Road, Coventry, to his own ...ias. Probably the feature which first strikes the ...erver is that, though the machine is driven by a ...gle rear wheel, it is steered also entirely by the same wheel. Certain obvious advantages are inseparable with this system. For one thing, a very wide lock can be obtained, and, the front wheels being fixed, the full width between them can be used for bodywork. To obtain these advantages a good deal of ingenuity was required, but the difficulties have ...n successfully overcome and some other interesting ...tures included. The engine, a 4½ h.p. Condor, ...ves a two-speed epicyclic gear by means of a chain, ...d another chain conveys the power to the rear ...eel. The whole power unit is mounted on a frame ...ich also carries the rear wheel, and is pivoted on ...tay which slopes backwards and downwards. This ...r frame is connected by means of a tie rod to the ...ering gear, which consists of a pair of bevels oper...d by the usual hand wheel and giving a reduction ...3 to 1. The effect of the pivot being set on the ...pe is to cant slightly the top of the wheel inwards ...corners, a good point which we have never seen ...orporated in any previous design.



Novel method of springing the front wheels.

The gear is chiefly interesting in that it includes a ...tch operation patented by Mr. Dixon, and which is ...arly visible in the drawing on page 1020. It will be seen that a taper pin when drawn outwards forces a series of steel balls outwards, and by means of inclined planes wedges the clutch members apart. Our photograph gives a good idea of the rear springing device. Both front wheels are carried in tubular frames pivoted to the front frame member and suspended on coil springs at the rear end, giving the machine a very easy motion on the road. V rim brakes are fitted to each front wheel and operated by a hand lever between the seats, which also engages the high gear. Two pedals control the low gear and the rear band brake and exhaust lift respectively. The seats are placed side by side with a child's seat between, and are protected by a screen which opens outwards from the centre. The petrol and oil tank is carried over the rear wheel. The machine is well built and cleverly designed, and we spent quite an interesting hour examining its novel features.



Access to the seats is obtained from the front. A neat child's seat is fitted in the middle.

A NEW TWIN JAMES.

FEATURES:—500 c.c. Three-speed Gear Box and Chain Drive Throughout.

It is fairly well known that the single-cylinder James motor cycle is chiefly used for passenger work, and the makers, the James Cycle Co., Ltd., Greet, near Birmingham, have found that in consequence a solo rider barely considers this model when on the look out for a new mount. They have, therefore, introduced a lighter machine with a newly designed twin-cylinder engine which possesses several interesting features. Three of these new models will be entered for the A.C.U. Six Days' Trials, ridden by T. Pollock, P. O. S. Brown, and H. Graham Dixon, and these three riders will compete for the team prize. Two sidecars, driven by A. D. Arter and T. Stevens, will also take part.

The Engine and Gear Box.

The new machine, which we inspected a few days ago, has a twin V engine with cylinders at 55°, and a bore and stroke of 64 × 77 mm. = 496 c.c. A three-speed gear box, with multiple plate clutch, is fitted on the counter-shaft, and the transmission is by chain throughout, the chains being enclosed in metal cases. The gear box, clutch, kick starter, etc., although closely following the lines of those on the large single, are reduced in dimensions, and therefore are lighter; they are, however, lightened only in proportion to the reduced power of the engine, and only the highest grade steel procurable is used in the production of these parts. In the big single, the gear box is vertically placed, but the new twin has the gear box horizontal. The change speed quadrant is attached to the bottom tube, and a gate change is provided with a small lever like a car. The gear ratios are 5, 8½, and 13¼ to 1. The frame has a dropped top tube, triangulated front members, and flat section steel cantle supports the engine, gear box, footrests, and foot brake attachments, the magneto being mounted on a lug above the gear box. The distance from top of saddle to ground is 29in.

A Symmetrical Design.

A feature of the design is that the front cylinder and down tube are parallel, also the rear cylinder and seat tube, so that a symmetrical appearance is obtained.

The mudguards are four inches wide, and have side extensions front and rear. The wheels and tyres are 26 × 2¼, and spring footboards are fitted. The silencer is placed in front of the engine, and a long exhaust pipe extends from it on the left side of the machine to a point near the rear wheel centre. Other usual James features are incorporated, such as celluloid covered handle-bars, etc.

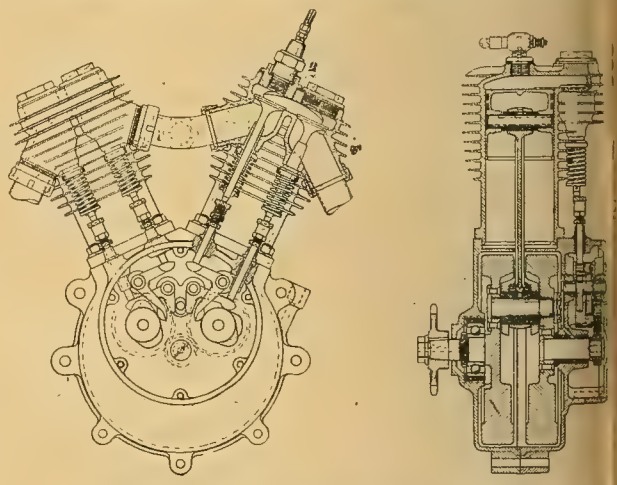
The V twin engine is neatly designed, and, as will be seen on reference to the sectional drawing, the inlet valve ports are cast at the same angle as the exhaust ports, which gives a wide and easy passage for the flow of the gases. The inlet pipe is curved downwards to allow it to accommodate itself to the somewhat unusual angle of the inlet passages. In the cylinder casting air passages are arranged between exhaust and inlet ports, as well as between the valve chamber and the cylinder, the aim being to secure uniformity in the casting and equal expansion of metal. The radiators are staggered around cylinder—now a recognised James feature.

An Easily Cleaned Timing Case.

The timing gear for each cylinder is arranged w one cam wheel, on which are two cam conto engaging rocking arms for inlet and exhaust valv The exhaust lifter mechanism is also enclosed in same case, and no lever protrudes, the cable and w being led direct to an opening on top of the ca The timing cover and rear portion of magneto ch case are one casting, and oil flows into the chain ca so keeping it well lubricated. The valve tappets adjustable, and the external portion of the tim case is quite smooth. The steel flywheels are sc with the shafts. The pistons have two rings ab the gudgeon pin and the pin is slightly tapered, secured by a third ring. Lubrication is by spl and the usual hand pump.

Novel Magneto Timing Device.

An interesting item is the adjustment provided the magneto timing. The chain wheel on the c shaft is slotted radially at two points, and attached a boss on the shaft end by nuts which screw on



The new 500 c.c. twin James engine in part section.

pins projecting from the boss and passing thro the slots. This arrangement allows the chain wheel be tightened relative to its shaft at any point wit the range provided by the slots, which is 90°. chain wheel on the magneto armature spindle is fi on a cone, but need not be disturbed for re-tim the spark.

Incidentally, we learnt that the introduction of t new model will not interfere with the rapid product of the passenger machine, as the James Co. are stalling new electrically-driven plant of about 150 h and extending the shops in the rear of their pres premises, where there is ample space for a build of 18,000 square feet area. The big single-cylin model already referred to has proved so satisfact this year that very little alteration will be made in design for 1914.

The C.A.V. Ruthardt Magneto

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GRAND PRIX (500 c.c.)
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At Colwyn Bay, Stanley, on a Singer Motor Cycle, fitted with the C.A.V. Ruthardt Magneto, secured in one day **five** firsts and one second, in addition to a Special Cup.

The C.A.V. Ruthardt satisfies every magneto demand. We should like to send you our Motor Cycle Booklet with full details—May we?

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CLINCHER

MOTOR CYCLE TYRES

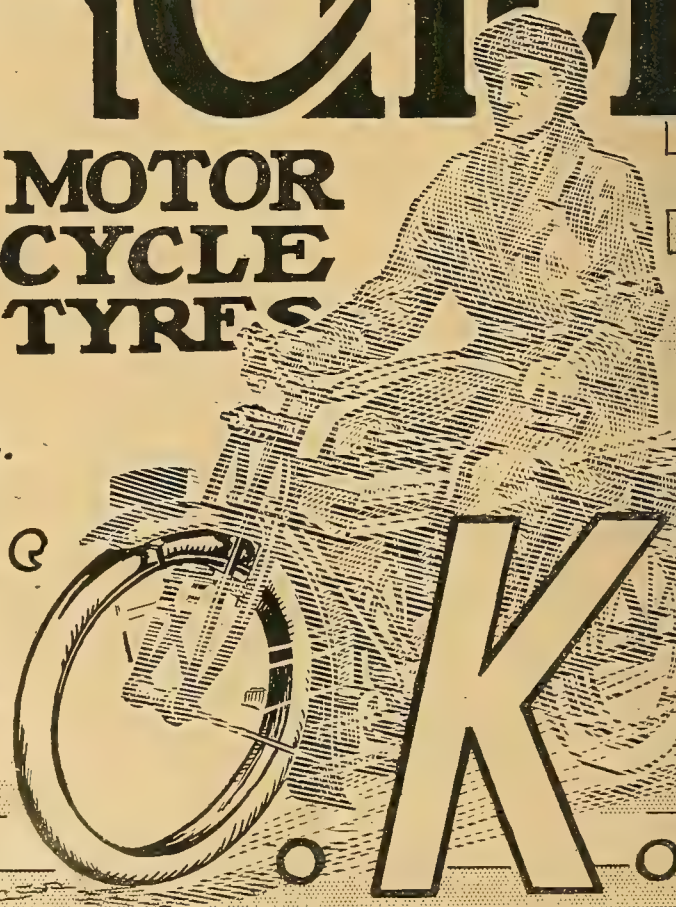
"The Tyres that are Superior"

means Satisfaction.

AWON RUBBER STUD BEADED COVER.
26 × 2¼ ..... **37/9.**

AWON PLAIN RIBBED BEADED COVER.
26 × 2¼ ..... **31/7.**

The NORTH BRITISH RUBBER CO., Ltd.,
Tyre Sales Department:
Clincher House, Gt. Portland Street, LONDON, W.
'Phones: Gerrard 8578 and 8579.
'Grams: "Nobritire, London."

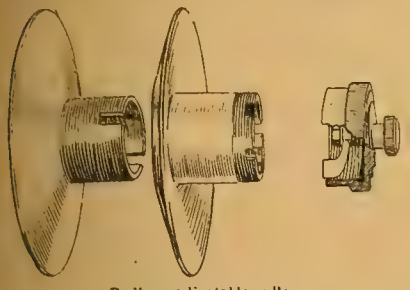


O.K.

AMONG THE ACCESSORIES.

The Rodham Pulley.

A simple toolless adjustable pulley is in article which will always find a ready market, and such a device has just come to our notice. Our illustration is

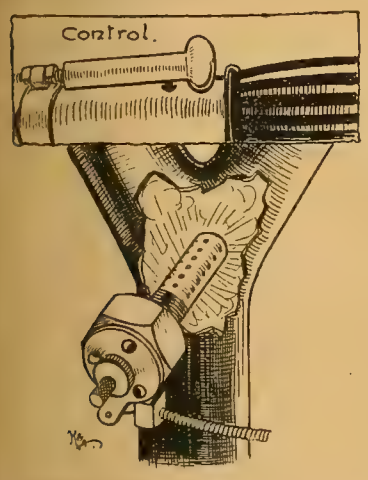


Rodham adjustable pulley.

self-explanatory, and it is only necessary to state that a steel jaw drops into two long slots and forms a sensibly strong locking device to prevent the two flanges rotating on each other. The pulley is well and solidly made, and may be obtained from W. H. Rodham and Co., Long Street, Stratford Road, Birmingham.

Speedler Air Inlet.

A novelty recently introduced by Messrs. Markt and Co., Ltd., of 98-100, Clerkenwell Road, E.C., is the Speedler, a small air inlet which is particularly well designed, and intended to be fitted in the case of a twin-cylinder, at any rate, in the induction pipe branch. It consists of a pipe with a hexagon at the top end. This pipe has six rows of seven holes each. The top of the nut is drilled and provided with a flat valve. The idea is that the air is injected through the small holes into the centre of the mixture, thereby assisting vaporisation,

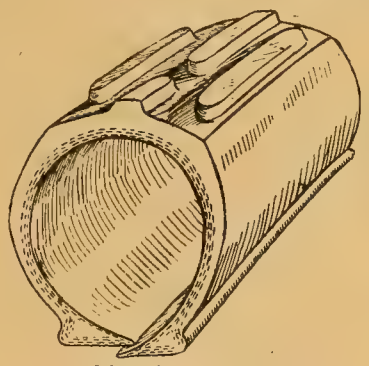


Messrs. Markt and Co's "Speedler" extra air inlet.

enabling one to obtain a more perfect mixture, and also acting as a cooling device, as when a hill is descended the driver can close the throttle, open the air valve and take cold air into the engine, at the same time using the engine as a brake. The spindle on which the valve turns is hollow, and is provided with a cap, and with the outfit is supplied a rubber tube. When it is thought necessary to decarbonise the engine this tube is fitted on to the end of the spindle, after the cap has been removed, the other end of the tube being allowed to dip into a cup of paraffin. The engine is then started up and paraffin is drawn up into the engine. This, the makers claim, will decarbonise the engine. The device should especially appeal to users of automatic carburetters who are not quite sure of obtaining sufficient air at high speeds. This is certainly a useful device which should find a ready sale. An improvement, however, might be made in the design of the control

A New John Bull Tyre.

We illustrate herewith the latest production of the Leicester Rubber Co., of the Granby Rubber Works, Leicester, which will be known as the "John Bull Rib-Stud Tyre," from the long rib-like studs of extra depth which compose the non-slipping tread. This tyre is



John Bull Rib-Stud Tyre.

made in one size, $26 \times 2\frac{3}{8}$ inches, to fit $2\frac{1}{4}$ inch rims, and is of the same highly compressed quality as the John Bull Cross Groove. The tyre is very substantial, but at the same time very flexible. We are about to make a test of one of these tyres and anticipate very satisfactory results, judging from its appearance and the "feel" of the rubber of which it is composed. The John Bull tyres used by George Brough were in perfect condition at the end of the Scottish Trials.

The Excelsior Plug.

This is a new form of plug which has been introduced by Mr. J. Henderson Meyer, 12, Lime Street, E.C. As will be seen from the accompanying illustration, the centre is hollow and in it is a ball valve. This ball allows a certain amount of air to be drawn into the cylinder, thereby keeping the plug clean and improving the mixture. Moreover, the top of the spindle is covered with gauze so that while dust cannot be drawn through, petrol can be injected at this point. In the case of the air drawn through the plug, causing the mixture to be too weak, the carburetter air inlet may be closed slightly.

The Baby Hood.

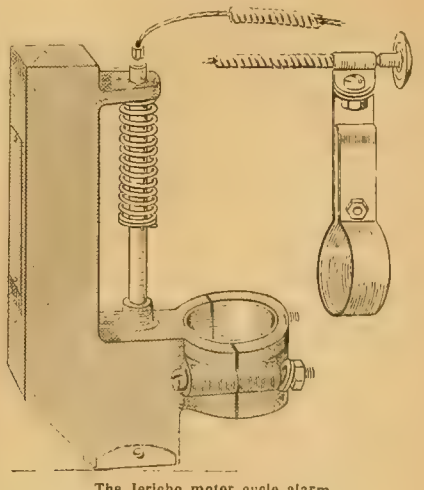
A novel accessory for the additional comfort of the sidecar passenger is the baby hood, which consists, as the name implies, of a small hood, and is fitted with a celluloid screen. The little hood

A storm-proof hood.

is made to fit over the passenger's head, and in cases where a storm apron is used it forms a complete protection.—H. R. Starke-Jones, Park House, Halifax.

The Jericho Horn

The device which we illustrate shows a new warning device known as the Jericho motor cycle horn, and sold by Messrs. G. H. Smith and Co. (London), Ltd., 12, Mortimer St., Great Portland Street, W. It is a very well made article, finished in aluminium, the admission of the exhaust gas to the whistle being governed by a valve.



The Jericho motor cycle alarm

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Caps for Motor Cyclists.

Sir,—Why is it that suitable headgear has not yet been evolved for the motor cyclist? The ugly makeshift of turning one's cap the reverse way is handy for accommodating one's goggles, and offers less wind resistance, but it seems to me that the old type of close-fitting cap, similar to the cricket cap, only slightly fuller, is not only more suitable but even looks much better than the hideous, bulging modern affair. I fear we are hidebound by convention, even in the motor cycling world. M.R.C.S.

Cycle Cars v. Sidecars.

Sir,—*Re* the letter appearing in *The Motor Cycle* of July 24th from Messrs. Morgan Motor Co., Ltd., although not the original contributor of the letter they speak of, I, too, am firmly of the belief that had Barnes's Zenith been more fairly treated there would have been a different tale to tell. In other words, I do not believe the cycle car is as good as a first-class sidecar outfit in its present form, although I think it will come into its own later on. At present I plump for a sidecar combination all the time.

J. ROWLAND-ROUSE.

Are Three-wheelers Cycle Cars?

Sir,—Mr. Armstrong misunderstands me, and I must apologise to him for not having made my meaning more clear. I admit that in the C.C.C. hill-climb three-wheelers were allowed to compete among themselves. I grant that, as all times were published, they had the opportunity (of which they fully availed themselves, being first, second, fourth, and fifth) of showing their superiority on time. They had also the opportunity, as Mr. Armstrong reminds me, of winning the special award on Dr. Low's formula, provided that they could have attained about twice the speed of the fastest four-wheeler, a superiority which I am too modest to claim for the Morgan. The question of awards does not interest me, but, as a matter of principle, I wish to uphold the broad definition of the A.C.U. in the spirit as well as in the letter. H. F. S. MORGAN.

Fair Treatment.

Sir,—As a regular reader of your paper I have noticed many letters acknowledging generous treatment at the hands of motor cycle manufacturers. I should like to let you know my experience with the Enfield Cycle Co., Ltd. I purchased a 1912 second-hand sidecar machine this year, and, unfortunately, broke the spindle of my two-speed gear and cone of the front wheel on separate occasions, and on sending same to them had parts returned to me repaired free of charge within the week.

I think this was more than fair treatment, as I had no claim at all. I am quite satisfied with the combination, and add the usual disclaimer. C. H. KING.

Sir,—I am writing to give you particulars of a case which I think is worthy of publication under the above heading. About eighteen months ago I purchased a Cowey speedometer, which a short time ago got damaged in a fall due to a burst tyre. I sent the instrument to the makers and advised them of the circumstances, when to my great surprise I received it back (carriage paid) in a few days, with a new driving flex and wheel, etc., the invoice being marked "No charge." I might add that I have no interest whatever in the firm beyond being a satisfied user.

A. E. SHOWELL.

Nailsworth Ladder.

Sir,—Your mention in the issue of July 24th of the ascent by an Excelsior of the above-named villainous climb on Monday, July 21st, suggests to the writer that your readers may be interested to learn that 5-6 A.J.S. with sidecar and passenger made the ascent on the previous day (Sunday). I was one of the party of seven (as a passenger), and the machine in question was driven directly off the village High Street and swarmed to the top of the ladder without a stop. The driver of the successful machine had not previously seen this "freak" hill, and he was closely attended by two solo riders of the party, also on A.J.S. machines, all of which rushed the hill in fine style. The gradient, we understand, is 1 in 2¼, and we believe this is the first standard machine with sidecar and passenger to have conquered the "ladder." According to the natives, many have called, but have not left their card—at the top of the ladder. J.W.

Wear of Bearings.

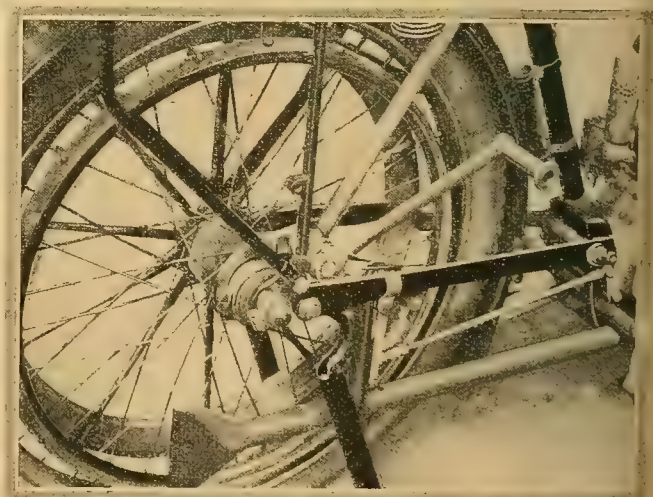
Sir,—Taking the article written by "A.M.I.C.E." to apply particularly to bearings as used in motor car and motor cycle engines, I questioned his seriousness in quoting lead as a suitable metal under *any* conditions of lubrication.

The letter in your issue of July 24th, in which he qualifies that statement, brings us into line.

What I would point out is that a hard metal may be most satisfactorily used, if cast so as to render it perfectly homogeneous, and without fear of undue wear on either the pin or the bush.

It is to a large extent the hard and soft places, caused by segregation in the casting process of an ordinary bush, which causes this trouble, together in many cases with inefficient lubrication.

The remarks as to roller and ball bearings are certainly justified, and they can be no help in the solution of the trouble. A.M.I.M.E.



A TRIUMPH KICK-STARTER.

We noticed the above new kick-starting apparatus on a works Triumph last week. Observe the absence of chains or small parts likely to need adjustment or attention.

BAT

BEST AFTER TESTS

machines score heavily in the

SCOTTISH TRIALS

gaining **3 GOLD MEDALS**

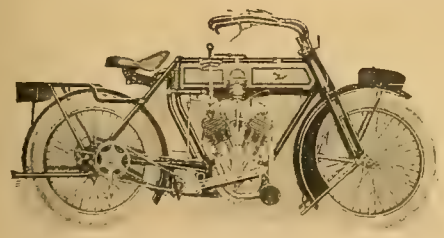
and tieing for **SPECIAL TRADE PRIZE**

FOR BEST PERFORMANCE

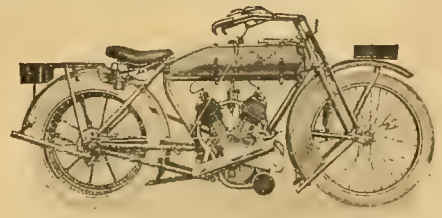
The Trial proved to be one of the most severe ever held, and afforded an excellent test of the calibre of the machines engaged. The three Bats below all finished with a perfectly clean sheet, climbing every hill and running with conspicuous regularity throughout the whole trial.

Official Results—

S. J. K. Thomson (Model 3 Bat and sidecar) .. .. GAINED GOLD MEDAL.
R. S. Morrison (Model 2 Bat) .. .. GAINED GOLD MEDAL.
S. T. Tessier .. TIED FOR SPECIAL TRADE PRIZE AND GAINED GOLD MEDAL.



Bat No. 3 (Sidecar Model).
5-6 h.p. or 7-8 h.p. J.A.P. Engine, fitted with the famous Spring Frame, chain transmission, an ideal machine for passenger work.



Bat No. 2 (Sporting Model).
5-6 h.p. J.A.P. Engine, low built frame, described as "The Smartest and Fastest machine on the Road."

BAT MOTOR MANUFACTURING CO., PENGE, LONDON, S.E.

C.D.C.

YE SPEED MERCHANTS!

500 c.c. **3 1/2** **H.P.**

AND DON'T FORGET, is the power of the

TWIN—TWO SPEED—CHAIN DRIVE

MOTOSACOCHE

(HOLD ON BEFORE YOU OPEN THE THROTTLE OR YOU'LL BE LEFT)

THEY ARE MADE.

MOTOSACOCHE, LTD.,

Kenmont Works, College Park, Willesden Junction, N.W.

Telegrams: "Motosacoche, London." Telephone: 5439 Holborn

Motor Cyclists' Dust Clothing. Showerproof.
Qual. K14. Jackets, Double Breasted **12/6** ea.
Seatless Gaiter.
" K14A. Trousers .. .. .. **7/6** pair.
" K14B. Leggings .. .. .. **5/6** pair.
" K15. Ditto, Superior quality Jackets, Double Breasted, Heavy Drill .. .. .. **18/6** each.
" K15A. Seatless Gaiter Trousers .. .. **9/6** pair.
" K15B. Leggings .. .. .. **7/6** pair.
36 to 44 Chest, Stocked.
32 to 40 Waist, 31 and 33 leg to each Waist, Stocked.
(Write for Patterns.)

Motor Cyclists' Dust Clothing etc.
Fig. K10. The Road. Jacket and Leggings. Qual. K17 Strong Washable Holland Jackets **6/6**
Ditto ditto, Leggings **3/3**
Qual. K17A. Overall Trousers, Spat fronts with seat **4/11** Qual. K18. Superior quality Crash Jackets **10/6**
Superior quality Crash Leggings **5/6**
Qual. K18A. Ditto Overall Trousers, Spat Fronts, with Seat **7/6**
Sizes stocked, Jackets 36 to 44in. chest. Leggings, Longs legs and shorts legs.
Overall Trousers 32 to 40 waist, 31 and 33 leg to each waist.

The Ideal Double-Breasted Motor Suit.
Comprising Double-breasted Motor Jacket (36in. long, fitted with wind cuffs, deep storm collar, tabs on sleeves, etc.), 1 pair shaped thigh leggings. The above are made in Double texture fawn paramatta,
25/- complete.

JOHN PIGGOTT LTD
117, 118, CHEAPSIDE
AND MILK ST.,
LONDON, E.C.

SEND FOR ILLUSTRATED MOTOR CYCLE LIST No 147 POST FREE.

The "Deluge" Suit. Qual. K16.
For Motor Cyclists. Made from Triple-proofed Twill. Free from Rubber or Oil. Porous and Hygienic.
(Write for patterns.)

The Coat is double-breasted, smartly cut, and forms a four-fold covering on the chest. A Seamless whole-piece yoke or saddle protects the back and shoulders, and acts as a shield to cover the opening where coat fastens. The points of yoke and collar button down to prevent flapping in the face when riding.

Sleeves are of bishop pattern, fastening at the cuff with spring buttons, forming the finest wind and weather cuff ever invented. A belt of the best quality harness leather adds to the smart appearance.

The Overalls are seatless, and come well up in front to protect the body.
Made with fly side openings, having water insulators, which fasten up with strong spring buttons and terminate as a neat fitting gaiter. A reinforced waterproof pigskin instep strap completes the smartest and most durable sporting suit in the world.
John Piggott's Special Price .. 50/-

Fig. K.F. 8. **The 'Deluge' Suit.**

In answering these advertisements it is desirable to mention "The Motor Cycle."

The Motor Cycle for Business Purposes.

Sir,—For many years I have been amused and amazed by the ridiculous statements made by novices both in letters in the motoring press and to their friends and acquaintances as to the cost of running both motor bicycles and motor cars. I mention the latter because, except for the same tendency to put the cost per mile of running these also far too low, the public might overlook the advantage of the motor bicycle from the point of view of cost.

I have now been running different motor bicycles and sidecars for many years (my present one, an 8 h.p. Zenith, in a few months only 5,000 miles; the one before, a Triumph with Zenith gear, in two years 25,000 miles; the previous one, a Triumph with Mabon clutch, 24,000 miles in two years), and I have taken the trouble to keep an accurate detailed cost per mile of running, but (and it is a very big but) I have included everything. On each machine I sold well, and avoided heavy depreciation (I got £45 for the Triumph-Gradua and sidecar after 25,000 miles over two years).

Now "Traveller" would have us believe that a Clyno and sidecar, which is one of the heaviest motor cycle combinations, can be run 196 miles for 5s. or just over .5d. per mile. The fact is that even with the much lighter and less expensive combinations referred to above, the actual cost is from 1½d. to 1¾d. per mile, using exactly the same extra Palmer cord tyres to which he refers, and that includes doing all my own running repairs and never employing a local garage, because if I cannot do the job myself it means the local man also has to go to the makers.

The figures of "Another Traveller" for a powerful twin are certainly not over-estimated. It cannot be run at less than 2d. a mile. Taking "T.H.B.A.'s" figures, his estimate is on the low side in many respects. Take his first item. He values his outfit at £100, and allows £15 depreciation in one year over 15,000 miles. I should like to know how many answers he would get if he advertised the outfit in your columns at £85 (no lower offers). I have an 8 h.p. 1913 Zenith with all the latest improvements, with the most expensive sidecar and accessories on the market and coach-built body, and it has only run 5,000 miles, and it cost well over £100. I will now take the first offer of £85, and be glad to get it. Then petrol; he might get fifty on a gallon with careful driving on a fixed run, but over a year this will be reduced to at least 40% or 20% more.

Tyres. In actual practice the driving tyre will run on the best average 2,000 miles, and if a good make will retread and go a similar distance, the front wheel 4,000 and the same after retread. The sidecar tyre, if castor wheel, should run the 15,000 without retread; if not castor wheel the same as front wheel tyre. The inner tubes with one spare would, if a good make, run the whole distance, or twice as far, so that "T.H.B.A." will have to bring his tyre cost over 15,000 miles up to £12 at least. He says belts (with luck) four. I should think so, too. Four belts in 15,000 miles, winter and summer, or 3,750 miles per belt. If "T.H.B.A." doubles this he might do it (also, with luck), but he must buy the right belts. Repairs, replacements, and spares, £5. This also wants doubling in 15,000 miles. The best 5-6 h.p. machine in the world run with a sidecar will want at least two complete overhauls at the maker's works, which will cost more than the amount stated, without home or local repairs; and, to be on the safe side, "T.H.B.A." should make his penny a mile twopence a mile at least to cover cleaning, lighting, special clothing and a hundred other small items which mount up.

I met a man only recently who tried to persuade me, as he had persuaded himself, that his motor car costing £480 cost him 2d. a mile to run all in. I pointed out that, taking the low figure of 20% depreciation, the cost of running for this item only over 12,000 miles was practically 2d. a mile. The fact still remains that a motor car to do the distance and work of a motor cycle and sidecar will cost from 6d. to 9d a mile, or if you employ a chauffeur it easily goes up to 1s. a mile, while a powerful motor cycle and sidecar can with care be run at 2d. a mile, and is then much the cheapest form of taking two people about the country, and is even cheaper for one, taking into consideration the amount of time saved over railway travelling from door to door, except over long fixed distances on main lines when the business is transacted near the station and there is no business to be picked up on the way or back. E. S. NEW.

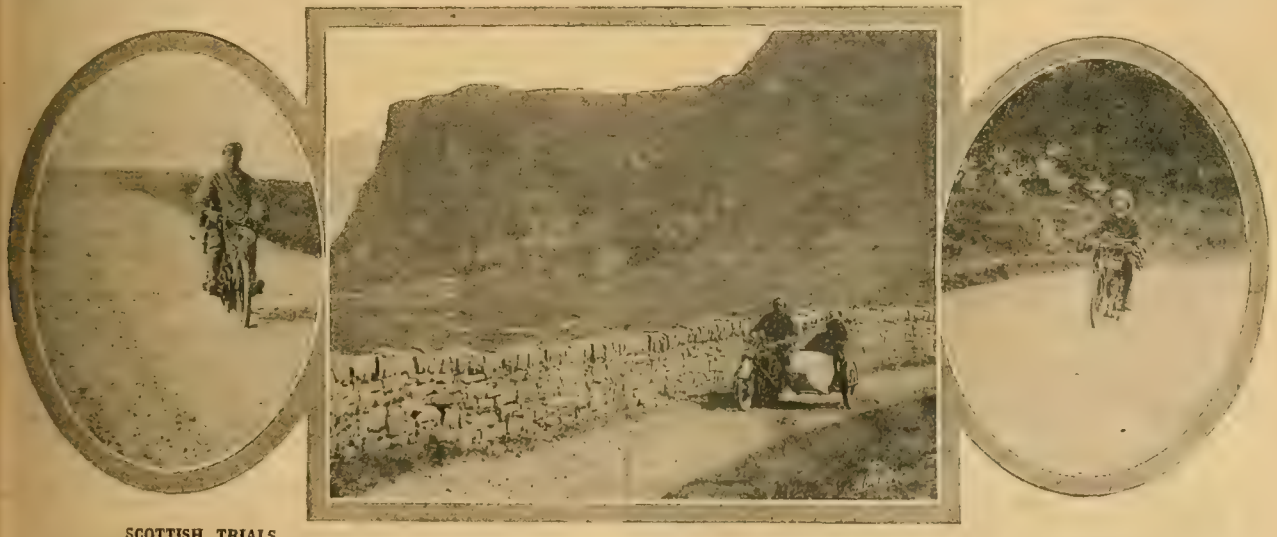
Bon Camaraderie!

Sir,—On June 22nd, near High Wycombe, I pulled up to assist a fellow motor cyclist riding a Matchless and sidecar going to Slough, about twelve miles off. One of his plugs was *hors de combat*. As he had no spare, of course I lent him mine. He took my address, promising to forward the plug in the morning. It seemed to me hardly necessary to ask for his card. However, I have never heard from him since. My only conclusion is I must have met with a wrong 'un. C. WARR.

Benzole.

Sir,—I am very much interested in the various letters dealing with benzole. I can get 90 m.p.g. out of my 1913 Triumph and sidecar with no alteration of carburetter and geared 5⅞ to 11¾ to 1.

In reference to "Hull's" letter of the 3rd ult., I have noticed that I use about the same or less air than with petrol. It struck me the other day that this might be that when using benzole the level is lower in the jet, and, therefore, with the same position of the gas lever you are really using less gas, as it would take more suction to draw it out of the jet, and, therefore, with the air lever in the same position as with petrol you are really using more. I would not go back to petrol for any money. H. L. GRAHAM.



SCOTTISH TRIALS.

(1) A Singer rider on the way to Strathpeffer. (2) D. S. Alexander (8 h.p. Williamson sidecar) on the first portion of Applecross. (3) F. C. North, one of the winning Ariel team in Glendoe.

Sir,—I also have been interested in reading the various opinions given in your valuable journal *re* benzole. I was also prejudiced against the use of it, but, like your correspondent "Hull," I am at last a convert. I happen to know the Doncaster correspondent, and he personally told me that benzole required more air than petrol. I did not find much difference, but of course my experience up to the present has been very limited. However, I will give you my experience. On Thursday, July 3rd, we had a reliability trial to Nottingham and back, and I determined to fill my tank with benzole and give it a trial on the above run, and I may say at once that I was agreeably impressed by its very flexible, sweet-running properties on the outward journey (seventy odd miles), which I accomplished on about half a gallon. I had noticed that some of your correspondents could not make their engines knock, and I tried all I knew to make mine knock, but without success, fortunately, not that my engine is given to this failing. But under exceptional circumstances it was possible; however, not on this occasion. On the return journey, not being able to obtain benzole, I filled up with half a gallon of Shell (not that there was any need to do this, as I had over half a gallon of benzole left). This gave a mixture of half and half, and I found the difference in running most marked, not nearly so good, and a friend riding a 3½ h.p. Rover, who also used benzole for the first time and mixed it with petrol, had the same experience as myself exactly. Now, with regard to the more air theory, I think I am in a position to give an opinion, inasmuch as I used one of my new twelve-jet carburetters, which you so kindly illustrated and described a short time ago. You will perhaps remember that the jets are opened one by one from the handle-bar control, and I found that, as with petrol, to run dead slowly, about seven to eight miles an hour, I had one or two jets open and very little air, and by opening out the air I could accelerate up to twenty miles an hour or so as required. Again, a friend riding a 6 h.p. twin Matchless (myself the 5 h.p. overhead) casually said to me as we were starting from a secret check, "Have a little flutter." I gave the nod, and off we went. I opened out all the twelve jets and full air, and my machine simply bounded away, leaving my opponent as if he was almost standing still, and he told me afterwards that he was doing over sixty himself. Poor chap! the result was a broken inlet valve, and as no spare was in evidence I had very reluctantly to leave him. As to the practically no carbon theory, I am not as yet quite convinced, but hope to find it less than on petrol. J. H. WILKINSON.

Dr. Low's Formula.

Sir,—I notice in last week's issue a letter referring to my formula, but Mr. Morgan writes so nicely that I scarcely like to worry you with another letter. I fear that if I replied at any length I might be accused of being interested in the Cycar, but this is by no means the case. In a hill-climb one's object in formula is to give an idea of the actual efficiency of each machine in lifting itself up the hill. Now I cannot help saying that if the particular machine referred to by Mr. Morgan had the efficiency for *this particular job* of the Cycar it would probably have climbed the hill pretty well as fast as he states. If one works out the propelling efficiencies on a few rough assumptions which there is no need to go into, it will be found that this is the case, and that, therefore, the formula represents effectiveness with reasonable accuracy. If Mr. Morgan thinks that it is better to include more points, such as general wear, then I must agree with him, and in this case one would naturally reduce the value of K; but in a *hill-climb* this is not fair, as one has to distinguish in the particular work the machine is asked to do. Let it by no means be thought that I am saying that one machine is better than the other of the two he mentioned; far from it, and, as an example, let me say that I myself have a car whose engine gives just under 135 h.p. on the brake, and that the pleasure of driving this car is out of all proportion to its undoubtedly very small over-all effectiveness.

A. W. LOW, A.C.G.I., D.Sc., ETC.

Factory Repairs and Agency Tinkerings.

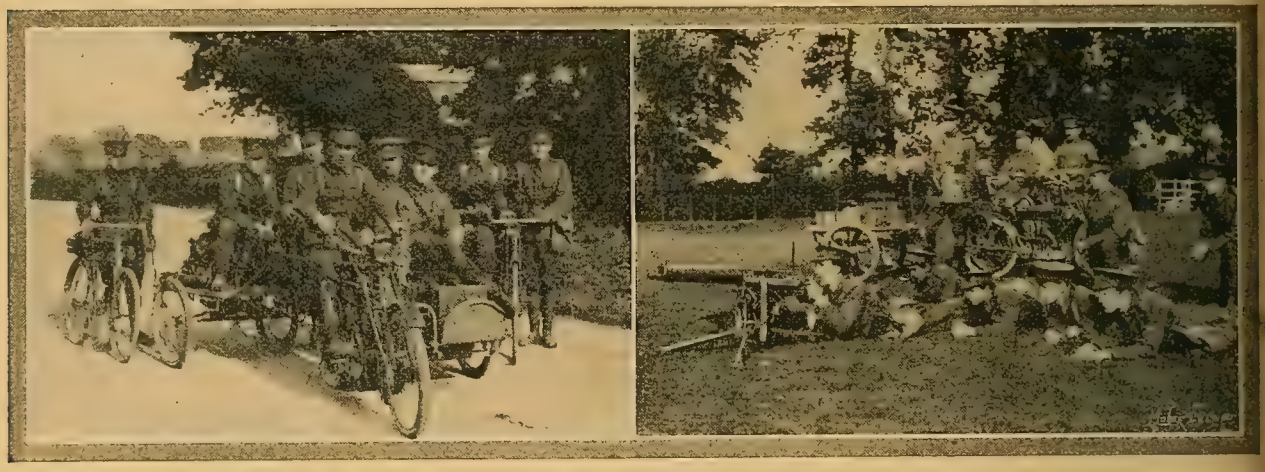
Sir,—The remarks of "Ixion" in your issue of July 24th on this subject are rather too sweeping, though possibly not too severe when applied to some particular agents. All sheep in a flock are not black, and there are on the other side some agents who can do repairs as well as any manufacturer (except perhaps in so far as concerns the manufacture or supply of some new part).

We ourselves claim to do repairs quite efficiently, to any of the known makes of machines. We have taken pains to collect mechanics of the first order, both as regards skill and thoroughness, and in several cases our mechanics have been men selected for us from among their own workmen by the manufacturers whose agencies we represent. For instance, we have in our shops a qualified and recommended man from the Scott Engineering Co., and we have another one similarly selected and sent to us by the Matchless people. Again, we claim to have a Douglas mechanic in whose hands Messrs. Douglas Bros. would not be ashamed to put one of their machines for tuning-up.

In addition to picking the *personnel* of our workshops, we claim to use a correct system of getting work through, and of charging it on a just and equitable basis. We cannot guarantee to turn old machines into new ones, neither can a manufacturer, but we will undertake to guarantee that each job is done well, and, what is more, far quicker than is possible from the big works.

In justice to the white sheep of the agency flock we trust you will print this letter as a protest against "Ixion's" sweeping generalisation.

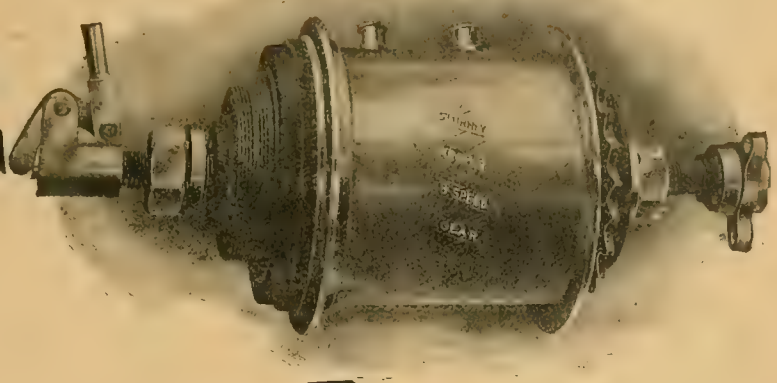
THE COLMORE DEPOT,
Per FRANK S. WHITWORTH, Manager.



MOTOR CYCLISTS IN THE MANŒUVRES EXTENDING ALL ALONG THE YORKSHIRE COAST.

A machine gun and motor cycle team attached to the 5th East Yorks. Cyclists' Corps. The motor bicycle not only takes a sidecar but tows the gun carriage also.

Scottish 6 Days' Trials.



Great Success of

STURMEY-ARCHER

3-SPEED GEARS.

---

5 GOLD MEDALS

won with Sturmey-Archer gears, once again proving the reliability and efficiency of the S.A. gear under the most exacting conditions.

The "Star" performance of the whole trial was accomplished by Mr. Hugh Gibson's 3½ h.p. Bradbury and sidecar with a Sturmey-Archer gear.

New booklet from—

STURMEY-ARCHER GEARS, LTD., NOTTINGHAM.

Trade Mark.

200 PUNCTURES! EVERY ONE SEALED

Motor, July 22.

A SUCCESSFUL COMPETITOR IN THE SCOTTISH SIX DAYS' TRIALS writes:
"I successfully gained full marks in the Scottish Six Days' Trials and qualified for a Gold Medal, using your 'Puncture-Seal.' I may say I have a high opinion of same. I went through the whole Trial without the slightest tyre trouble whatever."—L. SEALEY.

NOT A SOLID FILLING.

PUNCTURE-SEAL

NOT A WATER FILLING.

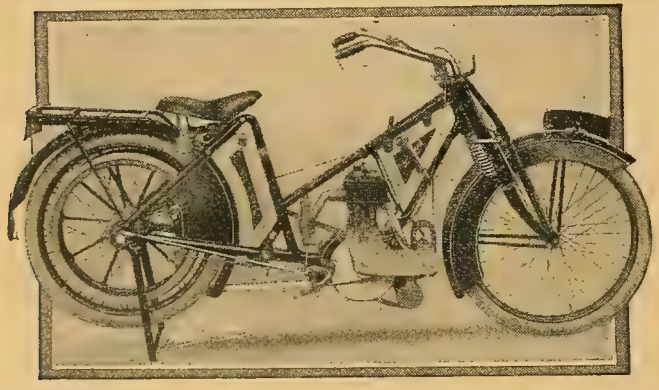
PUNCTURE SEAL — THE RIDDLE SOLVED

Any make of tube supplied treated.	*Prices:*	*Per Tube.*
Up to 750×85	12s.	0d.
Above 750×85 to 815×105	15s.	0d.
„ 815×105 to 880×120	£1 0s.	0d.
„ 880×120 to 935×135	£1 2s.	6d.
Motor Cycle size	7s.	6d.
Cycle size	1s.	6d.

All tubes treated by us returned same day. Send for descriptive catalogue.

PUNCTURE SEAL, LTD., Eden St., Hampstead Road, LONDON, N.W.

'Phone: 1949 Mayfair. Telegrams: "Puncturum, Ensroad, London."



THE **ORIGINAL**

AND STILL BY FAR THE BEST

LADY'S OPEN FRAME MOTOR CYCLE.

The machine with a name for RELIABILITY.

"BROUGH."

Write for particulars.

W. E. BROUGH & CO., Nottingham.

E I C

First in 1898.

Best in 1913.

14 YEARS' RECORD.

CYCLE PLUG.

3/6

Electric Ignition Co. (1913), Ltd.,
Sampson Rd. North, Birmingham.

Second International Reliability Trial

ENGLAND v HOLLAND

THE second international English-Dutch reliability trial was held on August Bank Holiday, exactly a year since the date of the first trial held in Holland. It may be recalled that the inauguration of this popular international event was due primarily to the visit of a party of Dutch riders to the Isle of Man two years ago, and later to Messrs. A. Citroen and Ferwerda, of the Dutch Motor Cycle Club, offering a silver cup for international competition.

At the request of the Dutch M.C.C. last year *The Motor Cycle* received the British entries for the event, and there were so many that subsequently committees of clubs throughout the United Kingdom were appealed to to assist in selecting the eighteen riders (nine each amateur and trade) who should do duty for England. The visit to Holland proved most enjoyable, and one and all came away impressed for a lifetime with the hospitality and sportsmanship of the Dutchmen. The trial resulted in a surprise victory for Holland, owing mainly to an untimely trouble with an English rider's magneto.

Though, according to the rules, the second trial should have been held in the country which won on the first occasion, it was clear that the Dutchmen were bent upon a visit to England, and, therefore it was arranged that the 1913 event should be held in this country, and in case of a British victory, the final event for the silver trophy would be contested in the Netherlands next year.

The organisation of the 1913 trial devolved chiefly upon Mr. W. Cooper (Mr. Loughborough being too busily engaged in the work of organisation in connection with the A.C.U. Six Days' Trials). It must be said that Mr. Cooper has worked most enthusiastically, and the fact that his arduous duties resulted in such a successful event as last Monday's proved to be must be some recompense to him.

The British riders were most anxious to give their Dutch guests a right royal welcome in part return for the kindness and attention received last year, and accordingly a subscription list was opened to entertain the Dutchmen, and there was an excellent response.

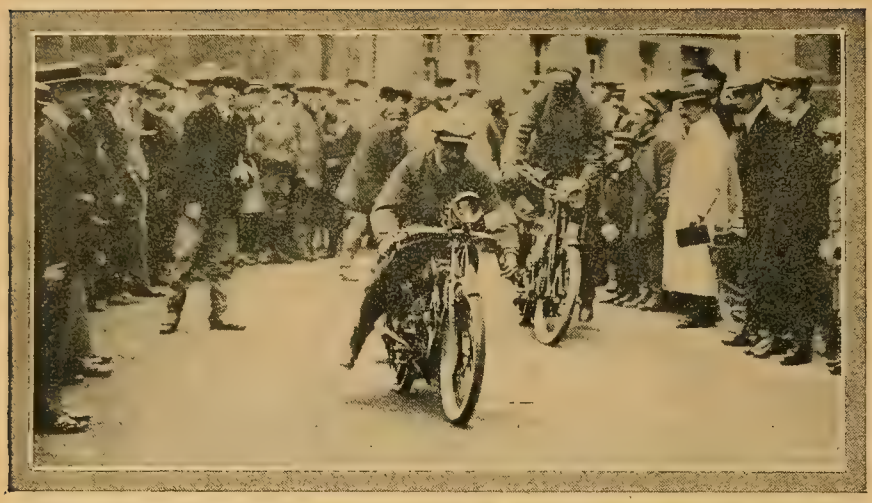
The proceedings opened on Saturday last, when, in the early hours, our visitors arrived at Harwich from the Hook, and, after breakfast, were escorted by members of the British teams and of the Ipswich and District M.C.C. to Brooklands. The journey proved a long and trying one, the Dutchmen not appreciating the twists in the road, besides which they especially complained of the dust and the tar, which made their eyes smart.

The B.A.R.C. had kindly invited the international teams to Brooklands, and it was not long before they were careering round the track. One or two expressed their astonishment at the immensity of the track. Many of the wary ones did not seem anxious to try their paces, preferring, apparently, to keep the tune in their engines. Therefore the action of the Rev. E. P. Greenhill, on his G.W.K., and Messrs. Bower and Barnes, on Zenith sidecars, in taking the Dutchmen round the track in turns was greatly appreciated.

Banquet at the R.A.C.

The next move was to the Imperial Hotel by train, and afterwards to the Royal Automobile Club for the official banquet, at which Mr. J. R. Nisbet presided. The speech-making was necessarily limited by reason of the late hour of arrival of the Dutch riders. After the usual loyal toasts the Chairman proposed "The motor cyclists of Holland," to which Mr. R. Toe Laer responded. The captains of the British teams, W. Pratt and F. Dover, followed with "The Dutch teams," their remarks causing considerable laughter. Mr. Citroen translated Mr. Dover's remarks for the benefit of those of his countrymen who did not understand English. Messrs. Citroen and Ferwerda (captains of the Dutch teams) proposed the English teams, Mr. Citroen's enthusiasm for the motor cycle being plainly evident when he pointed out that their suggestion of the international trial was mainly to develop the ideal machine. He wanted the event to become a per-

Some of the Dutch Team at Brooklands, which they inspected last Saturday, by invitation of the B.A.R.C.



THE FIRST MEN OFF. W. Cooper (2¾ h.p. Humber) and A. L. Versluijs (2¾ h.p. Eijsink) starting.

petual one, and if England did some day win the trophy, then another must be found. He mentioned that he had brought the trophy merely to "show" the Englishmen—a remark which caused some amusement.

In subsequent remarks Mr. Citroen paid a high tribute to the work of the Auto Cycle Union. He gave it as his opinion that the good work of the A.C.U. had a world wide effect upon the motor cycle, and the boom which was only beginning in Holland owed its origin mainly to the spade work of the A.C.U. He added that he believed that last year's Dutch trial was the forerunner of the Federation Internationale des Clubs Motocyclistes. The Dutch Club now had 700 members.

The Royal Dutch M.C.C.

In responding, Mr. Loughborough returned thanks for Mr. Citroen's flattering remarks, which he considered significant and sufficient incentive to Englishmen to support the A.C.U. in every way that lay in their power. He had been told that in Holland "Royal" was about to be applied to the Dutch M.C.C., so that at any rate Holland led in this respect. He assured the Dutch teams that they need not be afraid of the hairpins and the course which had been mentioned by the English captains.

Mr. Otto Thomas followed with the toast of "The Chairman," and spoke in flattering terms of the untiring energy of Mr. Nisbet in his work in developing not only motor cycles, but cycles and motor cars also. It was typical of Mr. Nisbet's work that whatever he did, he carried out thoroughly and without fuss. He devoted himself to sports in general from purely sporting motives, and his work was appreciated on all hands.

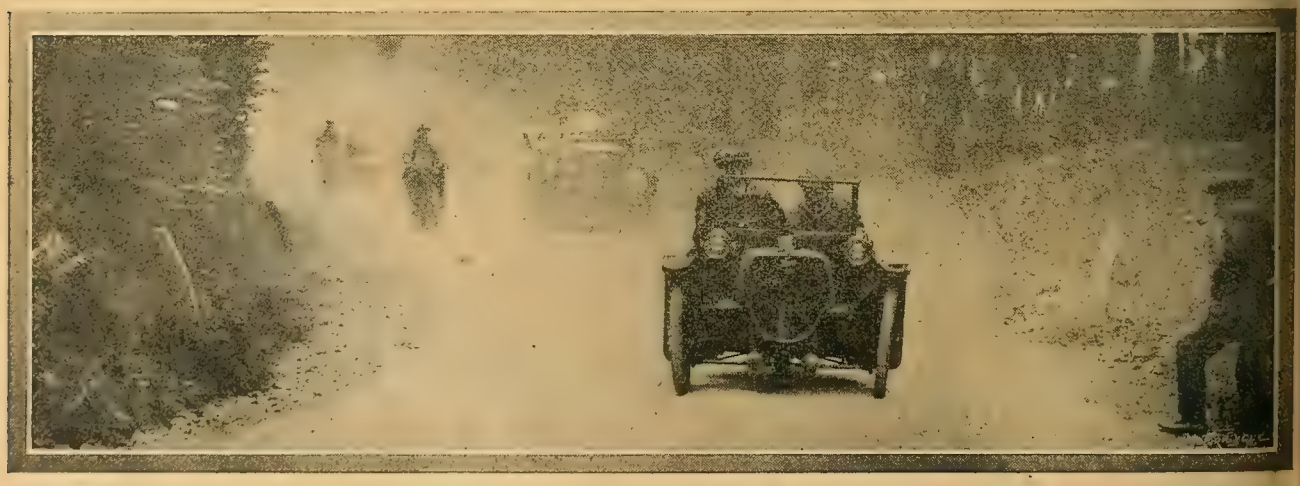
Mr. Nisbet briefly responded, and assured those present that it was sufficient reward for his labours that his work was appreciated. He had connected himself with all forms of sport, cricket, football, swimming, cycling, motor cycling, and the car world. He referred to the good work of Mr. Loughborough, and contended that the efficiency of his department accounted for the increase in the A.C.U. membership of 60 per month. Finally he gave away a manufacturer's "secret" in mentioning that at a meeting of the Manufacturers' Union, regarding competitions, it was unanimously agreed that the time was not ripe to abolish competitions, and, in short, the makers generally would support all events which the A.C.U., in its wisdom, thought fit to promote.

On Sunday the Dutch party trained to Brooklands to pick up their machines, their bags being looked after by W. A. Sale and W. Cooper. A late start was made, but nevertheless the run to Oxford was much enjoyed. Lunch was taken at the White Hart Hotel, Windsor, and tea at Henley. The Dutchmen expressed great admiration of the scenery along the Thames Valley. In the evening all the machines were stored at the Morris Garage, Oxford, and the finishing touches were made.

The Day of the Trial.

Monday opened dull and overcast, but the threatened rain fortunately did not materialise. The start was made at 9 a.m., quite a good crowd being present. Mr. Alec Ross acted in his usual capacity as starter, and Mr. J. H. Burley took the times. The teams, with their official numbers, are given hereunder:

E. 1. W. Cooper (2¾ Humber).
H. 2. A. L. Versluijs (2¾ Eijsink).
E. 3. F. A. Hardy (2¾ Douglas).
H. 4. J. H. Nieuwenhuijs (2¼ Vulkaan)
E. 5. Geoffrey Smith (2¾ Humber).
H. 6. J. van Frankenhuijsen (2¾ Douglas)
E. 7. F. Dover (3½ Premier).
H. 8. Joh. Ferwerda (5-6 F.N.).
E. 9. C. Lester (3½ P. and M.).
H. 10. J. M. Bergmans (4 Simplex).
E. 11. A. R. Abbott (3½ Rudge).
H. 12. A. Citroen, Kzn. (3½ Rudge Multi).
E. 13. C. W. Wilson (Morgan).
H. 14. Pseud "Eddy" (4 Simplex).
E. 15. R. G. Charlesworth (6 Zenith).
H. 16. S. Eweg (7 Indian).
E. 17. R. E. Guest (Matchless and sc.
H. 18. A. B. C. van Dongen (7 Indian and sc.)
E. 19. S. Wright (2¾ Humber).
H. 20. L. J. Knoops (2½ Eijsink).
E. 21. Reg. Holloway (2½ Premier).
H. 22. D. v.d. Mark (2¾ F.N.).
E. 23. W. B. Gibb (2¾ Douglas).
H. 24. Ijos Kerstens (2½ Vulkaan).
E. 25. W. Pratt (3½ P. and M.).
H. 26. J. C. Neurdenburg (3½ Rudge Multi).
E. 27. W. F. Newsome (3½ Triumph).



Competitors on Whitchurch Hill, C. W. Wilson (Morgan) leading.

J. M. Bergmans (4 h.p. Simplex), followed by Jos Kerstens (Vulkaan) and F. C. North (Ariel), on Station Hill, Wycombe.

28. A. Eijsink (3 Eijsink).
29. F. C. North (3½ Ariel).
30. P. N. Jelsma (3 Eijsink).
31. C. R. Collier (6 Matchless).
32. C. Witteveen (4½ James).
33. F. W. Barnes (6 Zenith).
34. P. Nieman (5-6 Simplex).
35. F. Smith (5-6 Clyno and sc.).
36. J. L. Geidt (6 Cyclonette three-wheeled cycle car).

Every chosen rider, according to programme, was present at the start, and as the teams had been fixed some weeks previously, this fact alone says something for the keenness with which the trial was fought out. Messrs. Cooper and Versluijs led off the ball on their Humber and Eijsink machines respectively, followed at minute intervals by the remainder. It was easily possible to distinguish the machines, as those from Holland carried orange number plates with black lettering, and the English machines carried green plates with white letters; a national flag also betokened the country of their origin. The route cards, which had been handed out the previous evening, did not disclose the true nature of the test, as reference to the test hills was carefully avoided.

First striking out to Shillingford, through Wallingford to Streatley and Pangbourne, the first hill was encountered, which is a long winding ascent. Here five Dutch competitors came to grief, making the sixth out to this point, as Van Dongen (7 Indian sc.) had to stop to make some trivial adjustment. The roads were frightfully dusty, and, owing to the continued drought, were extremely loose; in fact, the stones at certain points on the route made riding very difficult, and tested the skill of the Dutch riders, who were not used to this sort of work, to the utmost.

Failures at Nap and Kop Hills.

A long ascent out of High Wycombe and Nap Hill proved two teasers, especially to the Dutchmen. The last-mentioned hill was covered with loose stones, and is a narrow and winding ascent of single figure gradient. Here Mr. T. W. Loughborough, the clerk of the course, was busy noting down failures, and a long list he was able to compile, though only one was an English competitor, viz., A. R. Abbott, who was suffering from a slipping clutch. Kop Hill, Princes Risborough, was the test of the day, and here Mr. J. R. Nisbet, the judge, was stationed. No fewer than ten of the Dutchmen found it too stiff for their machines, Mr. Geidt's cycle car having to be pushed nearly all the way. As Pink Hill was descended, it further meant negotiating the half bend at the hill foot, and as it had to be taken on the run a great many heaved a sigh of relief when the top of Kop Hill was reached. We observed that the surface of the hill had deteriorated. The poor performances of the Dutch riders on the test hills was the result of not being geared low enough, and also not having had enough experience in the successful manipulation of the air lever in hill climbing. We noticed that quite a good number did not know what to do when their machines started to slow

F. W. Barnes (6 h.p. Zenith), followed by J. C. Neurdenburg (3½ h.p. Rudge), on Kop Hill.

A. Eijsink (3 h.p. Eijsink), the only Dutch rider to gain a gold medal.

Second International Reliability Trial.—

down. They get no practice on steep hills in Holland. A. Eijsink, on a machine of his own make, with outside flywheel, made a splendid ascent, and J. C. Neurdenburg (5½ Rudge) also shone conspicuously. A. Citroen had very bad luck in getting on to the very top of the hill over the worst gradient, and then being obliged to dismount. A. B. C. Van Dongen's 7 Indian sc. was climbing the hill at a splendid bat when it ran out of petrol. It appears that he had missed the course at one point, but how this was possible it is difficult to explain, as we can testify to the excellent marking of the route by Mr. W. A. Sale and another. Scores of arrows were used, and just as a reminder cards bearing "Links Houden" (Keep to the left) were constantly encountered. The loose stony surfaces were telling a tale upon the tyres, for quite a number experienced troubles. The Englishmen were riding most consistently, and were climbing the hills in first-rate style. R. E. Guest had to stop to fasten the locknut of his clutch, but the most serious trouble to the English team was when W. Cooper retired at the foot of Kop Hill, owing to the axle of his Mark 6 Armstrong gear twisting and breaking the fork end. Cooper had had the new type of gear fitted to an old frame, and the necessary anchor plates had unfortunately been omitted. This cost the British team eighty marks.

British Victory Assured.

The final stage of the morning run was through Wendover to Tring. Lunch was taken at the Rose and Crown Hotel, and there was some very close running to the time schedule at this point. One did not need to discuss experiences long to come to the conclusion that a British victory was practically assured, this year, at any rate. After an hour-and-a-half's wait, the competitors were sent off in the same order as at the start, the first hill being Ivinghoe, which was a stumbling block to those who had found previous hills too much for them. The course lay through Dunstable, Hockliffe, Leighton Buzzard, occasional up-grades and sharp bends being encountered, but there was little from this point to the finish, which was *viâ* Aylesbury and Thame, to worry any of the riders, and on the afternoon's run, except for one hill, the Dutch riders gained a good idea of the average English road. J. H. Nieuwenhuijs was riding along very comfortably on his Vulcaan-Terrot in front of us when his pulley dropped in the roadway; Fred Dover and ourselves only just missed running over it.

Owing to the fact that the course had been kept secret, there were not a great many spectators to witness the trial. Frank Smith had to ride forty miles with a flat back tyre, whilst the rear cylinder plug of Geoffrey Smith's 2¾ h.p. Humber ceased sparking on two or three occasions, and the rider had perforce to burn away the carbon as he rode along by making a spark gap between the end of the wire and the top of the plug. As it happened, this proved a valuable tip for him, for on time he was the nearest of all the competitors with 10⅘s. error, and gained several awards. When the results were made known at 7.30 p.m., after all the officials had met, it was found that the English victory was a pronounced one, the home team losing ninety-one marks compared to the Dutch team's 546.

BRITISH TEAM.

GOLD MEDAL WINNERS.

F. A. Hardy (2¾ Douglas).
Geoffrey Smith (2¾ Humber).
F. Dover (3½ Premier).
C. Lester (3½ P. and M.)
C. W. Wilson (Morgan).
R. G. Charlesworth (Zenith).
S. Wright (2¾ Humber).
Reg. Holloway (2½ Premier).
W. B. Gibb (2¾ Douglas).
W. Pratt (3½ P. and M.)
W. F. Newsome (3½ Triumph).
F. C. North (3½ Ariel).
C. R. Collier (6 Matchless).
F. W. Barnes (6 Zenith).
Frank Smith (5-6 Clyno sc.)

SILVER MEDAL WINNERS.

A. R. Abbott (3½ Rudge).
R. E. Guest (8 Matchless sc.)

DUTCH TEAM.

GOLD MEDAL WINNER.

A. Eijsink (3 Eijsink).

SILVER MEDAL WINNERS.

A. L. Versluijs (2½ Eijsink).
Joh. Ferwerda (5-6 F.N.)
A. Citroen (3½ Rudge Multi).
L. J. Knoops (2½ Eijsink).
D. v. d. Mark (2¾ F.N.)
J. C. Neurdenburg (3½ Rudge Multi)
P. Nieman (5-6 Simplex).

RESERVES.

SILVER MEDALS FOR NON-STOP PERFORMANCE.

W. B. Little (3½ Premier).
P. Newbold (6 Zenith).
Rex G. Mundy (3½ Triumph).
D. H. Noble (3½ Rover).
D. Arter (3½ James).

The complete results are as follow:

SPECIAL AWARDS.

SILVER CUP, presented by *The Moto Cycle*, for the best performance by trade rider, Dutch or English, W. B Gibb (2¾ h.p. Douglas).

SILVER TROPHY, presented by th Cycle and Motor Cycle Manufacturer and Traders' Union, for the best pe formance by an English private owne Geoffrey Smith (2¾ h.p. Humber).

SILVER CUP, presented by Mr. H. A Boom, for best performance by a Dutc rider A. Eijsink (3 Eijsink).

SILVER N.M.V. PLAQUE D'HONNEU for best performance by an Englis private owner, Geoffrey Smith (2¾ Hun ber).

BRONZE N.M.V. PLAQUE D'HONNEU for best performance by an Englis trade rider, W. B. Gibb (2¾ Douglas).

SILVER N.M.V. MEDAL D'HONNEU for the best performance by a Dutc private owner, A. Citroen (3½ Rudge Multi).

BRONZE N.M.V. MEDAL D'HONNEU for the best performance by a Dutc trade rider, A. Eijsink (3 Eijsink).

SILVER MEDAL, presented by Mr. A Citroen, for best performance by a English rider, Geoffrey Smith (Humber

SILVER MEDAL, for best performance b a Dutch rider on a Dutch machine, A Eijsink (3 Eijsink).

On Tuesday the riders visited Coventr (travelling *viâ* Stratford and Warwick at the invitation of the Coventry an Warwickshire Motor Club, and Messr Rudge-Whitworth, Ltd., at the sam time invited the teams to luncheon. Th Mayor of Coventry (Col. Wyley, V.D took the chair at the dinner, and subse quently a move was made to the Empir Theatre to see a film of the previous day trial. The Rudge and Triumph com panies added to the batch of souvenir received the previous day. On Wednes day morning the final stage was entere upon, the Dutch riders being escorted t Harwich, and given a hearty send off, a voting the trip a most enjoyable one.

Scene in the yard of the Rose and Crown Hotel, Tring.

TIME TO LIGHT LAMPS.

Aug. 7th	... ...	8.37 p.m.
,, 9th	... ...	8.33 ,,
,, 11th	... ...	8.30 ,,
,, 13th	... ...	8.26 ,,

"Object" or Policeman.

The following amusing paragraph has been sent to us by a reader residing in Natal: Charged with riding at an excessive speed, and asked why he had not stopped when ordered to by a policeman, a motor cyclist told the Court that "he saw an 'object' as he passed, but did not know it was a policeman."

New Racing Lightweight.

We hear that a racing F.N. lightweight will shortly be seen on the track. So many fine performances have recently been put up with engines of small cylinder capacity that it will be interesting to see how this shaft-driven machine fares against its rivals in the 350 c.c. class. The cubic capacity of the F.N. is only 296 c.c.

Hill-climb in the Midlands.

An open hill-climb will be held by the Sutton Coldfield and Mid-Warwickshire A.C. on the same date (in October) as the open reliability trial. The principal award will be the Levis Cup, kindly presented by Messrs. Butterfield Bros. There will be a fast and slow climb and a special prize for the slowest time of the day. It is hoped to make this event as popular as the Colmore Cup trial organised by the same club.

Special Prizes in Six Days' Trials.

The following special prizes have been offered, to qualify for any of which a competitor must have completed the trial:

(A.) A prize for the best performance by a team of three entered or nominated by a manufacturer, provided at least five teams are nominated.

(B.) A prize, offered by His Worship the Mayor of Carlisle, for the best performance by a team nominated by and members of an affiliated club, provided at least five teams are nominated.

(C.) A prize to each member of the winning team in the International Touring Trial.

(D.) A prize, offered by the Cumberland and County M.C.C., for the best performance in Division I. (Motor cycles).

(E.) A prize, offered by Mr. J. Wheatley, for the best performance in Division I. (Sidecars and three-wheeled cycle cars.)

(F.) A prize, offered by the Electrical Engineering and Motoring Co., Carlisle, for the best performance in Division III. (Four-wheeled cycle cars.)

FUTURE EVENTS.

Aug. 9.—B.M.C.R.C. Race Meeting.
,, 9.—Brookdale M.C.C. One Day Trial for Club Teams.
,, 9.—Liverpool A.C.C. Open Trial.
,, 9.—Nottingham and District M.C.C. Open One Day Trials.
,, 9.—Herts. County A.C. Open Hill-climb at Kop Hill.
,, 18-23.—A.C.U. SIX DAYS' TRIALS. Carlisle as Centre.
,, 30.—Streatham and District M.C.C. Annual Open Hill-climb.
,, 30.—Hertfordshire M.C.C. Open Trial.
Sept. 6.—Coventry and Warwickshire M.C. Annual Open Hill-climb.
,, 13.—B.M.C.R.C. Race Meeting.
,, 20.—Streatham M.C.C. Open Speed Trials at Brighton.

Reliability Trial in Italy.

The Circuito del Colle di Sestrieres took place last week, a distance of 310 kilometres being covered over various passes of the Alps near Turin. Bai Badino's performance was very meritorious. The following finished to schedule time: Pierino Alberto (3½ Borgo), Meldi (3½ Borgo), Cossu (3½ Triumph), Borgo (3½ Borgo), Fea Paolo (3½ Triumph), Tarlarini Enrico (3½ Sarolea), Bai Badino (2¾ Douglas), Scales (8 Zenith sc.), Bechis (3½ Singer), and Pregliasco (3½ Aetos).

SPECIAL FEATURES:

ANGLO-DUTCH TRIAL.
VICTORY OF BRITISH TEAM.
TWO NEW TWIN ENGINES.
ENTRIES FOR SIX DAYS' TRIALS.

Anglo-Dutch Trials.

The following additional subscriptions have been received:

	£	s.	d.
Rev. E. P. Greenhill ...	1	0	0
Mr. R. Lord		10	6

Dutch Trial Souvenirs.

Our visitors from Holland have returned with many souvenirs of their trip, thanks to the initiative of Mr Frank Hardy and the kindness of the firms he approached. The following gave souvenirs:

The Anglo-American Oil Co., Ltd.
Horlick's Malted Milk Co.
Hutchinson Tyre Co.
R. Surridge and Co.
Stanley Belt Fastener Co.
F. E. Baker, Ltd.
Butterfield's (Levis)
Zenith Motors, Ltd.
British Petroleum Co., Ltd.
Rudge-Whitworth, Ltd.
Triumph Cycle Co., Ltd.
Bowden Wire Ltd.

ANGLO-DUTCH TRIAL C. Lester (3½ h.p. P. and M.), followed by a Simplex rider, on Shillingford Bridge.

M.C.C. Standard Reliability and Hill-climbing Trial.

THIS event was run off on Saturday and Monday last, starting and finishing at Hungerford, on the Bath Road. Of an entry of twenty-nine, there were three non-starters, and of these R. B. Clark had the misfortune to collide with a tramcar on the way to the start and break his thigh. The starters were:

W. P. Tippett (3½ h.p. Humber) and L. A. Bees (4 h.p. L.M.C.) on the lower bend of Porlock.

Rider and Machine.	Gear and No. of Speeds.
L. A. Baddeley (3½ h.p. P. and M.)	P. and M. 2-speed.
S. Tharp (3½ h.p. Triumph)	Sturmey 3-speed.
R. F. L. Crossman, R.N. (8 h.p. Zenith)	Zenith-Gradua.
G. T. Gray (5 h.p. Rudge)	Rudge Multi.
K. A. MacDonald (3½ h.p. Singer)	Sturmey 3-speed.
B. A. Hill (7 h.p. Indian)	Indian 2-speed.
E. A. Colliver (7 h.p. Indian)	Indian 2-speed.
C. Percival (2¾ h.p. Douglas)	Douglas 2-speed.
C. Macbeth (2¾ h.p. Douglas)	Douglas 2-speed.
S. G. Frost (2¾ h.p. Douglas)	Douglas 2-speed.
D. W. Popplewell (3½ h.p. Triumph)	Sturmey 3-speed.
H. A. Cooper (3½ h.p. Bradbury)	Sturmey 3-speed.
J. D. Drysdale (5 h.p. Hazlewood)	Armstrong 3-speed.
A. T. Stanton (3½ h.p. Bradbury)	Sturmey 2-speed.
M. C. Breese (3½ h.p. B.S.A.)	B.S.A. 2-speed.
R. M. Marians (3½ h.p. P. and M.)	P. and M. 2-speed.
H. Karslake (3½ h.p. Rover)	Armstrong 3-speed.
H. F. Edwards (6 h.p. Enfield)	Enfield 2-speed.
L. A. Bees (4 h.p. L.M.C.)	L.M.C. 2-speed.
W. P. Tippett (3½ h.p. Humber)	Sturmey 3-speed.
E. Kickham (2¾ h.p. Douglas)	Douglas 2-speed.
G. H. S. Letchworth (5 h.p. Rudge Sidecar)	Rudge Multi.
R. C. Davis (5-6 h.p. Clyno Sidecar)	Clyno 3-speed.
H. G. R. Slingo (5-6 h.p. Clyno Sidecar)	Clyno 3-speed.
A. J. Dixon (3½ h.p. Singer)	Sturmey 2-speed.
L. Martin (10 h.p. Singer Car)	Singer 3-speed.

The rules were exceedingly simple, being in effect that to make a standard performance a machine had to climb Porlock Hill at not less than a given speed and make a clean ascent of this hill, also Lynmouth, Barbrook, and Countisbury hills.

Saturday's Outward Route.

The route for Saturday was from Hungerford to Bridgwater, Minehead, Porlock, Lynmouth, Barbrook Mill, Watersmeet, and back to Lynmouth. The return journey was made *viâ* Lynmouth to Porlock, and then following the outward route, but in the reverse direction.

On the way down Baddeley had a nasty skid in Trowbridge, and Crossman suffered continuous tyre troubles, which eventually put him out of the running. In the neighbourhood of Philip St. Norton the dust was appalling, and everyone was soon looking like a miller.

After an excellent lunch at the Bristol Hotel, Bridgwater, a move was made for Porlock Hill, and competitors were timed on the run, over about 1,400 yards of the steepest portion.

Observations on Porlock Hill.

Observations showed that Baddeley assisted at the first corner, and Tharp assisted at both corners. Colliver fell at the first corner and was helped away. MacDonald fell, and made a clean ascent afterwards, being particularly good at the second corner. Percival fell, and afterwards legged heavily at the second corner. Alan Hill was very good. Macbeth failed at the first corner. Popplewell was good. Frost was splendid, and was easily fastest of the smaller machines. Drysdale fell. Stanton assisted with foot at the first corner, and was slow on the second corner. Breese legged, and failed on the second corner. Gray was fast. Marians stopped on both corners. Karslake was good. Edwards assisted at the first corner, and was very good at the second corner. Bees was baulked by Tippett on the first corner. Kickham was quite fast. Letchworth failed below the first bend with one mighty conk. Davis passed Martin on the first corner. Cooper skidded, but made a clean ascent. Slingo was good, but cut the second corner close. Dixon was good, and Martin was very good. At the top of the hill Breese experienced tyre trouble, and was late at Lynmouth.

After tea at Lynmouth, the hill had to be taken with cool engines, and all made good ascents excepting Macbeth, who ran alongside, above the first corner. Frost and Breese were very fine. The hill was in very good condition, which perhaps accounted for so many making clean ascents. A move was then made for Barbrook Hill, near which Edwards broke a chain

Barbrook Hill.

On this hill Baddeley skidded in the stones halfway up and fell. Sharp, Gray, MacDonald, Alan Hill, Colliver, and Percival were good, Macbeth ran, Frost skidded after climbing the steepest part and ran up the bank, Popplewell, Cooper, Drysdale, and Stanton were good, Breese nearly got up when his belt commenced to slip and he had to assist with his feet, Marians was slow, Edwards and Bees good, Dixon was fast, Tippett good, Kickham easily fastest and steady, Davis was not happy but his machine was going very well, Slingo good but not so fast as Davis, and Martin very fine.

Everyone then went on to Lynmouth for the finish of the day. Sunday was spent in visiting and admiring the local beauty spots, and all were in high spirits. The competition was voted a great success, and the idea that the event should combine a holiday and a competition was being carried out to perfection. The weather experienced was perfect throughout, and with the details carefully thought out by L. A. Baddeley, who had charge of the trial, everything was quite successful. This was the third year of the standard trial and hill-climb and the first time

H. G. R. Slingo (5 Clyno sc.) on the second bend of Porlock.

fine weather has been experienced. Instead of deep mud, thick dust and stones were the order of the day on hills.

Monday morning was cloudy and a young gale was blowing down Countisbury Hill. To decide the winners of the cups this hill had to be climbed at varying speeds, according to the classes in which the riders were entered. The time errors in seconds were :

Baddeley, 26⅝s. fast	Stanton, 10⅜s. fast
Tharp, 24⅛s. slow	Breese, 30s. fast
Crossman, 22⅖s. fast	Marians, 9⅘s. fast
Gray, 3s slow	Edwards, 5⅝s. slow
MacDonald, 54⅛s. fast	Bees, 35⅛s. slow
Alan Hill, 53⅛s. slow	Tippett, 6⅜s. fast
Colliver, 3⅛s. slow	Kickham, 16⅘s. fast
Percival, 102s. fast	Davis, 8⅖s. fast
Macbeth, 9s. slow	Slingo, 2⅖s. fast
Frost, 33⅛s. fast	Dixon, 22⅖s. slow
Popplewell, 64⅛s. slow	Martin, 0⅜s. slow
Cooper, 20s. slow	Karslake, 0⅜s. slow
Drysdale, 38⅜s. slow	

The distance timed was one mile of the steepest portion, with an average gradient of about 1 in 7. The run over Exmoor was trying, in consequence of the high wind, but it was soon over and forgotten. After leaving Minehead, punctures came thick and fast. Gray, Alan Hill, Davis, Kickham, and Martin, all fell victims, and to vary the monotony Hill had a choked carburetter. After leaving Bridgwater, Macbeth and Percival experienced trouble with their engines quite close together, but got going again after some delay. Then some speed was put on to get time in hand for a cup of tea at Trowbridge, and again Crossman fell a victim to the puncture fiend, a hefty three-inch nail doing the trick.

Finishing to Schedule Time.

After Marlborough, and quite close to the finish, Breese had another puncture, and rode the last two miles on the rim so as to finish to time. The following completed the course in time for an award :

L. A. Baddeley (P. and M.)	A. T. Stanton (Bradbury)
S. Sharp (Triumph)	M. C. Breese (B.S.A.)
G. T. Gray (Rudge)	R. M. Marians (P. and M.)
K. A. MacDonald (Singer)	H. Karslake (Rover)
B. Alan Hill (Indian)	H. F. Edwards (Enfield)
E. A. Colliver (Indian)	L. A. Bees (L.M.C.)
C. Percival (Douglas)	W. P. Tippett (Humber)
G. Macbeth (Douglas)	E. Kickham (Douglas)
S. G. Frost (Douglas)	R. C. Davis (Clyno sc.)
D. W. Popplewell (Triumph)	H. G. R. Slingo (Clyno sc.)
H. A. Cooper (Bradbury)	A. J. Dixon (Singer)
J. D. Drysdale (Hazlewood)	L. Martin (Singer c.c.)

In addition to the above the following finished to time, but had not completed the course : R. F. L. Crossman, R.N. (Zenith) and G. H. S. Letchworth (Rudge sc.). Subject to confirmation by the committee, the silver cup for the best performance on a solo mount goes to H. Karslake (3½ Rover).

In consequence of the passenger class not attracting sufficient entries the cup for this class falls through, the best performance being made by L. Martin (10 h.p. Singer).

SPEED TRIALS AT WIMBORNE.

The Bournemouth and District M.C.C. will hold their second annual open speed trials at Canford Park, Wimborne, on Wednesday, September 3rd, commencing at 1 p.m.

There will be the following classes :

Class I.—To 350 c.c.

Class II.—351 to 600 c.c.

Class III.—351 to 600 c.c., for riders who have never won an award in a motor cycle race.

Class IV.—To 1,000 c.c.

Class V.—Sidecars to 650 c.c.

Class VI.—Sidecars and three-wheeled cycle cars to 1,000 c.c., and four-wheeled cycle cars to 1,100 c.c.

The competition will be run off on the knock-out principle. The latest date for entries is August 25th, or at double fees August 27th

W. B. Tippett (Humber) and L. A. Bees (L.M.C.) further round the first corner (see previous page). The former, as will be seen, is in the act of skidding.

Final Regulations for the A.C.U. Six Days' Trials.

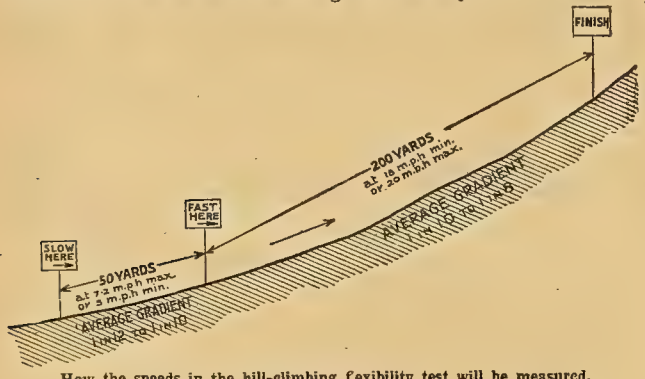
The Conditions for the Flexibility Test.

THE A.C.U. have issued the final regulations for the Six Days' Trials which commence at Carlisle on August 18th. They state that: 1. All machines entered for the trial, with their drivers and passengers, must be at the official storage depôt, the Skating Rink, Carlisle, not later than 9 a.m., Sunday, August 17th. Late arrivals may be disqualified. The competing machines will then be examined for compliance with the regulations as to classification, equipment and numbering; drivers, passengers, and machines, will be weighed, and frames, engines, and gear boxes sealed. Spare parts, packed in a separate receptacle, must be declared on the form that will be provided, and the receptacles will be sealed. Petrol and oil tanks should be filled prior to presentation of the machine.

2. Engines may not be started at any time during the trial within the storage depôt, nor may any replenishment of oil or petrol be made therein.

Competitors are earnestly requested to take every possible precaution against damaging the floor of the Skating Rink either by leakage of oil or otherwise.

3. Competitors only will be allowed to enter the storage depôt; passengers, friends, attendants, or trade representatives are expressly excluded at all times. A competitor will not be allowed to enter the storage depôt until fifteen minutes before his time to start, when any adjustment should be made within the building, and the machine then wheeled outside into the order of starting for the day.


FINISH
200 YARDS at 18 m.p.h. min. or 20 m.p.h. max.
FAST HERE
SLOW HERE
50 YARDS at 7.2 m.p.h. max. or 5 m.p.h. min.
AVERAGE GRADIENT 1 in 12 to 1 in 16
AVERAGE GRADIENT 1 in 12 to 1 in 16

How the speeds in the hill-climbing flexibility test will be measured.

4. Drive considerately in Carlisle. The schedule times are each day calculated from and to a point indicated by a notice board outside the town of Carlisle. Three minutes, both morning and evening, will be allowed between this point and the depôt. Therefore, at the start of each day's run, competitors will be despatched three minutes in front of schedule time, and, at the finish of each day, they should arrive at the above point at scheduled finishing time, and at the depôt three minutes later.

5. Spare parts, as defined in Prelim. Reg. 15, must not be made use of unless carried on the machine from the commencement of the trial. A breach of this regulation may involve disqualification.

6. Any competitor who may be prosecuted at law for excessive speed may, if the stewards are satisfied that he did drive at an excessive speed, be disqualified.

7. Marks will be awarded for the Flexibility and Speed Trials as follows:

The total number of marks that can be earned for the Flexibility and Speed Tests is 100. The Flexibility Trial will give a measure of *Acceleration* (25 marks), and, in conjunction with the Speed Trial, will also give measures of *Flexibility* (25 marks) and *General Utility* (25 marks). The Speed Trial alone will give a measure of *Speed* (25 marks).

The maximum number of marks of 25 under each of the above four headings is to be gained by driving over the slow portion of the Flexibility Trial at, at most, 7.2 m.p.h., and the fast portion at, at least, 18 m.p.h., and by attaining an average speed in the Speed Trial in accordance with the following table:

	Div. 1. Motor Cycles.					Div. 2. Sidecars and Three-wheeled Cycle Cars.				Div. 3. Four-wheeled Cycle Cars.	
Class	A	B	C	D	E	F	G	H	I	J	K
Engine capacity, c.c.	275	350	500	750	1000	350	500	750	1000	750	1100
Speed, m.p.h.	25	33.33	35.7	38.5	41.7	22.7	27.8	31.25	35.7	27.8	33.33

The length of the Speed Trial will be one kilometre, flying start.

The relation between Acceleration, Flexibility, General Utility, and Speed is expressed by the following formula, in which T_1 is the average speed in the Speed Trial, T_2 in the slow portion, T_3 in the fast portion of the Flexibility Trial:

		Max. Marks.
A. Speed	$=T_1$	25
B. Acceleration	$=\frac{T_3}{T_2}$	25
C. Flexibility	$=\frac{T_1^2}{T_2}$	25
D. General Utility	$=\frac{T_1{}_2}{T_2}$	25
		100

A competitor who fails in the Flexibility Trial or obtains less than the following minima will be credited with marks as follows for B, C, and D combined:
Div. 1, a min'm of 60 mks.
" 2, " " 55 "
" 3, " " 50 "

In the Flexibility Trial nothing is to be gained by driving at an average speed slower than 5 m.p.h., or faster than 20 m.p.h., in the slow and fast portions respectively. If a competitor stop in the Flexibility Trial, he will be allowed one more attempt; touching the ground with the feet will constitute a stop.

8. Marks will be deducted as follows:

(A.) Deviation from Schedule.

For starting late either in the morning or after the luncheon interval—one mark for every minute or part of a minute.

For passing any point of the route, eight minutes in the case of motor bicycles, or ten minutes in the case of passenger machines, in advance of or behind schedule time for that point—one mark for each of the said eight or ten minutes, and one mark per minute or part of a minute in excess of the said eight or ten minutes; provided that a deduction of marks under this regulation shall not be made more than once for any competitor in any morning or afternoon's run, and the maximum loss of marks due to deviation from schedule shall be limited to twenty in any one day.

(B.) Stopping in a Non-stop Section.

For stopping in a non-stop section—each stop four marks. The non-stop-sections are indicated on the profile and sketch maps, and will also be indicated on the road by means of notice boards. The road wheels coming to rest, except for exigencies of traffic, duly reported, or any breach of Prelim. Reg. 29, constitutes a stop.

(C.) Use of Spare Parts.

For each spare part taken from the spare parts receptacle—one mark.

(D.) Appearance.

For an excessively dirty or untidy machine or driver—one mark each day.

(E.) Defective Condition.

On account of the defective condition of any competing machine—not exceeding ten marks.

9. All official notices will be posted at the Central Hotel, Carlisle.

Entries to Date.

C. Percival (2¾ Douglas)
J. B. Sproston (2¾ Sunbeam)
A. G. Cocks (2½ Connaught)
P. Phillips (2¾ Douglas)
F. G. Edmond (2¾ Humber)
E. Gutgemann (2¾ Veloce)
T. C. de la Hay (2¾ Sunbeam)
W. R. Steel (2¾ Sunbeam)
W. J. M. Sproulle (3½ P. and M.)
G. D. Hardee (3½ Triumph)
T. J. Ross (3½ Triumph)
Fred Dover (3½ Premier)
J. H. Kerr (3½ N.S.U.)
A. E. Catt (3½ Triumph)
S. Sawer (3½ Premier)
F. W. Applebee (3½ B.S.A.)

The A.C.U. Six Days' Trials.—

W. C. Drake (P. and M.)
P. Shaw (P. and M.)
W. Pratt (P. and M.)
M. C. Breese (3½ B.S.A.)
F. E. J. Bartlett (4 Blumfield)
C. B. Moss Blundell (3½ ——)
H. V. Colver (5 Enfield)
E. Keyte (3 Enfield)
H. Graham Dixon (3½ James)
J. Ingham (3½ Veloce)
S. Tubb (3½ Humber)
T. B. G. Vale (3½ Rover)
G. E. Cuffe (3½ Premier)
W. E. Cook (3½ A.S.L.)
S. Browne (3½ James)
J. A. Neumann (5-6 Rudge)
I. P. Macdonald (4½ Norton)
G. T. Gray (5-6 Rudge)
J. Douglas Morrison (5-6 Bat)
H. H. Hutchinson (6 Trump-Jap)
E. A. Colliver (7 Indian)
B. Alan Hill (7 Indian)
S. T. Tessier (5-6 Bat)
R. C. Davis (5-6 Clyno sc.)
Philip Grout (6 A.J.S. sc.)
T. Stevens (3½ James sc.)
Cecil Duploch (6 A.J.S. sc.)
C. H. R. Norrington (6 Enfield sc.)
H. Greaves (6 Enfield sc.)
W. H. Egginton (6 Enfield sc.)
Fred Crosthwaite (8 Matchless sc.)
F. K. Portway (9 Paragon c.c.)
P. D. Walker (10 Harding and Summers)
C. M. Keiller (8 G.W.K. c.c.)
J. R. Alexander, jun. (7 Indian)
A. Sumner (8 Zenith)
J. Haslam (6 Zenith)
G. Griffiths (8 Zenith)
H. F. S. Morgan (8 Morgan)
Ellison Hawkes (3½ Rudge)

The Mont Cenis hill-climb took place on the 3rd inst., and resulted as below. A description and contour section of the Mont Cenis Pass were given in the issue of July 17th. The hill is over fourteen miles in length, with a maximum gradient of 1 in 10.

TOURING CLASS.—Iguera (Borgo), 22m. 58⅘s.

RACING CLASS.—250 c.c. : Semeria (S.I.A.M.T., 28m. 27⅕s. 350 c.c. : Riva (Motosacoche), 24m. 11s. 500 c.c. : Ponti (Motosacoche), 22m. 34⅗s. (fastest time of the day).

THE SCOTTISH TRIALS.

JUDGES' REPORT.

The report of the judges on the Scottish Trials has now been issued, and it contains the names of four additional gold medal winners. These are V. Busby (3½ h.p. Ariel), Mrs. Baxter (6 h.p. Rex), T. T. Laker (3¾ h.p. Elswick), and J. Steel (3½ h.p. B.S.A.). The judges are of opinion that a very much larger number of competitors would have won gold medals had they all adopted a more careful style of driving, especially on the numerous hairpin corners. They lay emphasis on the fact that broken frames were far too common, and suggest that in future it should be made impossible for a competitor to gain a gold medal if he finishes with a broken frame. Sidecar chassis also come in for castigation on account of weakness, but they point out that it was the newcomers to these trials who were the chief sufferers, as those who had been through before were able to anticipate weak spots and guard against them. They also point out that the twisting about and gymnastic performances of the passengers on hills should not be necessary, and contrast it with the normal position assumed by riders in the cycle cars.

The judges state that of the finishers only four changed their exhaust valves, which they characterise as a great improvement on past years, and they also find a word of praise for the really admirable behaviour of the competitors throughout the trials.

We have received a letter from Mrs. Hardee saying that she would like to convey her thanks to Sam Wright for his kindness in bringing her into Grantown on the last day but one of the trials after her bad smash caused by the bursting of her rear tyre. Many readers will be glad to hear that Mrs. Hardee has suffered no bad effects from her fall.

INTERNATIONAL CUP RACE IN FRANCE.

The race organised by the Automobile Club de la Sarthe for motor bicycles, sidecars, and cycle cars was held on Monday last, the day preceding the car event. The motor bicycles had to cover 201½ miles, six circuits of the course, and the sidecars and cycle cars 167½ miles. There were three classes for motor bicycles—250, 350, and 500 c.c.—two for sidecars—500 and 1,000 c.c.—and the awards were a cup for best time of the day, two challenge cups (one for motor bicycles and one for sidecars and cycle cars), and a silver medal for the winner of each class. There were forty-nine entries, and the whole of the competitors in each class wore different coloured armlets, and were started together from 8.30 a.m. onwards. The start of the circuit was situated on the main road from Mans to Tours at Hunaudières, and here were the grand stands and replenishment depots, where all petrol, oil, and replacement parts had to be taken up, and at no other part of the course.

Woodhouse, an Englishman, on a Clément, 500 c.c., led off the ball at 8.30 a.m., and the only other English rider was Greame Fenton, also on a Clément, in the 350 c.c. class. Woodhouse won his class, and the 500 c.c. sidecar class was won by a French rider of a B.S.A. The results were:

MOTOR BICYCLES.

350 c.c., Guilloreau (Terrot); 500 c.c., Woodhouse (Clément).

SIDECARS.

500 c.c., Delauné (3½ h.p. B.S.A.); 1,000 c.c., Vanella (7 h.p. Indian).

CYCLE CARS.

1,100 c.c., weight limited, Violet-Bogey; 1,100 c.c., weight unlimited, Ronteix.

It will be noticed that the French divide the cycle cars into two classes by weight, the limited class being 350 kilos = 770 lbs.

(1) A group of competitors starting. (2) J. W. Woodhouse (3½ h.p. Clement-M.A.G.), who won the 500 c.c. event.

BROOKLANDS AUGUST MEETING.

TWO solo motor cycle events, a sidecar race, and a cycle car race, all handicaps, were included in the Brooklands Racing Club's August Bank Holiday programme and, as usual, the two former were characterised by enormous fields. The Thirteenth Long Motor Cycle Handicap attracted no less than forty-one entries, of which thirty-three faced the starter, whilst in the Short Race thirty-seven out of fifty came forward. With so many machines on the track, it was naturally quite impossible accurately to trace the give and take of the races. A feature of the meeting was the congestion in the paddock and the large crowd on the test hill; the public appeared to greatly enjoy the racing, which was favoured by brilliant weather.

THE THIRTEENTH LONG MOTOR CYCLE HANDICAP. Distance, 8½ miles. Runners:

Rider and machine.	mm.	c.c.	H'cap. m. s.
Sidney George (2-cyl. Indian)	82½ × 93	994	scr.
E. Remington (2 Matchless)	90 × 77½	986	0 12
G. E. Stanley (1 Singer)	85 × 88	499	0 39
A. J. Brewin (2 Zenith)	90 × 77½	986	0 39
L. Hill (1 Rudge)	85 × 88	499	0 48
A. J. McDonagh (1 Rudge)	85 × 88	499	0 48
C. G. Pullin (1 Rudge)	85 × 88	499	0 48
H. A. Collier (2 Matchless)	64 × 77	496	0 54
Percy Butler (2 Scott)	2¾" × 2½"	486	0 54
J. Cocker (1 Singer)	85 × 88	499	1 3
L. G. Brown (1 Corah)	90 × 77½	493	1 24
Kenneth Holden (1 B.S.A.)	85 × 88	499	1 24
J. R. Haswell (1 Triumph)	85 × 88	499	1 24
S. Yano (1 Triumph)	85 × 88	499	1 36
J. A. Manners-Smith (1 Triumph)	85 × 88	499	1 36
George Roberts (1 Rudge)	85 × 88	499	1 36
G. W. Miller (1 Grandex-Precision)	85 × 88	499	1 36
J. W. Tollady (1 Singer)	85 × 88	499	1 36
R. B. Pullin (1 Rudge)	85 × 88	499	1 36
V. E. Horsman (1 Singer)	85 × 88	499	1 36
P. Brewster (2 Zenith)	70 × 54½	419	1 36
Noël H. Brown (1 Indian)	82½ × 93	497	1 36
E. N. Openshaw (1 Triumph)	85 × 88	499	1 36
F. G. Edmond (2 Humber)	60 × 60	340	2 6
W. A. Jacobs (1 Singer)	69 × 93	348	2 6
J. P. Le Grand (1 Singer)	69 × 93	348	2 6
H. Martin (2 Martin)	60 × 61	344	2 6
S. Halsall (1 Veloce)	76 × 76	345	2 33
M. Heinzel (2 N.S.U.)	54.4 × 75	349	2 33
E. E. Elwell (2 Douglas)	61 × 60	350	3 3
C. Starace (2 N.S.U.)	52 × 75	318	3 3
R. J. Bell (1 N.S.U.)	58 × 72	190	3 54

This resulted in an easy win by forty yards for Elwell (Douglas), who averaged a speed of 53½ m.p.h. Second, V. E. Horsman (Singer); third, P. Brewster (Zenith). H. Collier retired with a broken valve.

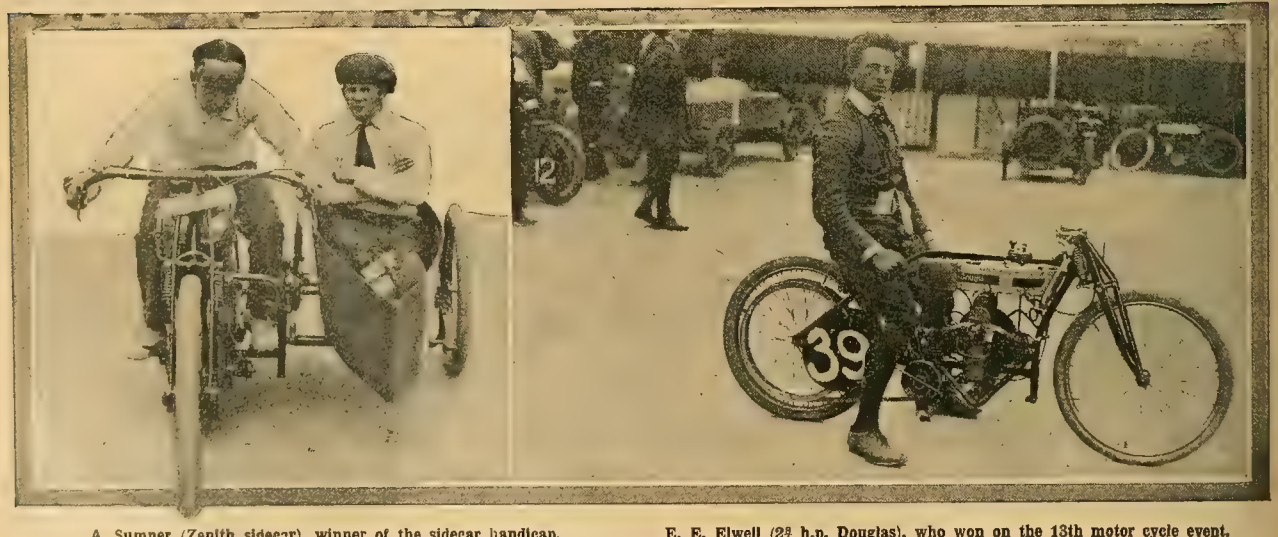
THE SIXTEENTH SHORT MOTOR CYCLE HANDICAP. Distance, 6¾ miles. Runners:

Rider and machine.	mm.	c.c.	H'cap. m. s.
Sidney George (2-cyl. Indian)	82½ × 93	994	scr.
G. E. Stanley (1 Singer)	85 × 88	499	0 26
A. J. Brewin (2 Zenith)	90 × 77½	986	0 26
L. Hill (1 Rudge)	85 × 88	499	0 32
A. J. McDonagh (1 Rudge)	85 × 88	499	0 32
H. A. Collier (2 Matchless)	64 × 77	496	0 36
J. Cocker (1 Singer)	85 × 88	499	0 42
L. G. Brown (1 Corah)	90 × 77½	493	0 56
Kenneth Holden (1 B.S.A.)	85 × 88	499	0 56
J. R. Haswell (1 Triumph)	85 × 88	499	0 56
S. Yano (1 Triumph)	85 × 88	499	1 4
J. A. Manners-Smith (1 Triumph)	85 × 88	499	1 4
George Roberts (1 Rudge)	85 × 88	499	1 4
G. W. Miller (1 Grandex-Precision)	85 × 88	499	1 4
J. W. Tollady (1 Singer)	85 × 88	499	1 4
H. Jepson (1 Zenith)	90 × 77½	493	1 4
W. J. Startin (2 Ivy)	60 × 76	430	1 4
P. Brewster (2 Zenith)	70 × 54½	419	1 4
R. B. Pullin (1 Rudge)	85 × 88	499	1 4
E. N. Openshaw (1 Triumph)	85 × 88	499	1 4
G. L. Haydon (1 Calthorpe)	70 × 90	346	1 4
J. E. Bird (1 Singer)	85 × 88	499	1 4
V. E. Horsman (1 Singer)	85 × 88	499	1 4
F. G. Edmond (2 Humber)	60 × 60	340	1 24
W. A. Jacobs (1 Singer)	69 × 93	348	1 24
J. P. Le Grand (1 Singer)	69 × 93	348	1 24
H. Martin (2 Martin)	60 × 61	344	1 24
G. Syme (1 Triumph)	85 × 88	499	1 24
S. Halsall (1 Veloce)	76 × 76	345	1 42
Max Heinzel (2 N.S.U.)	54.4 × 75	349	1 42
C. Starace (2 N.S.U.)	52 × 75	318	2 2
E. E. Elwell (2 Douglas)	61 × 60	350	2 2
W. H. Buckeridge (2 Douglas)	61 × 60	350	2 2
George Graff (2 Douglas)	61 × 60	350	2 2
G. S. Woodman (2 Douglas)	61 × 60	350	2 2
R. J. Bell (1 N.S.U.)	58 × 72	190	2 36

The result was a runaway win for Holden (B.S.A.), who was first home by 150 yards from A. J. Brewin (Zenith), and J. W. Tollady (Singer), the two latter being neck and neck; Stanley fourth and Jepson a close fifth. Speed, 65½ m.p.h. Buckeridge (Douglas) broke a driving chain.

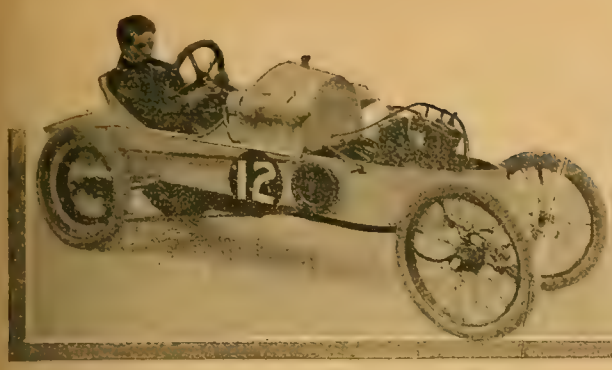
THE AUGUST SIDECAR HANDICAP. Runners:

A. J. Luce (2-cyl. Zenith)	90 × 77½	986	0 0
A. J. Brewin (2-cyl. Zenith)	90 × 77½	986	0 0
G. E. Stanley (1-cyl. Singer)	85 × 88	499	0 8
Kenneth Holden (1-cyl. B.S.A.)	85 × 88	499	0 36
H. Jepson (1-cyl. Zenith)	90 × 77½	493	0 40
A. Sumner (1-cyl. Zenith)	85 × 88	499	0 40
S. F. Garratt (1-cyl. Zenith)	85 × 88	499	0 40
V. E. Horsman (1-cyl. Singer)	85 × 88	499	0 40
J. Baxter (1-cyl. Armstrong-Villiers)	74½ × 80	348	1 38

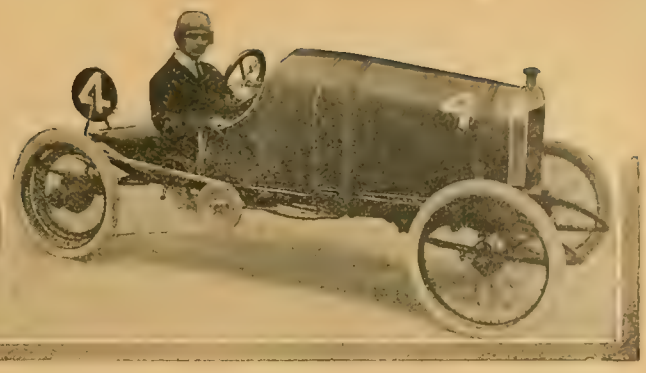


A. Sumner (Zenith sidecar), winner of the sidecar handicap.

E. E. Elwell (2¾ h.p. Douglas), who won on the 13th motor cycle event.



The Dew, runabout which won the second cycle car handicap.



D. C. Bolton on a new cycle car of his own construction with water-cooled Precision engine.

Before many minutes' running the result of this race was a foregone conclusion, as Sumner's Zenith was obviously the fastest machine and Jepson's the next. These two finished in that order, separated by 150 yards, with 300 yards between second and Kenneth Holden (B.S.A.) third; fourth, Luce (Zenith); fifth, Stanley (Singer); sixth, Garrett (Zenith). Baxter (Armstrong-Villiers) had trouble which caused him to stop in the second lap. Speed, 51¼ m.p.h. Some of the sidecars were laughable, one being a mere skeleton framework with a board for the passenger to sit on and a tubular footrest.

THE SECOND CYCLE CAR HANDICAP. Distance, 5⅝ miles. Starters:

B. Haywood (Singer)	63× 88	1,096	scr.	
G. W. Hands (Calthorpe) ...	62× 90	1,088	0	6
J. T. Wood (G.W.K.)	86× 92	1,058	0	18
D. C. Bolton (Bolton)	85× 96	1,090	0	18
G. Bullock (Winco)	86× 93	1,080	0	24
F. H. Ronksley (G.N.)	84× 98	1,086	0	32
C. M. Whitehead (G.N.) ...	84× 98	1,086	0	40
J. F. Buckingham (Chota) ...	89×120	747	1	16
A. E. T. Collins (Chota) ...	89×120	747	1	16
R. V. Patterson (Chota) ...	89×120	747	1	16
H. E. Dew (D.E.W.)	85× 85	964	1	20

The D.E.W. proved a very speedy little machine, and held the lead from start to finish, the only other machine showing any signs of challenging it being the Singer. Result:

1. H. E. Dew (D.E.W.).
2. B. Haywood (Singer).
3. J. T. Wood (G.W.K.).

Speed, 53½ m.p.h.

BIRMINGHAM TO EDINBURGH AND BACK RUN.

Twenty-five members of the Birmingham Club started for Edinburgh at two o'clock Saturday morning. Thick fogs and intense cold were the only objectionable features of the night ride. The course taken for the outward journey was *via* Nottingham and Worksop, joining the usual London-Edinburgh course at Doncaster; total mileage of the outward journey, 329 miles. Breakfast and luncheon stops were made at Doncaster and Appleby respectively, and it speaks well for the reliability of present day machines that all twenty-five reached Edinburgh inside the gold medal margin.

The only cycle car was the Alldays Midget, which performed creditably. There were seven sidecar turnouts and all finished well up to time at Edinburgh. There were no incidents of importance.

At 2 a.m. on August 4th, the first competitor was started from the Rossleigh Garage on the return journey of 295 miles, and as competitors were not allowed to touch their machines until half an hour before the start, many had a difficulty in getting away, and were seen scattered along the streets of Edinburgh making adjustments.

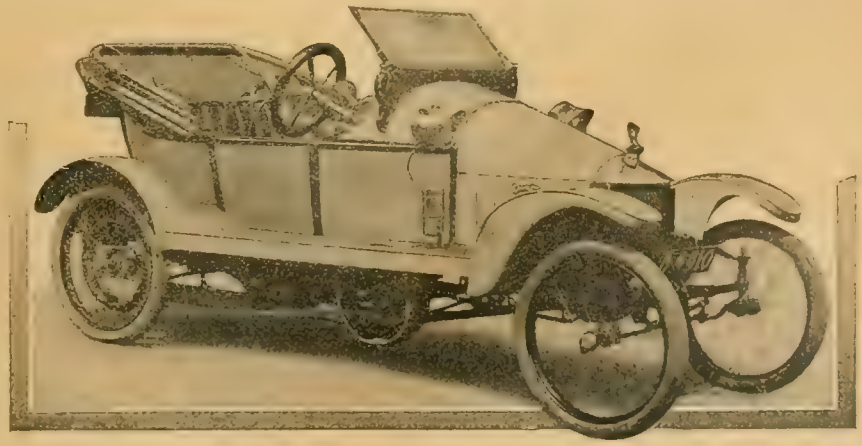
The morning was fine, and no fogs were encountered, the only drawback being the succession of acute bends between Edinburgh and Galashiels, which are dangerous in the dark. The breakfast stop was at Carlisle, where nearly all the riders arrived on time. The going was good the whole way, but on Shap T. Pollock (James) was encountered with his engine out of the frame, and T. Blumfield (Kerry-Abingdon) pushing his machine into Kendal.

Dinner was taken at Warrington, and competitors were glad to have passed through Preston and Wigan, with the awful paving and bumpy streets. The finish of the competition was at Streetly, and the following finished within the time stipulated to qualify for a gold medal:

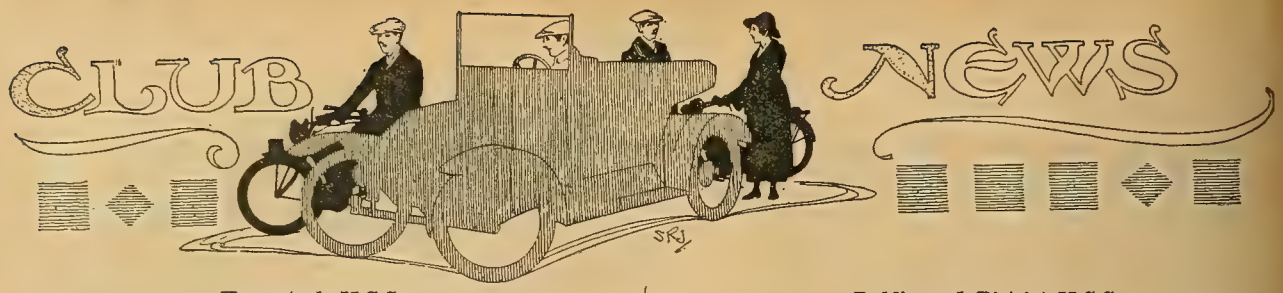
T. Silver (3½ Quadrant sc.)
H. Silver (3½ Quadrant sc.)
H. Ball (3½ Triumph)
S. C. Perryman (3½ Quadrant)
D. Brown (3½ Rover)
S. A. Rowlandson (3½ Rudge)
A. Young (3½ Abingdon)
E. H. Baker (3½ Monarch)
R. W. Duke (3½ Rover)
T. Pollock (3½ James)
C. Wilson (3½ Quadrant)
T. Peck (3½ Ivy)
J. Alldays (Alldays-Midget)
A. W. Sarsons (3½ Sun)
H. Hopkins (3½ Abingdon)
G. Dixon (3½ James sc.)
R. W. Lovegrove (3½ Raglan)
E. Longton (3½ Alldays sc.)
G. A. Lovegrove (3½ Raglan)
G. N. Norris (3½ Raglan)

Three teams finished complete, viz., the James, Quadrant, and Raglan.

D. Brown (Rover) rode for five hundred miles with his frame broken, and did remarkably well to get through.



An example of the Peerless cycle car which has a water-cooled engine. It is made by the Peerless Motor Company, Birmingham.



Haverstock M.C.C.

A garden party will be held at the Mitre, Barnet, on the 14th inst., when all motor cyclists will be welcome. Admission free.

Westmorland M.C.C.

The hill-climb which was to have taken place on the 21st inst. has, owing to the A.C.U. Six Days' Trials, been postponed till the 28th inst.

Essex M.C.C.

The twenty-four hours' ride from Woodford to York and back will take place on August 29th and 30th, starting from Snaresbrook at 7 p.m.

The route will be the same as in previous years, *viâ* Epping, Cambridge, and Alconbury Hill, where the Great North Road is joined, and then on through Grantham, Doncaster, and Ferrybridge to York.

Entry forms and full particulars may be obtained upon application to the hon. secretary, Mr. Harold Fuller, 51, Pulteney Road, South Woodford.

Ripon and District M.C.C.

Speed trials were held on the 26th ult. Results:

Single-cylinders (on formula).—1, A. S. Wells (3½ h.p. Rudge); 2, N. Barker (3½ h.p. Humber); 3, J. H. Taylor (3½ h.p. Triumph). Winner's speed, 59½ m.p.h.

Unlimited (on time).—1, A. S. Wells (3½ h.p. Rudge); 2, F. W. Taylor (3½ h.p. Rudge); 3, J. H. Taylor (3½ h.p. Triumph). Winner's speed, 60 m.p.h.

Passenger Class (on formula).—1, F. W. Taylor (3½ h.p. Rudge); 2, J. H. Taylor (3½ h.p. Triumph); 3, C. Kay (3½ h.p. Bradbury). Winner's speed, 43½ m.p.h.

Colchester and District M.C.

The results of the speed event held at Dedham on the 24th ult. were as follows, distance half-mile, flying start:

Tourist Trophy Class.—Mark Head (3½ h.p. T.T. Zenith), 29⅕s.; R. F. Richards (3½ h.p. T.T. Rudge), 30⅗s.; F. Braithwaite (3½ h.p. T.T. Rudge), 30⅗s.

Roadster Class.—R. F. Richards (3½ Rudge Multi), 37⅕s.; R. Armes (3½ h.p. Swift), 38⅕s.; Crosby (3½ h.p. Swift), 39⅕s.

Any machine up to 1,000 c.c.—Mark Head (3½ h.p. T.T. Zenith), 28⅕s.; D. W. Popplewell (3½ h.p. T.T. Singer), 30s.; F. Braithwaite (3½ h.p. T.T. Rudge), 30s.

Exeter and District M.C.C.

A twenty-four hour reliability trial took place from Exeter to London, from London to Plymouth (*via* Exeter), and from Plymouth back to Exeter, a distance of four hundred miles, on the 25th and 26th ult., for a cup and gold medal presented by Mr. E. Gould.

A very good entry was obtained, and eighteen competitors started from the London Inn Square, Exeter, at 8.30 on the Friday night. The riders experienced grand weather until within about twenty miles of Staines, where they encountered a heavy mist.

Mr. Gwynne (of the Motor Cycling Club) checked the times of the competitors on Staines Bridge, where thirteen arrived to time. After a wait of an hour and a quarter at the Bridge House Hotel a fresh start was made for the West. Twelve competitors arrived at Plymouth punctually. Twelve competitors finished to time. Results:

1. S. Saunders (Rudge), error 7m. 25s. Gould cup.
2. L. Mogridge (Mead-Precision), error 10m. 54s. Gold medal.

On the 23th and 30th of this month the club are holding another twenty-four hour reliability trial for a cup presented by Mr. E. J. Hancock, of Exeter. The course will be round the coast of Devon and Cornwall.

Dublin and District M.C.C.

The open reliability trial from Dublin to Glengarriffe and back took place on Saturday and Monday. The start took place from Inchicore Bridge at 6.30 a.m. on Saturday.

Oxford M.C.C.

The results of the reliability trial to Llandudno and back, which took place on the 5th and 7th ult., are now available: Winner of the bridge set, presented by the Birmingham Small Arms Co., Ltd., H. G. Watson, total error 5m. 2s.; gold medals, W. A. Mathews, F. L. K. Loxley, C. B. C. Loxley, and R. C. Davis; silver medal, C. J. Bellamy.

Public School M.C.C.

There was a run from London to Brighton and back recently. The members who joined the run should be commended for the punctuality of their attendance and arrival at Brighton. The running of Mr. Max Cremetti's lightweight Hazlewood was worthy of special note. He appeared to have no difficulty in maintaining the pace set by the big twin cycles and the performance of his machine was in every way praiseworthy.

York County M.C.C.

The second quarterly trials arranged by the above club were held recently. The course was *viâ* Harewood, Harrogate, Ripley, Pateley Bridge, Greenhow Bank, Grassington, Cracoe, Winterburn, and Malham, where competitors had an hour's stop for tea. The return journey was *viâ* Eshton, Skipton, Addingham, Otley, Harewood, and Moortown. The weather was fine, and two-thirds of the competitors completed the course to schedule time and without an involuntary stop. No mechanical breakdowns were reported, punctures being the main cause of failures. The roads in places were extremely rough.

Neville Newton (Rudge), winner of the Chesterfield M.C.C. Speed Trials last Saturday.

Club News.—

Islington and District M.C.C.

The result of the above club's non-stop reliability run, which took place on the 20th ult., was as follows: 1, H. Ward (4¼ Precision sc.), error 5 marks; 2, A. Uglow (2¾ Douglas), 7; 3, A. G. Peppercorn (3½ Bradbury); 10; 4, H. Thomas (3½ Triumph sc.); 5, A. A. Frith (6 Zenith); 6, F. Beck (3½ Ariel sc.).

Cumberland County M.C.C.

On July 26th a hill-climb was held on Whinlatter Pass. Results :

Singles.—1, W. B. Little (3½ Premier); 2, J. W. Moffet (3½ Singer); 3, W. T. Tiffen (3½ B.S.A.)

Twins.—1, R. M. Chaplow (2¾ Humber); 2, J. Glaister (5-6 Matchless); 3, W. Wilkinson (5-6 Clyno).

Fastest time of the day, W. B. Little (3½ Premier).

The annual trial to Harrogate and back took place on the 27th ult. The journey was made *viâ* Kendal, Settle, and Skipton in glorious weather. The Hilton Robinson Challenge Cup for solo machines was won by W. B. Little (3½ Premier); 2, J. W. Moffet (3½ Singer); 3, E. F. Gilbanks (3½ Rover). Other machines to lose no marks except on time were : G. Rutherford (2¾ Sunbeam), J. Robinson (2¾ N.U.T.), and J. Glaister (3½ Bradbury). The captain's cup for sidecar machines was won by W. Wilkinson (5-6 Clyno).

North Staffordshire M.C.

The reliability run for the President's Trophy Cup, given by Mr. James Cadman, was held on the 27th ult., over a course of approximately 180 miles.

Starting from Whitmore, the course lay through Market Drayton, Shrewsbury, Welshpool, Llanfair, Dinas Mawddwy, Bala (lunch stop), Lake Vyrnwy, Llanfylin, Oswestry, Ellesmere, Whitchurch, Audlem, Woore, and Whitmore.

The trial was run on the "go as you please" principle, there being no penalty for stops; but an average of 20 m.p.h., based on the shortest distance, had to be kept up. This was rendered most difficult, especially between Dinas Mawddwy and Bala, and from Bala to Lake Vyrnwy. The tracks ridden over could not be called roads; but, nevertheless, they were excellent tests for any motor cycle; every hundred yards between Bala and Lake Vyrnwy, gulleys were met ranging about six inches in depth.

Winners : H. Madeley (5-6 Rudge Multi), J. Sproston (2¾ Sunbeam), F. Tagg (3¾ Scott), G. Tagg (2¾ Douglas), and H. W. Teeton (3½ James).

Essex M.C.

The annual ride to York and back will take place on August 29th and 30th.

Cheltenham M.C.C.

The second of a series of reliability trials in connection with the Williams Cup was held on the 18th inst. Results :

Full marks (silver award).—A. W. Golesworthy (3½ Triumph sc.), W. B. Gibb (2¾ Douglas), and T. R. Trotter (3½ B.S.A.).

Non-stops were made by R. Moxon (2¾ Sunbeam), T. E. Farmer (2¾ Calthorpe), S. A. Sperry (3½ S.A.S.-Precision sc.), and F. Aguss (5 Rex sc.).

Walthamstow M.C.

A reliability trial of 250 miles was held from London to Yarmouth and back. The following competitors completed the distance to schedule and qualified for awards :

J. W. Percival (8 Chater-Lea sc.), W. A. Briggs (8 Chater-Lea sc.), D. Fairhead (7 Indian sc.), T. Danaher (4 Indian sc.), J. H. Kerr (6 N.S.U. sc.), H. J. Beal (4 L.M.C.), F. W. Applebee (3½ B.S.A.), and A. T. Peppercorn (3½ Bradbury).

Leicester and District M.C.C.

A very successful hill-climb was held at Nevile Holt Hill, near Market Harborough, on the 24th ult. The following is a list of the results :

Touring Class (up to 560 c.c.).—1, F. Snowden (3½ Rudge Multi); 2, H. W. Fowkes (3½ Green-Precision).

T.T. Class (up to 560 c.c.).—1, M. H. Simpson (3½ Rudge); 2, T. Nedham (3½ Martin-Jap); 3, J. J. Simpson (3½ Rudge).

Open Class (up to 1,000 c.c.).—1, T. Nedham (3½ Martin-Jap); 2, W. J. Glover (3½ Rover); 3, R. Wainwright (3½ Campion-Precision).

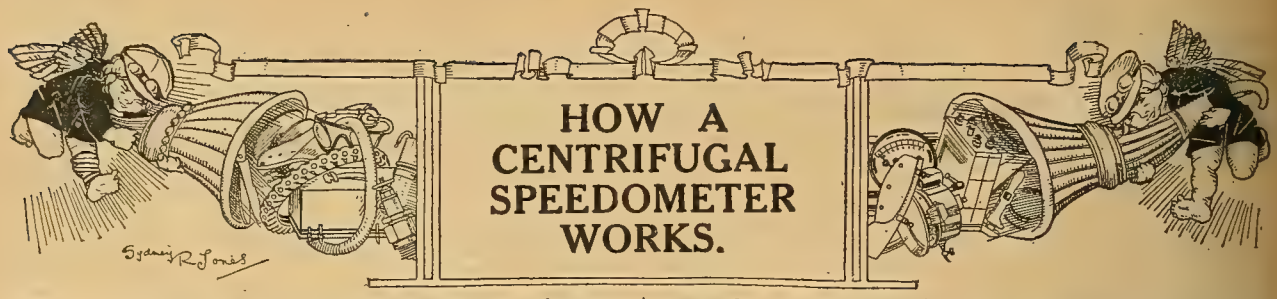
Sidecar Class.—1, H. W. Fowkes (3½ Green-Precision); 2, W. H. Chapman (5-6 A.J.S.); 3, F. Snowden (3½ Rudge Multi).

Handicap Class.—1, W. J. Glover (3½ Rover); 2, R. Wainwright (3½ Campion-Precision); 3, E. Folwell (3½ B.S.A.).

The fastest time of the day was made by M. H. Simpson, on a 3½ T.T. Rudge.

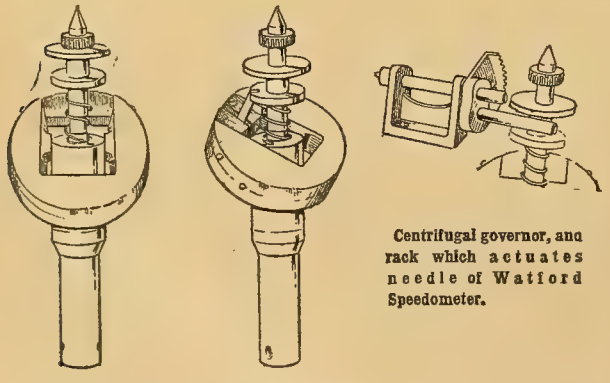
A reliability trial was held on the 17th inst. over a secret course of fifty-five miles. No watches or speedometers were allowed. The results were : 1, R. Wainwright (3½ Campion-Precision); 2, E. Folwell (3½ B.S.A.); 3, Harold Petty (3½ Singer).

A group of competitors leaving Thurso in the Scottish Trials. Among others may be seen G. L. Fletcher (Douglas), S. T. Tessier (Bat) A. U. R. Downie (A.J.S.), Mrs. Baxter (Rex) and W. Peatt (P. and M.)



HOW A CENTRIFUGAL SPEEDOMETER WORKS.

FOR the past two years I have been using a Watford speedometer, made by Nicole, Nielsen and Co. As it was one of their earliest motor cycle models, they wrote to me the other day and asked me to call at their works in Watford and have it tested. My visit proved so interesting that I am recording some of my impressions. Some of our readers may be ignorant of the very simple principle on which centrifugal speedometers work. The first sketch shows the heart of the mechanism, namely, a centrifugal governor. The long spindle has a socket and cotter hole at its thick end by which it is attached to the driving-shaft. The lower cone runs in a ball bearing, and the upper point is also the cone of a ball bearing, which is less than 9-32in. in diameter, *i.e.*, much smaller than a threepenny bit; this cone is hardly larger than the tip of a carburetter float needle. Midway up the spindle, a heavy white metal disc is swung on two pins; one side of it is anchored by a tiny flat link to the sliding collar. A small spring threaded over the spindle normally presses this collar up towards the top of the spindle; the collar thus hauls on the link joining it to the white metal disc, and causes this disc to assume a tilted position when the mechanism is at rest, as shown below. But when the gears on the front hub set the driving-shaft spinning, the spindle



Centrifugal governor, and rack which actuates needle of Watford Speedometer.

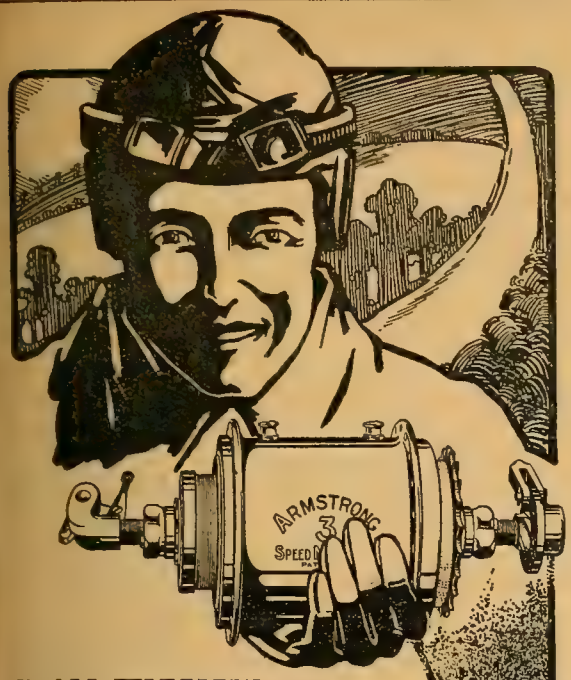
spins too, being rigidly connected to the driving-shaft; and the faster the spindle spins, the more the white metal disc tends to assume a horizontal position, see second sketch, for centrifugal force acts upon it, just as it does on the stone tied to a string which the village urchin swings round his head. Thus the collar D rises and falls in exact proportion to the speed of the machine. Its changes of position are easily registered by the needle on the dial by means of the small rack, illustrated, which is bolted inside the speedometer casing. This consists of a bracket carrying a spindle on which a toothed rack is eccentrically mounted; and the toothed rack carries a rod, which lies between the flanges of the sliding collar. Thus the *vertical* motion of the centrifugal governor is converted into an *oscillating* motion, capable of being registered by a needle on a dial. The mileage discs, whether "trip" or "season," are operated by clock work from the tiny pinion just below the tip of the spindle, which drives clock wheels geared with figured dials, of which one digit shows through the orifices cut in the face of the instrument. It is interesting to notice that the reduction between the driving spindle and the mileage dials read by the rider is no less than 3,720 to 1, and is obtained by two worm and two toothed reductions.

Testing the Speedometer.

The whole of the myriad tiny parts utilised in the instruments are made at the Watford works, the bearing balls being the only detail bought ready made. The parts are counted for store and issuing purposes by a counting machine, and are assembled by girls. After assembling, the instruments go into the inspectors' room, where they are closely scrutinised before calibration. The testing stand is most interesting. It consists of a huge stand, on which is mounted a number of master speedometers and extra driving-shafts, all driven at exactly the same speed, while steel friction discs afford the necessary reductions for testing an instrument's accuracy at any speed from 1 to 100 m.p.h. The readings of these master dials are tested daily against the best stop watches. As each instrument passes the mechanical inspector, it is coupled up to the calibrating stand, and run against the master dials. If it shows the least deviation from their readings, or if its needle waggles, it is sent back. I was given a first-class stop watch, and the run of the room, with permission to select any freshly assembled speedometer I saw on the trays, couple it to the running shafts, and test it both against the watch and the master dials. I soon found that there could be no question of inaccuracy, other than that arising from the tyres of motor bicycles being of incorrect diameter.

The equipment of machines required to manufacture such a small accessory would astonish any inexperienced visitor. For instance, the grinding machines are as large and heavy as those used for grinding the crankshaft of a six-cylinder engine. The vibration arising from smaller and lighter machines would render it impossible to work down to the accurate limits required for such delicate work. Two men are completely occupied in making and tempering the tiny springs supporting the governor collars, so large is the output. Some interesting side lines emanating from the same factory included a colossal electric syren for dock use, and a taximeter designed to defeat the ingenuity of any "cabby."

IXION.



Still WINNING!!!

—the HUB GEAR scores every time! We like competitions because every one means still another RECORD for the World-famous

"ARMSTRONG" MOTOGEAR

—Expert riders always choose The ARMSTRONG—results tell WHY!—Note these results in the

SCOTTISH 6 DAYS' TRIALS

¶ Of the 115 entries, 19 machines were fitted with ARMSTRONG 3-speed GEARS, and out of these

11 GAINED GOLD MEDALS!!

¶ The machines fitted with ARMSTRONG MOTOGEARS gaining GOLD MEDALS were

MORE THAN DOUBLE ANY OTHER MAKE!

—which means—THAT for every *one* machine fitted with any other make of gear winning a GOLD MEDAL, there were TWO FITTED WITH ARMSTRONG GEARS that gained GOLD MEDALS!!

—and NOW these recent

Wonderful ARMSTRONG Successes:

T.T. RACES. Over 40 competitors use "The ARMSTRONG"!—the WINNING machine in the JUNIOR RACE was fitted with the ARMSTRONG!!

IRISH END-to-END RACE

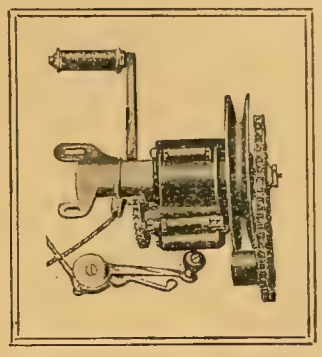
Won on an Ariel machine fitted with "The Armstrong" MOTOGEAR!! —How's that for efficiency and reliability? Keep your eyes on the English 6 Days' Trials!!

The ARMSTRONG 3-Speed GEAR Co., Ltd., BIRMINGHAM.

FIRST AND BEST

R.H.S.

Bowden Two-speed Gear



Enthusiastic Users.

It may be that the fact that the Bowden Gear has not been very prominently used in competitions, and that, comparatively, there are few met with on the road, has been detrimentally construed by the motor cycling public. The simple truth is that our chief business is the manufacture of BOWDEN CONTROLS, and the magnitude of this business is such as to practically monopolise the manufacturing facilities at our command. The Gear itself, in conception, design, and construction is really excellent, and the testimony below is a sample of very many received from users of the Gear.

Bishops Auckland,
19/7/13.

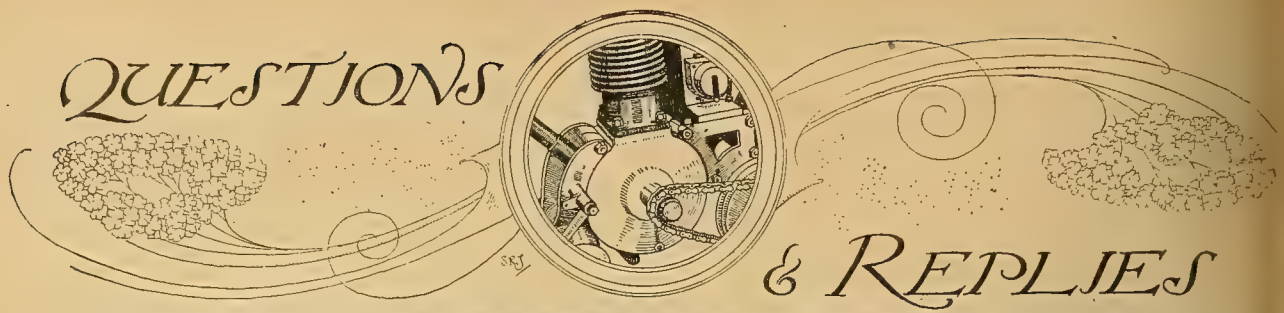
Dear Sirs,

.....I must say in the whole of my motor cycling experience I have never before met with such prompt and generous treatment. As regards the gear, I think it is perfection, and whilst being very simple in construction, it is very effective and very strong. I am recommending it to my friends. Yours faithfully,

F.H.

The gear fits to existing machines; in the chain-belt transmission, an 8in. pulley is embodied; and the price is £10 10 0. Complete gears, with special brackets for fitting to Triumph, Bradbury, B.S.A., etc., with engine sprocket bored, at £11.

Bowden Wire Ltd., Pratt Street, Camden Town, London.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Petrol Consumption Formula.

I shall be obliged if you will send me a formula for working out the petrol consumption test for sidecar and solo machines running together. The weight of machine and rider and the distance covered are known, and all machines were served with the same quantity of petrol.—J.J.C.

We recommend the following formula (the A.C.U.):

$$\frac{W \times M \times X}{P}$$

W = total weight; M = miles covered; P = petrol (in ozs.); $X = \frac{C - 200}{1600} + 1$; C = cubic capacity.

Correct Method of Driving.

I am an interested reader of your paper, and shall be much obliged if you will answer me the following questions: (1.) What jet in a B. and B. carburetter would you recommend for an 85×85 single-cylinder 4 h.p. J.A.P. engine? (2.) My machine starts better and quicker when I do not flood the carburetter than when I do. What is the reason of this, and is there something wrong? (3.) My engine is inclined to knock when starting and when slowing down for corners. I have put a new belt on, and it is a bit tight. Will this be the reason? (4.) Which method do you recommend for steadying down to turn bad corners, to lift the exhaust valve or use the magneto switch?—G.W.T.

(1.) The best size jet for all-round work for the engine you mention is No. 32. (2.) The probable reason why your machine starts better when you do not flood the carburetter is that you have probably too rich a mixture when it is flooded, and require more air. (3.) Your belt being too tight is quite a likely reason for the engine knocking after slowing down. It is not necessary to run a rubber belt as tight as a leather one, and it is better for the belt and the engine to have a certain amount of slackness, provided no slip takes place. (4.) The correct way to drive in slowing down at a corner is to shut your throttle and avoid using the exhaust lifter as much as possible, as the valves last infinitely longer when this course is adopted.

Crossing London.

I shall be obliged if you will kindly send me (1) the best way from Colwyn Bay to Lambeth, S.E., and (2) the same from Cheadle, Staffs, in both cases avoiding all possible traffic, especially in London.—C.W.S.S.

Your best routes would be as follows: (1.) Colwyn Bay, St. Asaph, Wrexham, Whitchurch, Wellington, Bridgnorth, Kidderminster, Bromsgrove, Headless Cross, Alcester, Stratford-on-Avon, Banbury, Buckingham, Aylesbury, Amersham, Uxbridge, continue towards London as far as the G.W.R. bridge beyond Southall, and here turn right, following the road marked in blue on the R.A.C. Official Map of Recommended Routes Round London (which can be obtained from these offices, price 1s. 7d., post free) until you get to Kingston. Go up Kingston Hill and continue absolutely straight on through Wandsworth, Clapham, and Kennington to Lambeth. There is a deal of traffic from Clapham onwards which is not avoidable. (2.) To get from Lambeth to Cheadle, make your exit by the same route by which you entered London, and follow the blue road as far as Barnet, then go through St. Albans, Dunstable, Towcester, Weedon, Daventry, along Watling Street till you reach a point just beyond the village of Weeford, near Lichfield, then go through Abbots Bromley, Uttoxeter, and Cheadle.

Engine Running Hot.

I would be glad if you could diagnose a trouble which I have experienced recently with my 2¾ twin 1913 motor cycle. It has done about 1,600 miles, and I had it dismantled for the purpose of removing what carbon deposit there might be. On re-assembling it I find that it heats right over the crank case and timing gear, and even the magneto and inlet pipes become very warm. The carburetter is certainly giving too rich a mixture, and I am having this remedied, but the peculiar thing is that the heat seems to generate in the front cylinder and work backwards.—SCOTSMAN.

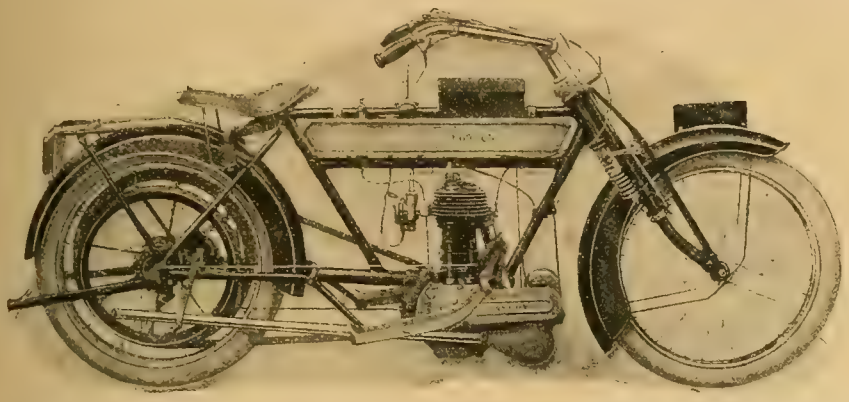
Unless the engine is actually overheating there is no cause for you to worry. The heat in the crank case may be solely through conduction. It may be due, however, to the piston rings not fitting properly and allowing the charge to leak into the crank case. We presume, of course, that the engine is not losing power on hills. This is really the only overheating which need worry you. Examine the fit of the piston rings carefully.

The above reproduction is from a postcard received last week which bears the following inscription on the back: "With the compliments of the Motor Club of S. Joao d'El Rey, Minas Geraes, Brazil."

NO HILL is too steep for the "BIG 4" UNAPPROACHABLE NORTON AND SIDECAR.

on any road— — anywhere —

POWER AND PLENTY OF IT.



The only machine for real sidecar touring.

Fitted with long stroke (636 c.c.), 82×120 mm. engine. Three speeds, handle starter, 2¼in. tyres, and long footboards

Price £62 - 0 - 0.

NORTON MOTORS, Sampson Road North, Birmingham. Telegrams: "Nortomo." Telephone: 481 Victoria

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ONE

ZENITH

"The Summit of Ambition"

The ZENITH is equipped with THE GEAR THAT NEVER FAILS.

ONLY Competed in the SCOTTISH TRIALS and that ONE gained a GOLD MEDAL.

ONE more proof of its sterling worth.

ONE WON

Send for the Catalogue.

ZENITH MOTORS, Ltd.,

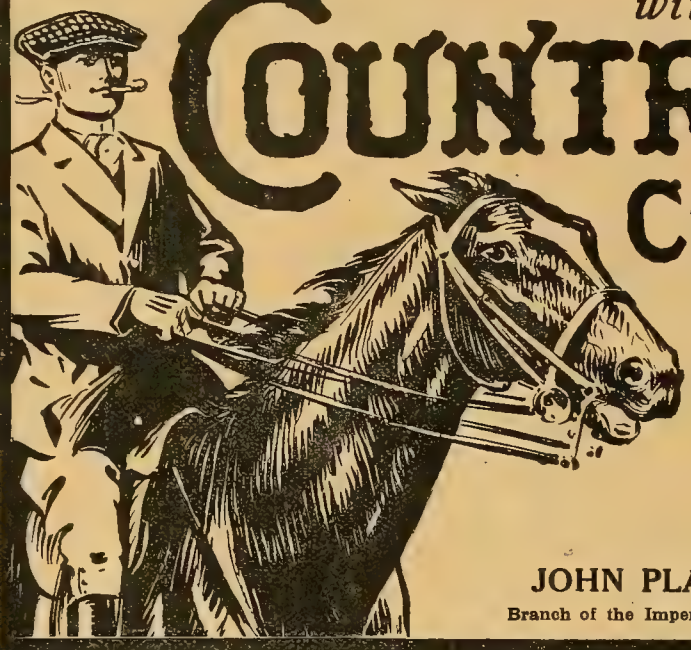
WEYBRIDGE, — SURREY.

In answering these advertisements it is desirable to mention "The Motor Cycle."

Country Life *is* Country Life

with

"COUNTRY LIFE" Cigarettes



(MEDIUM STRENGTH)

Manufactured from Pure Virginia Tobacco.

10 for 2½d.

50 for 1/-

JOHN PLAYER & SONS, Nottingham.

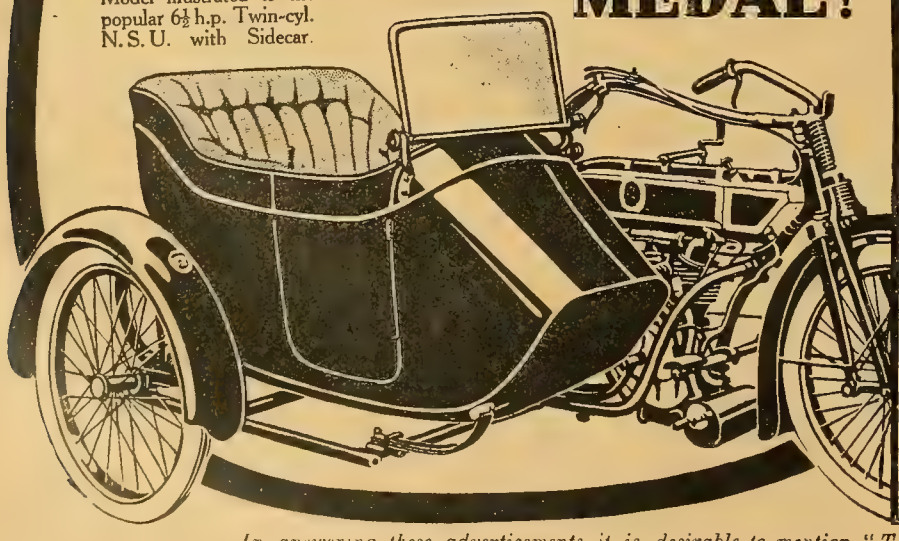
Branch of the Imperial Tobacco Co. (of Gt. Britain and Ireland), Ltd.

P 310.

N.S.U.

Another GOLD MEDAL!

Model illustrated is the popular 6½ h.p. Twin-cyl. N.S.U. with Sidecar.



The Essex M.C. Club's Run from London to Yarmouth provided another opportunity for the N.S.U. to prove its reliability, Mr. J. C. Kerr, riding a 6½ h.p. Twin-cylinder N.S.U. and Sidecar, securing a GOLD MEDAL.

MODELS:

2 h.p. Single cylinder, with adjustable pulley	£34
3 h.p. ditto ditto	£43
3 h.p. Twin cylinder, with adjustable pulley	£45
6½ h.p. ditto ditto	£58

The N.S.U. TWO-SPEED GEAR AND FREE ENGINE PULLEY is ideal for sidecar and hill work. Ask one who knows! Fits almost any machine.

THE N.S.U. MOTOR CO., Ltd.

Offices and Showrooms:
186, Gt. Portland St., LONDON, W.

Goods and Repairs:
83-85, Bolsover Street, London, W

Stephen Raynes, winner of the Hutton shield in the Sheffield and Hallamshire M.C.C. reliability trial to Holyhead and back, a distance of 316½ miles. He rode a 1910 pattern Triumph and finished without losing a single mark.

Pre-ignition and Oil Leakage.

[?] I am in trouble with my 3½ h.p. 1910 Rex. This machine will go up a long hill at a good pace, but suddenly stops. I have the feeling during this stopping that something is sticking in the engine. The queer part is that it will start away again all right without waiting more than one minute. This is repeated at each long hill. The crank case leaks oil freely, but the trouble manifests itself even with the exhaust smoking badly. I have had the engine down to try and cure the oil leakage. I put the engine together hurriedly again, and it did not stop all that day. Before fitting the cylinder again on this occasion I filed the end of the piston rings slightly; even then they caused some trouble in getting them into the cylinder. I am now disappointed to find that, after taking down again to pack the crank case and cylinder joint, it develops this stopping trouble again. The engine does not overheat to any serious extent. Gear about 5 to 1; bearings in good order. The machine does about 25 m.p.h. on the level, with a slight opening of the throttle and three-parts air. Can you advise me on this? Would you suggest further filing of the rings? The connecting rod has been recently straightened correctly. Another trouble is that I cannot cure oil leaking at the cylinder joint. Repairers have tried without success. The lip of the cylinder has too small chips front and rear of cylinder.—D.A.R.

Without examination it is almost impossible to locate your trouble, but in all probability it is caused by pre-ignition. A particle of carbon or small sharp metal edge will often become incandescent when the throttle is opened for any distance, and will cause a stoppage very like a seize, though of course the engine will still be free. Clean out the cylinder head, valve pockets, and piston. If you suspect a partial seizure, a bearing may be too tight. Try liberal lubrication. It is possible, but unlikely, that the rings are too tight. The chips out of the cylinder base would probably account for the oil leakage. However, if the base of the cylinder and top of crank case are quite flat a paper and gold size joint should prevent leakage. The trouble may be due to too much pressure in the crank case owing to a faulty or small release valve.

Crossing to Germany.

[?] I am anticipating spending a week's holiday on a motor cycle tour in Germany, travelling *viâ* Harwich to the Hook of Holland. Noticing that you give some excellent replies to readers, I shall be glad if you could advise me: (1.) What would be the cost of conveying a motor cycle from Harwich to the Hook of Holland? I am not a member of the A.A. and M.U. or A.C.U. Also, how can one procure a licence, number plates, etc., when travelling on the Continent? (2.) What is the etiquette of the road for Holland and Germany? (3.) Could you suggest a reliable guide book, or books, for use in Holland and Rhineland?—S. J. H.

The Hook of Holland is certainly one of the best routes for reaching Germany. Motor cycles are taken across for 4s. 6d., or 10s. 6d. with sidecar attached. (1.) We should strongly advise you to become a member of the A.C.U. (89, Pall Mall, S.W.), or the A.A. and M.U. (Fanum House, Whitcombe Street, W.), and get the touring department of one of these institutions to work out your route for you. They will also arrange about your licence. (2.) In Holland and Germany all vehicles keep to the right. (3.) Baedekers are about the best guides you can purchase.

Licences for Petrol Storage.

[?] I have taken out an Excise licence for the sale of petrol. The Excise authorities approve of the place of storage, and the Sanitary Inspector for the local authority also approves of the storage arrangements but claims that I ought to take out a licence to store petrol under the Petroleum Act, 1871. Will you kindly tell me if it is necessary to take out a 5s. licence from the local district council for the storage of petrol? The locality in which I reside is a scattered village of 1,200 people, and I have less than sixty gallons stored in two-gallon tins.—J.S.

We have submitted your letter to our legal adviser, who replies as follows: "I gather that your correspondent sells petrol. If this is so, then in addition to the Excise licence for the sale of petrol he must take out a licence from the local authority. The fact that he does not store more than sixty gallons and that these are stored in two-gallon tins makes no difference, as the regulations exempting persons from the necessity of taking out a licence from the local authority do not apply where the petrol is kept wholly or partly for sale."

EXPERIENCES WANTED.

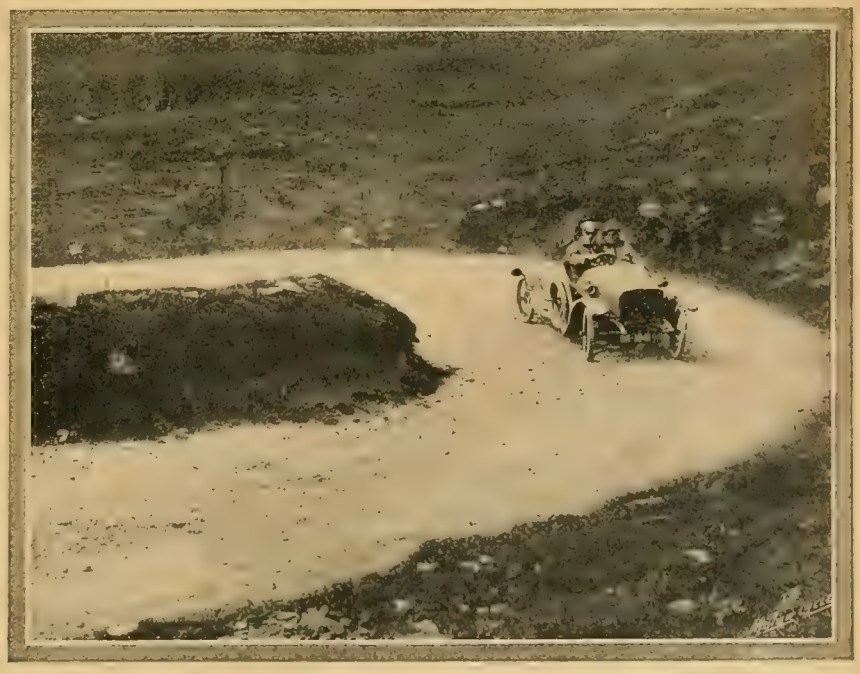
"F.G." (Erdington).—Wear of Clincher De Luxe tyres, No. 238.

"Colonial" (Surrey).—Levis two-stroke, and its suitability for South African roads.

"W.H.J." (Bagshot).—3 h.p. Royal Enfield. Lubrication and firmness of cylinder holding down bolts.

"J.H." (Petersfield).—F.N. or similar English machine. 4-5 h.p. for sidecar or solo work. Reliability, consumption, etc.

If "D.H.B." and "W.F.E." will comply with our regulations and forward stamped addressed envelope they will receive answers to their questions.



SCOTTISH SIX DAYS' TRIALS.
J. Y. Wood (8 h.p. G.W.K.) on the first bend of Amulree. Mr. Wood was awarded the special prize for the best performance on a passenger motor cycle.

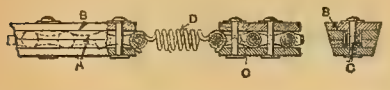
PATENTS

BY

ERIC W. WALFORD, F.C.I.P.A.

A Composite Driving Belt.

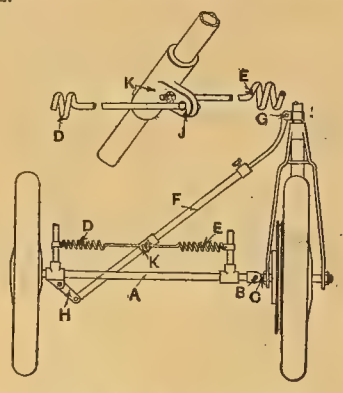
The chief objection to chain-drive as employed on motor cycles is its lack of elasticity, and the same failing arises in those composite transmitters which are built up on a chain foundation. The inventors of the constructions shown state that this difficulty is overcome, in a



motor belt, if this is made in three parts connected together by springs. Accordingly they employ a roller chain A, to which are attached friction surfaces B, the rivets C for which pass between the chain links. Three lengths are employed, connected together by springs D, the chain preventing stretch and fracture, whilst one spring connection is always available to absorb the engine shocks.—A. E. Lowenthal and T. Bettney, No. 13,172, 1912.

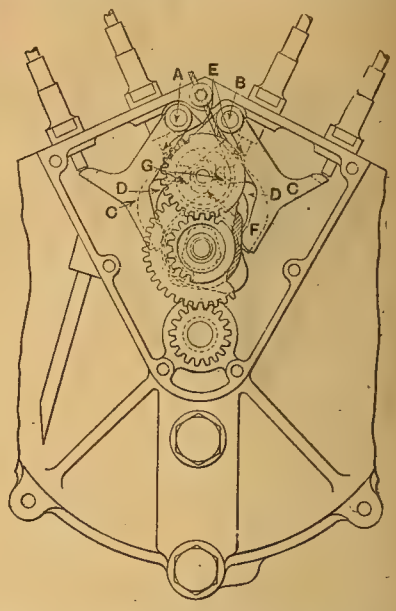
A Sprung Sidecar Axle.

The axle A is pivoted at B to the rear lug C fixed to the frame of the machine. It is therefore free to rise and fall in relation to the latter, and this movement takes place under the restraint of springs D and E. A diagonal stay F is provided, which is pivoted at G to the machine at one end, and at the other end is attached to a link H having a pivotal connection with the axle A. The springs D E are attached to frame members of the sidecar, and can slide through a lug J on a collar K fixed to the diagonal stay F. On the axle lifting, the link H yields to the movement, and the spring E, being stretched, absorbs the shock, the spring D absorbing the jar in the reverse direction.—T. D. Sinclair, No. 10,033, 1912.



Valve Operating Mechanism.

For twin-cylinder engines a single inlet and a single exhaust cam are used, and there are employed a pair of forked rockers pivoted at A and B. The outer half of each rocker is T-headed, the upper end engaging the exhaust valve tappet, whilst the lower end engages the exhaust cam, and the other half of each rocking lever is curved at the extreme ends engaging inlet valve cam, whilst at about mid point of their length they



engage the inlet valve tappets E. Compression release mechanism is also combined with the valve mechanism, and for lifting the exhaust valve the cam F is rotated, engaging the noses G on the rockers.—J. A. Prestwich, No. 22,135, 1912.

Notice of Removal.

We are informed by Messrs. Crescent Motors, Ltd., that they have now moved to larger works, and that now all communications should be addressed to them to Britannia Works, Rolfe Street, Smethwick, Birmingham.

Cycle Car Agency.

Messrs. Averies-Ponette, Ltd., Englefield Green, Surrey, inform us that they are anxious to appoint a selling agency for the London district for their cycle cars. Any firm interested should write Messrs. Averies-Ponette, Ltd.

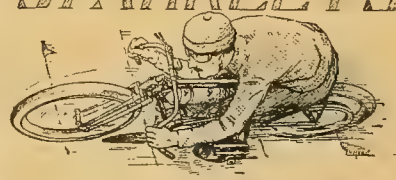
Records and Tyres.

When E. B. Ware broke eight records in the recent six hours' race at Brooklands on his Zenith and sidecar, he was riding on Clincher "Dreadnought" tyres, which, despite the severe strain to which they were subjected, gave no trouble.

Rubber Goods for Motor Cyclists.

A visit to the works of Messrs. Alfred Roberts and Sons, Ltd., St. Mary's Row, Birmingham, a few days ago was full of interest. This firm is putting up boxes of rubber washers for motor cycle generators moulded to suit Lucas, P. and H., and other lamp generators. The Roberts moulded tyre cover with compressed tread is a well-made article. The casing is impregnated with rubber in every fibre and moulded under great pressure. It is supplied in 26 × 2¼ and 2½ sizes only. The same firm supplies an excellent butted air tube, and a big variety of rubber goods suitable for the motor cyclist's use.

SPARKLETS



Record-breaking Sidecar.

The sidecar attached to E. B. Ware's Zenith at Brooklands on July 16th was a Middleton. It was purchased more than a year ago from Middleton's Motor Works, Stroud Green Road, Finsbury Park, N., and was an ordinary model.

A Variable Decompressor.

We hear that Messrs. G. H. Smith and Co. (London), Ltd., 12, Mortimer Street, Great Portland Street, W., have been appointed sole London distributers of the Clayton adjustable decompressor and valve cap. This is a very neat fitment, and should prove of use on early pattern motor cycles.

For Premier Riders.

The Premier Cycle Co., Ltd., organised a run for riders of Premier motor cycles on a recent Sunday from Catford to Eastbourne and back, lunch being taken at Eastbourne, the party being the firm's guests. Forty-four Premier machines turned out, and the majority of them were fitted with sidecars, some of these combinations carrying as many as four passengers. The outing proved a great success in every way.

Tyres in Irish End-to-end.

We are informed by the Hutchinson Tyre Co. that in the recent Irish End-to-end run over fifty per cent. of the finishers rode machines fitted with this make of tyre. Between them, riders of Hutchinsons secured the President's prize, team prize, C. and M.M. and T. prize, and twelve medals.

Tube Bags.

We recently illustrated in our "Accessories" columns a very useful fitment in the shape of a leather bag for carrying spare tubes. We then mentioned that this had been introduced by Messrs. Maude's Motor Mart. We are now informed by the St. Edmund Motor Co., Northampton, that the provisional patent for this device is their property, and that Messrs. Bramson, Kent and Co. are appointed wholesale distributing agents.

Catalogues Received.

The latest leaflet published by Auto-Carriers, Ferry Works, Thames Ditton, entitled "The £100 Cycle Car."

Brown Bros., Ltd., Great Eastern Street, E.C., send us a most comprehensive list of tools and accessories. The exact weight of the paper used in printing the 1913 issue was 64 tons 14 cwts.

Villiers Eng. Co., Ltd., Blakenhall, Wolverhampton (The Villiers power unit for motor cycles); The Service Co., Ltd., 292-293, High Holborn, E.C. (13th edition of "The Motor Cyclists' Buyers' Guide." This book has 102 illustrations of various accessories); The Priory Accessories Co., Priory Mill, Coventry (motor cycle accessories).

SCOTTISH SIX DAYS' TRIALS

The winners of

34 **GOLD MEDALS** **42**

out of a total of

and the following Special awards:

TEAM PRIZE, LIGHTWEIGHT PRIZE,
PRIVATE OWNERS' PRIZE & TRADE RIDERS' PRIZE (TIED),

used

WAKEFIELD CASTROL Regd.

12 and 50 MILES OPEN RACES at Tramore Strand were won by Mr. T. E. Greene on a Rudge using 'Castrol.'

C. C. WAKEFIELD & Co.,
Wakefield House,
Cheapside, E.C.

O.D.C.

PALMER MOTOR CYCLE TYRES

PALMER CORD MOTORCYCLE TYRES

are infinitely more reliable under the strains of motor-cycle work than any tyre with a canvas foundation; they wear longer, give regular, satisfactory service, and are practically immune from punctures.

Write for Motorcycle Tyre Booklet.

THE PALMER TYRE, LTD.,
119, 121, 123, Shaftesbury Avenue, London, W.C.
Motorcycle Tyre Dept.:
103, St. John Street, Clerkenwell, London, E.C.

In answering these advertisements it is desirable to mention "The Motor Cycle."

B27

INDISPENSABLE TO EVERY OWNER
of Cycle Car, Motor Cycle, or Autocar, who has a thought for the appearance of his machine.

BLUME'S "PETROL-PROOF" ENAMEL.

HARD and DURABLE. Retains its lustre under the action of Petrol. For renovating and touching-up there is nothing just like it.

Resists Petrol from the day following its . . application . .

Sold in **9d.** (5 ozs.) and **1/3** (10 ozs.) tins.
Colour Card on application.

UNEQUALLED—the verdict of all who have thoroughly tried my

METALLIC RUSTPROOF PRIMING (Stoving).

Extremely tough, and effectually resists rust and lifting of the Enamel, even after long exposure to all weathers and rough usage.

Output of Black Stoving Cycle Enamel about 85,000 gallons per annum.

Write for Booklet and List of Testimonials.

CHAS. H. BLUME, Varnish, Japan, and Enamel Works, MITCHAM, Surrey.

6 HOURS' RACE

BROOKLANDS, July 16th, 1913.

GIVES THE

'U.H.'

MAGNETO

another opportunity to prove its wonderful dependability.

Class B—Mr. Hugh Mason, on a 2¾ h.p. "NUT,"
FIRST, setting up
NEW RECORDS for 2, 3, 4, 5, and 6 hours, 100, 150, 200, 250, and 300 mls.

Class C (Sidecar)—Mr. H. Riddell, on a Zenith Green-Precision,
FIRST, setting up
NEW RECORDS for 5 and 6 hours and 200 miles.

The U.H. gives equally good results under ordinary riding conditions' Why not try for yourself?

S. WOLF & Co. Ltd.
115, Southwark St., London, S.E.
Telephone—5172 Central, 2784 Hop.
Telegrams—"Widerstand, London."

"Precision" Engines

"The Same as You can Buy."

The Record Breakers.

F. E. Baker, Ltd., Precision Works, Moorsom Street Birmingham.

London Stockists for "Precision" Engines and Spare Parts: Messrs. E. S. Thomas & Co., 154b, Gt. Titchfield St., W.C.

Wholesale Distributing Agents for Australia: Messrs. A. G. Healing & Co., 354-356, Post Office Place, Melbourne. Agent for South Africa, Rhodesia, and Portuguese East Africa: Victor S. Wellsford, P.O. Box 883, Durban. Agents for New Zealand: Messrs. J. B. Clarkson & Co., 120, Victoria Street, Wellington.

GRAVES

MILLFORD 1913 MODEL SIDE-CARS
On Monthly Payment Terms.

Every Motor Cyclist should write at once for our illustrated Catalogue of the latest model Millford Side-Cars. Contains photo illustrations and full specification of cars to fit every make of cycle. The interesting book is full of information with prices and wrinkles; bearings on the spot. Lowest rock-bottom prices are quoted for cash, and full particulars as to ordering and delivery are given in the clearest possible way. **WE DELIVER** any model carriage paid to approved orders on receipt of small payment with order. The balance being payable in monthly payments after delivery, if purchaser is entirely satisfied with the car when fully examined at his home.

CLINCHER TYRES
At CASH PRICES or EASY TERMS.

The CLINCHER B Motor Cycle Tyre with beaded edge. Cover only.

26 x 2	21/-	3/- Monthly.
26 x 2¼	24/6	4/- Monthly.

The CLINCHER A won Motor Cycle Tyre. Beaded edge. Cover only.

26 x 2	28 3	4/3 Monthly.
26 x 2¼	31/7	5/3 Monthly.
26 x 2½	36/2	6/- Monthly.

The CLINCHER De Luxe Rubber Studded Non-Skid Motor Cycle Tyre, made with beaded edge only. Single Covers supplied in the following sizes:—

26 x 2¼	39/-	6/6 Monthly.
26 x 2¼ to fit 2¼ rim)	45/6	7/7 Monthly.
26 x 2½	47/6	7/11 Monthly.

WRITE FOR CATALOGUE. POST FREE.

J. G. GRAVES Ltd. SHEFFIELD.

Books for Motor Cyclists

Tracing Troubles.
Motor Cycle Faults: Their identification and their remedies simply and fully explained. Written in simple language by a motor cyclist of long experience. Price 1/- net. By Post 1/2.

Hints and Tips for Motor Cyclists.
Full of useful "wrinkles" with regard to the care and management of motor cycles. Fourth edition. Price 1/- net. By Post 1/2.

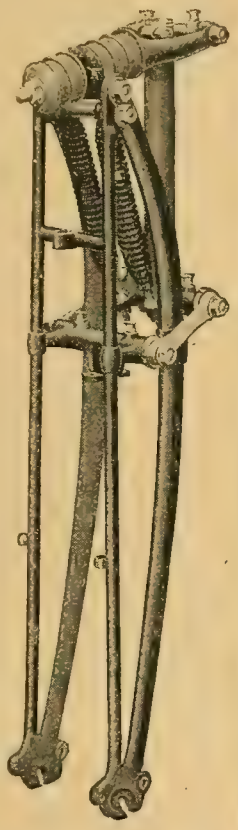
The Motor Cycle Route Book.
Contains best routes for the whole of the British Isles, 45 maps and speed limits. Price 1/6 net. By Post 1/9.

Obtainable (with remittance) from ILIFFE & SONS LTD., 20, Tudor Street, LONDON, E.C., also from all Booksellers.

THE "BRAMPTON BI-FLEX" Spring Fork

Absorbs both vertical and horizontal shocks

Other makes absorb shocks in one direction only—generally vertically.



In the Brampton Bi-flex Fork the girder is attached to the bottom of the steering column by links, and a pair of springs absorb vertical shocks. The top of the girder is not held by links, but cushioned between two sets of rubber buffers, and moves backwards or forwards under horizontal shocks. These two movements taking place simultaneously absorb all shocks, the buffers damping out any tendency to bounce.

The bearing surfaces are large, and adjustment is provided to take up wear in the links.

This fork gives a high degree of comfort unobtainable by any other make, whilst two years of continuous testing have proved its reliability and durability.

Descriptive pamphlet free on request.

BRAMPTON BROS: LTD., Oliver St: Works, Birmingham.

If

You want to break records—if you want to win competitions, or if you would be free of all lubrication troubles when touring use

STERNOL

Elite Oil

The Ideal Motor Cycle Oil.

Sternol Elite Oil enables you to get every ounce of power from the motor by lubricating perfectly—completely: it does not gum or soot up—is economical in use and unaffected by temperature variations.

Ask for Sternol Elite and *insist* on getting it.

STERNOL (Stern-Sonneborn Oil Co., Ltd.) 56, Royal London House, Finsbury Sq., London, E.C.

"About five months ago my repairers, Messrs. Skeel, of Cambridge, fitted an Endrick Decompressor to my 1912 Bradbury, with the result that I have almost forgotten—sometimes I do forget—that the machine has such a thing as an exhaust lifter on the handle-bar. I always run with a sidecar on my round and the comfort of your Decompressor has to be known to be realised. I have started with 34 stone up at a sharp walking pace by means of your Decompressor, and am but a novice at riding."

(Signed), L. Gwillim Davies, M.D., Lavernock, Histon, Cambridge. June 19/1913.

IS THAT CONVINCING?

PRICE **12/6**

Postage **3d.**

Made in two patterns:

No **1** for **Triumph, J.A.P.,** and recessed valve caps. No. **2,** as illustrated for **Rudge and Bradbury.**

For Singles and Twins.

Screwed standard sparking plug thread. Valve caps bored and screwed **1/-** each, returned same day and Y adapters for plugs and decompresser **2/6** each. For N.S.U. and A.O.I.V. Engines.

We can now supply **HANDLES** to suit **DISC TYPE DECOMPRESSORS.** These are smart in appearance and easily fit to in a few seconds **1 3** each, post free.

WRITE FOR LIST giving particulars of our Decompressors Side cars, and Motor Cycles. The Endrick 3½ h.p Touring Model Fafnir Engine, with Decompressor **£38 15 0**

ALL AGENTS CAN SUPPLY

The ENDRICK ENGINEERING CO.
Warwick Road, Olton, Birmingham.

MOTOR CYCLE TRADE.

SALESMEN REQUIRED.

Real live, enthusiastic Salesmen required for Showroom, and also Expert Correspondent. Keen knowledge of Motor Cycles necessary. Regular employment. No gentleman of leisure required, but one who has his living to earn, and who is not afraid of work.

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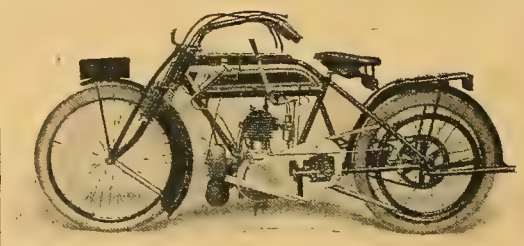

4¼ h.p. 2-speed Model	£46	0	0
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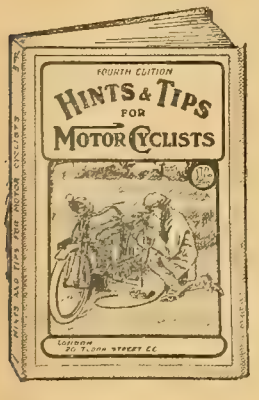

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	CLYNO, 1911, 6 h.p., 2-speed, Clyno cane sidecar	£43
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132c	5 h.p. **ELAND-PEUGEOT**, Bosch, Druids	£16
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	INDIAN, 7 h.p. 2 speeds, free engine	£42 10
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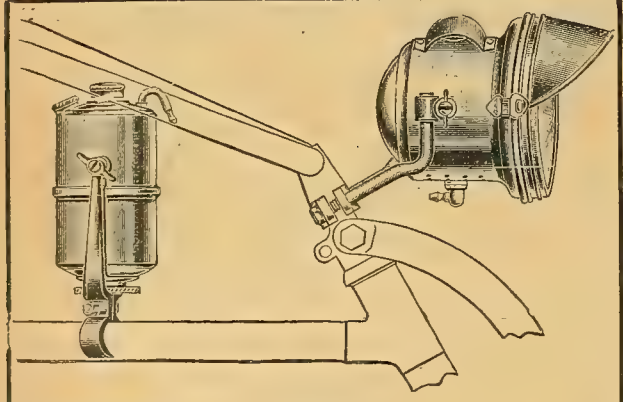

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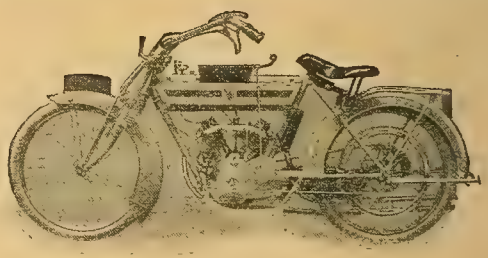

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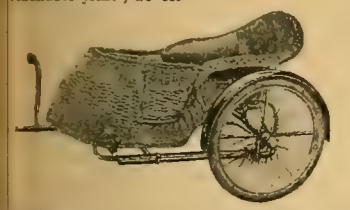

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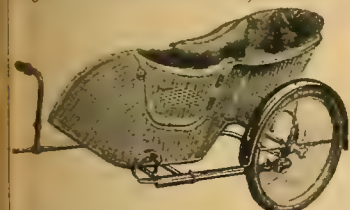

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MINERVA, 3½h.p., 1910½, engine newly overhauled, splendid sidecar machine; £18.—Goulbault, Hull. [X4966

TRIUMPH, clutch, late 1910, under 5,000 miles; £28.—Rodgers, Broomfield Grove, Rotherham. [X5078

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1908 Triumph 3½h.p., Mabon clutch, mag., new cylinder; must sell; going abroad; £22.—G. F. Richardson, Thornaby. [9686

TRIUMPH, 1911, F.E., and Montgomery sidecar, perfect condition, all accessories; £37.—Armstrong, 10, Grendon Av., Oldham. [X4959

SCOTT, late 1911, P. and H. lamp, Jones speedometer all accessories, in excellent condition; £35.—Blincoe, Davison St., Middlesbrough. [X4353

TRIUMPH, free engine, 1911; Rover, free engine, 1912; Triumph, standard, 1910; Triumph, free engine, 1909; all in excellent running order.—Stockdale, Lytham. [X8797

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GREAT Bargains, must be sold.—1911 Douglas, like new, £22; 1912 B.S.A., 3½h.p., free engine, £32; 1909 Rex twin, free engine, 5-6h.p., new condition, £20; 1911 Enfield, £17; 1912 Zenith, £32, Gradua gear.—J. Guttenberg, The Moor, Sheffield. [0288

NORTHERN Depot, Ltd., Everything Motorish, Leece St., Liverpool.—Rex-Jap celebrated machines in stock; second-hand 4h.p. Ivy-Precision, 1912, in splendid condition, £24. Big selection sidecars, including Millford Heralds, Corvettes, Premier, etc., also bodies. A.C. Sociables, Wall Tricarriages; shop-soiled 1913 Alldays Midget car, what offers for this? Exchange depot D.A. cylinders, Lukin carburetters, biggest exhibition accessories in the north at popular prices. N.D.L. motor cycle suit, 21/6. Call and examine our stock, no obligation to purchase. [X5045

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1913 £52 10s. MACHINE.

Fitted with 3½ h.p. Precision engine, Bosch weatherproof magneto, Best and Lloyd drip feed lubricator, Hutchinson rubber-studded tyres, handle-bar control, and complete with stand, carrier, number-plates, toolbag, and spare spring. Limited number only. If you are a cash buyer we will

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Massive Horns, ebony finish	9 6
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1913 **HAZLEWOOD,** 3½ h.p., twin, 3 speeds, not ridden above 300 miles, and like new **£39**

1913 **RUDGE,** 3½ h.p., multi, Whittle belt, tyres like new, excellent order **£45**

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1912 **REX,** 6 h.p., combination, Portland £11 11s. Sidecar, spring forks, 2 speeds, head lamp, Cowey, and horn. Special value **£56**

1912 **RUDGE,** 3½ h.p., multi, good tyres, enamelling and plating as new, with Sidecar **£49**

1912 **PIERCE,** 5-6 h.p., 4-cylinder, mechanical lubrication, shaft drive, M.O.V., only done 500 miles **£55**

1912 **BRADBURY,** 3½ h.p., chain drive, 2 speeds, free engine, kick starter, suit sidecar **£37**

1912 **BRADBURY,** 3½ h.p., 2-speed, belt drive, Cowey, complete with Sidecar **£55**

1912 **BAT,** 6 h.p., spring frame, Bosch magneto, J.A.P. engine, very fast **£36**

1911 **INDIAN,** 7 h.p., 2 speeds, Millford £16 16s. Sidecar, speedometer, horn, lamp, etc., complete outfit **£48**

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1910 **ENFIELD,** 2¾ h.p., twin, lightweight, finished khaki, magneto **£20**

1906 **REX,** 6 h.p., twin, spring forks, cantilever seat, good tyres, take sidecar **£16**

MOTO-REVE, 2 h.p., twin, magneto, Druid forks, free engine **£15**

A. Y.O., 5 h.p., twin, spring forks, suit sidecar, very fast **£13**

KELECOM, 4 h.p., single, M.O.V., good tyres, low built **£10**

Deferred payments 5% extra.

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SCOTT, 1913 model, never been used, shop-soiled only; £59/10, great bargain.—Moss, Wem. [X5083

3½h.p. Humber, 1910, perfect tyres, excellent running order; £17/10.—Fisher, Witton, Northwich. [X5025

P. and M., September, 1911, perfect condition; £35 cash bargain; any inspection.—Shone, 70, Watergate, Chester. [9784

REX-J.A.P., 1912, 4h.p., 2-speed, lamp, etc., £34; also 2½h.p. 1911 J.A.P.-Chater-Lea, £16; both snips.—C. Alcock, Jeweller, Shrewsbury. [X5127

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B

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NEW and 2nd-hand at the leading depots for the Midlands; agents for Douglas, Scott, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, Birmingham and Leicester. [X6047

DOUGLAS, New Hudson, Clyno, Matchless, Zenith, Levis motor cycles and Morgan runabouts; all models in stock; quick deliveries.—Colmore Depot, 62, High St., Leicester. [9769

SECOND-HAND Motor Cycle Bargains:

1912 Macbeth, 3½h.p., 3-speed, competition winner; £54.

1912 Rex Sidette; £45.

1912 Free Engine Rudge, 3½h.p.; £38.

1912 Singer and Sidecar; £44.

1912 T.T. Douglas; £34.

1911 B.S.A., 3½h.p.; £32.

1913 Model R Douglas, demonstration model; £45.

1913 Cartwright-Precision, 3½h.p., £32; 3-speed Sturmey-Archer.

1911 Standard Douglas; £23.

COLMORE Depot, 62, High St., Leicester. [9770

COLMORE.—Lady's Douglas, 2-speed and clutch; £26.

COLMORE.—1913 Levis Valveless, 2¼h.p. Baby model, perfect; £29 10.

COLMORE.—1911 Matchless, 3½h.p., thorough good order and condition; £28.

COLMORE.—1912 Ariel and sidecar, a good, reliable outfit; £38.

COLMORE.—1912 Triumph, free engine, a splendid machine; £37.

COLMORE.—1913 Scott and coach-built sidecar, a perfect and stylish combination; £68.

COLMORE Motor Cycle Depot, Second-hand Department, 31 Colmore Row, Birmingham, and 49, John Bright St., Birmingham. [9742

SECOND-HAND Bargains.

TRIUMPH, 1911, 3½h.p. free engine, 1912 spring fork, perfect condition; £32.—Below.

MATCHLESS-J.A.P., 4h.p., 2-speed, mag., B. and B. carburetter, Whittle belt; £18.—Below.

DOUGLAS, 1911, 2¾h.p., open frame (ladies' model); £26.—Below.

REX, 1909, 5h.p. de luxe model, 2-speed; £18.—Below.

MATCHLESS-J.A.P., 1912, 8h.p., 2-speed, special sidecar machine; £45.—Below.

REX-J.A.P., 1912, 8h.p. de luxe, 2-speed; £45.—Below.

HUMBER, 1911, 3½h.p., 2-speed, and sidecar; £34.—Below.

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ANY of the above machines sent on approval against deposit. Full detailed list of nearly 50 machines free on application.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0316

ONE 3½h.p. 1910 B.S.A., fixed engine; £30.—Apply, Gollin, Motor House, Grantham. [9698

ONE 2¾h.p. 1910 Douglas, fixed engine; £20.—Gollin, Motor House, Grantham. [9699

ONE 3½h.p. N.S.U., mag.; £20.—Apply, Gollin, Motor House, Grantham. [9700

ONE 4h.p. 1912 Singer, free engine, 2-speed; £45.—Apply, Gollin, Motor House, Grantham. [9701

SPECIALS.

1913 **SCOTT,** 3¾ h.p. twin, complete with Portland lounge body cane sidecar.
Special price, **72 guineas.**

1913 **RUDGE,** 5 h.p. multi, 750 c.c., with Portland £13 13s. sidecar.
Special price, **75 guineas.**

1913 **B.S.A.,** 3½ h.p. two-speed, chain drive, kick start, with Portland Dutch clog sidecar.
Special price, **£65.**

1913 **ZENITH,** 6 h.p. kick start, Gradua gear, with Portland coach-built sidecar.
Special price, **85 guineas.**

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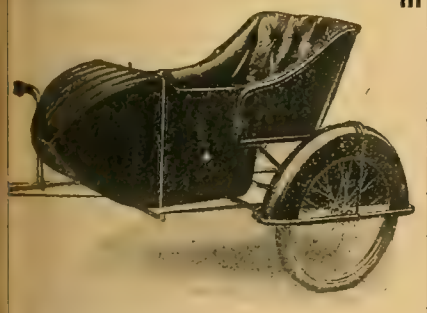

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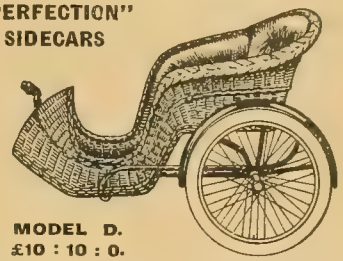

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MORGAN and Maxwell.—Ivy-Precision, late 1911, free engine, 3¾h.p.; £28.

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157, GREAT PORTLAND STREET, W

AUGUST 14TH, 1913.

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Flexibility.

It is reported that a famous actor, on being asked to spell Shakespeare, promptly replied "R-u-i-n." To paraphrase his remark, we might assert that Flexibility spells Perfection. This is true, because the perfectly flexible engine is yet to seek, and probably so long as motor cycle engines are in the main confined to the two and one cylinder varieties, perfection is a long way off. When it is called to mind that car designers have gone to six and even eight cylinders to attain the ideal of flexibility, it will readily be seen how difficult is the task of the motor cycle engine designer to produce in his limited space a reliable, even turning motor under variations of load. It is not sufficient to produce an engine that will turn as slowly as two hundred and as high as five thousand revolutions a minute. This does not constitute flexibility, though some people appear to think it does. What is wanted is the motor that will give out ample power at widely different speeds.

The assistance of a variable change of gear goes a great way to assist a well-designed engine to attain its ideal, but even the use of a low ratio of gearing has its limitations, and then the balance of the engine and the method of its feeding with gas begins to count. Indeed, it is probably more a question of good carburation than balance to get a motor to run really slowly and at the same time propel a load, and it is very gratifying to see that the question of carburation in motor cycle engines is now receiving an amount of attention that it has until lately sadly lacked.

Recognising the need for encouragement in this direction, the A.C.U. has inaugurated a radical departure in the Six Days' Trials to be held in the North next week. This is none other than a flexibility test, pure and simple, over 250 yards of road with an upward gradient averaging 1 in 10. The machines will be expected to cover the first fifty yards at a speed not exceeding 7.2 m.p.h., and the remaining 200 yards at not less than 18 m.p.h.

At first sight these tests may not appear easy to perform on the up gradient selected, but we write with knowledge that officials of the A.C.U. have themselves passed these tests on a well-known 2¾ h.p. single machine and a single-geared 6 h.p. twin. We should like to emphasise to the full our approval of such tests, as we know they are of a nature to improve the breed of motor cycles far more than the mere letting of them to climb prodigious gradients.

British Supremacy.

IN studying the results of recent important competitions at home and abroad, one cannot fail to be struck by the undoubted supremacy of British motor cycles. In this country, with but a few exceptions, the home-made machine is universal. This also is the case with respect to most of the colonies, Canada being the exception, and the British machine is rapidly gaining popularity on the Continent. It was only natural that the British machine should predominate in the Manx Tourist Trophy Races the—"blue riband" of the motor cycling world, and, that being the case, it was to be expected that the winners of these races should be found amongst the home products. In the Senior Race, only one make of machine that was not British is found amongst those who got through, that being a machine which has been for years on the British market. In the Junior Race, one continental machine again appears in addition to the British makes.

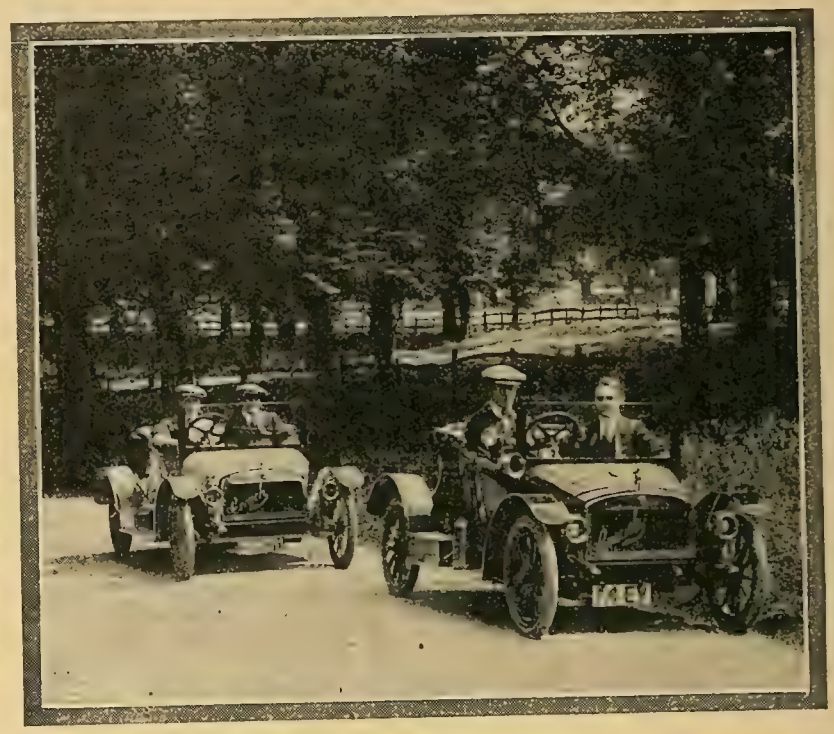
Turning now to the races which have been recently held on the Continent, it is gratifying to find that much the same state of things prevails, and we notice that not British riders only, but the continental cracks pin their faith to the English machine to a very large extent. Undoubtedly the most important of these races is the Grand Prix, recently held on the Picardie Circuit. Here, in the 500 c.c. class, British occupied the first four places, and there were in fact but three foreign machines in the first twelve. In the smaller class, 350 c.c, the English machines were not so prominent as usual, taking the fourth place only, but the first three machines were partly of British design.

More recently still, the Spanish T.T. Race, as it has been called, from Bilbao to San Sebastian and back, has furnished ample proof of British superiority, all the finishing machines in both classes with but one exception being English. The Spaniards to a man in the 500 c.c. class were upon English mounts. And last of all the English-Dutch Trial has ended in an overwhelming victory for Britain and British machines.

This, so far as it goes, is eminently satisfactory, and great credit is due to our English designers and workmen; but they must not rest on their laurels if they are to retain this position. The rear springing question will have to be gone into very carefully in the near future; lubrication must be made more certain and more effective, and should depend less upon the skill of the rider.

An Experience of a New Cycle Car.

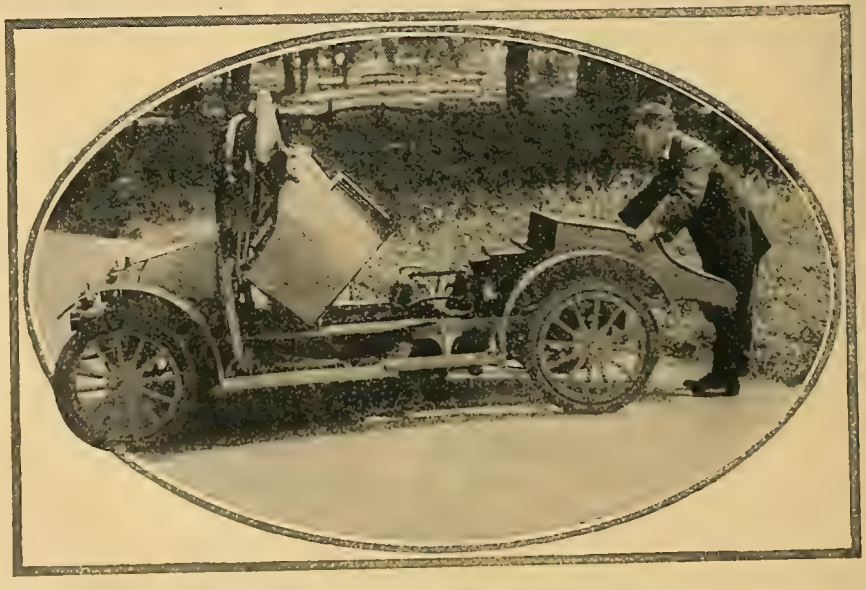
IT is some time since we had the pleasure of a run on a Crouch Carette, and Mr. J. W. F. Crouch, jun., last week, having two finished models ready for delivery to customers, kindly invited us to sample their running. Both were exceedingly smart-looking cars, fitted up complete, one finished in vermilion red and the other in French grey. The first car was built specially to the order of Mr. Taylor, of Messrs. E. S. Thomas and Co., Great Titchfield Street, London, and was named the "Pink Cat." We drove the last-mentioned car on the outward run, which was a short trip to Kenilworth, thence to Stoneleigh Hill, and what impressed us most particularly was the absence of noise, due to the engine being placed at the rear of the seats. Owner-drivers of cars with engines in front become accustomed to a certain amount of clatter from the valve tappets, but in the Crouch and G.W.K. this is strikingly absent. To those, therefore, who do not object to the seats being placed well forward to enable the engine to be disposed behind the seats, this construction possesses a decided advantage. Except for a little clutch slip, due to the newness of the cars, the two Crouches behaved themselves admirably, starting easily and pulling well on hills. Even on the lowest gear, engine vibration was noticeably absent.



Two new Crouch Carettes ready to be delivered to customers.

The comfort of the car left little to be desired, and the steering is very light indeed, giving even a stranger to a Crouch a feeling of confidence from the start. We changed driving seats on the return journey, the French grey car, which had had a week's running, proving slightly the faster and the better pulling car of the two. Among the features of the Crouch Carette is the door on either side, so that the driver may get out of the car without disturbing the passenger, and also the folding seat to render the engine, gear box, and transmission readily accessible. It is the work of a couple of minutes to open the doors and fold up the driving seats on their hinges, and then remove the tailboard and thus expose the whole of the working parts. The single chain drive provides a very smooth transmission.

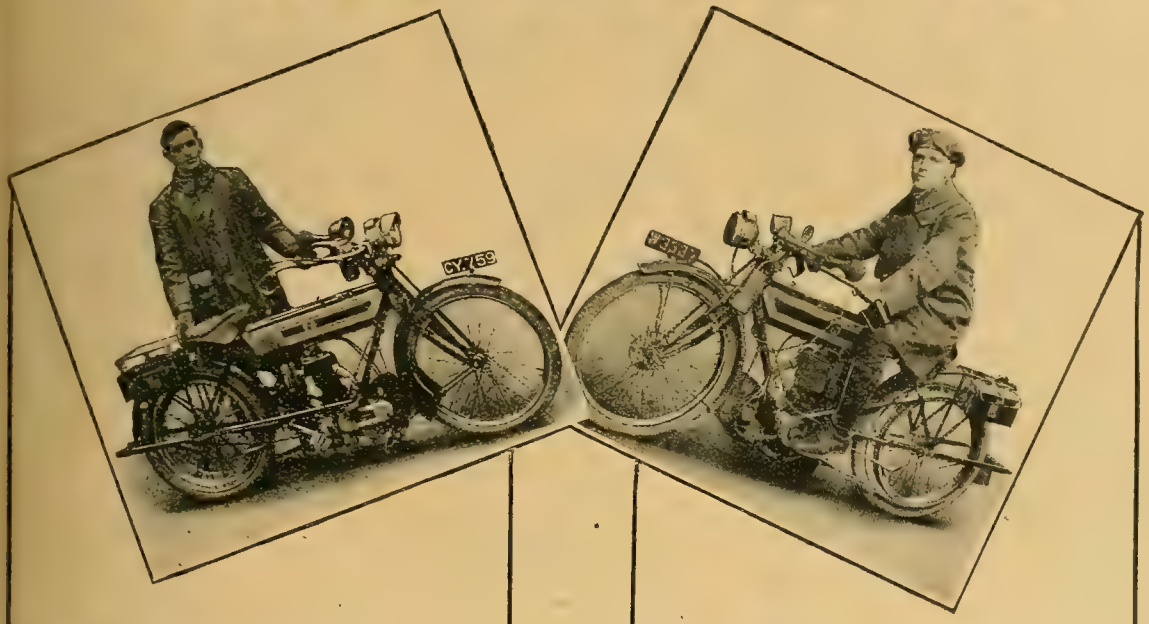
By the way, Mr. Crouch, having read our remarks on the need for differential gears for cycle cars, decided to dispense with these as an experiment, and according locked up the axle so that it ran solidly. He tells us that he found no evil effects from the use of the solid axle, in fact, it was almost impossible to detect that the differential effect on corners was absent. He is, however, of the opinion that when reversing and turning corners sharply tyre wear would be likely to be excessive, and for this reason he will continue to use differentials.



Showing the extreme accessibility of the Crouch. One minute suffices to fold up the seat and remove the rear portion, so exposing the engine, gear-box, and transmission.

Remarkable Reliability of the

TRIUMPH



Mr. T. Evans, Winner of GOLD MEDAL, in the Aberavon, Port Talbot, 230 Miles' Reliability Trial, on his 3½ Triumph.

Mr. Stephen Raynes, winner of the Sheffield to Holyhead and back, Reliability Trial for the Hutton Shield, 316 miles, on his 3½ Triumph, without loss of a single mark.

Anglo-Dutch Trial.

W. F. Newsome, 3½ Triumph .. .. .. GOLD MEDAL.
R. G. Mundy, 3½ Triumph .. .. SILVER MEDAL.
Highest possible Awards, only Two Triumphs competing.

Remember J. R. Haswell's, (the Amateur)

FOUR FAMOUS RECORDS

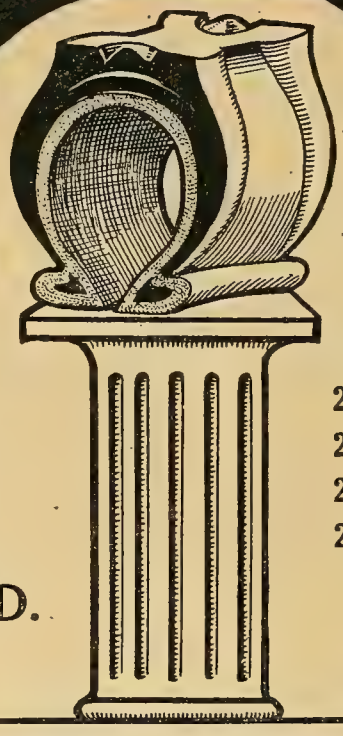
5 HOURS—6 HOURS—250 MILES—300 MILES,

Averaging nearly a Mile-a-minute.

TRIUMPH CYCLE Co., Ltd., COVENTRY.

KEMPSHALL THE SUPER-TYRE

with the 'Built-Up' reputation



THE ONLY REAL NON-SKID.

HEAVY NON-SKID.

26 × 2¼	52/6
26 × 2⅜	54/6
26 × 2½	56/6
28 × 2½	58/6

16 GOLD MEDALS, SCOTTISH TRIALS, 1913.

TEAM PRIZE AND GOLD MEDALS, A.C.U. SIX DAYS' TRIALS, 1909 : 1910 : 1911 : and 1912.

GOLD, SILVER, AND BRONZE MEDALS, SCOTTISH SIX DAYS' TRIALS, 1910 : 1911 : 1912 : and 1913.

Are you riding on Kempshalls? Their safety on treacherous grease and the wonderful resistance they offer to the puncture fiend are appreciated by all who know them. Complete list of all types sent free on receipt of a postcard.

THE KEMPSHALL TYRE CO. (of Europe), Ltd., 97-98, Long Acre, W.C.

Birmingham—Reginald G. Priest, 71, Lionel Street. Paris—John Sheen, 46, Rue St. Charles. New Zealand—Goldingham & Beckett, Ltd., Palmerston, N., New Zealand. Scotland—Percival E. Pole, 27, Jamaica Street, Glasgow. Telephone—No. 244 Gerrard (2 lines). Telegrams—"Studless, London."

OCCASIONAL COMMENTS

BY "IXION"

The Variable Jet Carburetter.

I feel considerable sympathy with the contents of "Autobore's" eulogistic letter anent the variable jet two-lever carburetter, as opposed to the genuine automatic type. He must plainly understand that the welfare of the industry depends upon the 99% of motor cyclists who are duffers, rather than upon the 1% who are engineers and driving experts. I have ridden thousands of miles with such a carburetter as he describes, and, ranking myself as a driver of some skill and experience, I prefer it to most types. Here is the reason why I took my last sample of this type off my machine: I was driving a different carburetter every week, often on different engines, and I found that the "mixture"—to revive a term of much meaning in the era of the surface carburetter—was excessively tricky. It varied not a little with the diverse jet adventures—perhaps more so then than with the 1913 model, which I have not had time to test. In my work of reporting trials as a journalist, or of competing in them in my private capacity on occasions, I found it a great nuisance to be uncertain as to where my air lever should be set for any given emergency, and so off came the variable jet two-lever in favour of a fixed jet two-lever, which was fractionally more efficient than any genuine automatic which I have tried. All this applies *a fortiori* to the raw novice, for whom the first machine at any rate cannot possibly be too simple. But I find that, except when I am in the mood for trying to do something difficult rather well, I prefer the automatic type for my own riding. At this present moment I am snatching a brief vacation at a very crowded and hilly holiday resort. I brought two carburetters with me, a fixed jet two-lever and an automatic. *Rubesco referens*—if you like; but I find that for lazily dodging the inebriated tripper, and the nut, who peers into the face of his flapper, the world forgetting and by the world forgot, I infinitely prefer the single lever type.

Engine "Revving" and Bearing Wear.

I am quite as discontented as "H.U." (page 958 in the issue of July 24th) with our present system of engine lubrication; but I think he is guilty of gross exaggeration when he insinuates that the average engine requires new big end and gudgeon pin bearings after so short a distance as 2,000 miles. A year or two ago, I found an engine of well-known make which certainly wanted a new big end bearing after every 2,000 miles spell, but it was a new engine, and it was the design of the bearing, rather than the system of lubrication, which made such early replacements advisable. I should say that, even in clumsy hands, the high-class modern engine is capable of doing a good 6,000 miles before the big end bearing gets noticeably sloppy. His insinuation, added to certain other complaints of a similar nature, led me to seek out two novice owners in my vicinity who bought leading 3½ h.p. machines early in 1912 and are still running them after mileages of about 11,000 and 13,000 miles respectively. We took these engines down completely, and in neither case was a new big end urgently necessary. In one case, the gudgeon pin bush was perfect; in the other, by a curious factor of which I am ignorant, the oilways had acted as a matrix, and had engraved themselves on the opposing surfaces. I confess that I cannot understand all this talk of worn gudgeon pin bushes, for my own ex-

MEMBERS OF THE ENGLISH TEAM CLIMBING KOP HILL.

Frank Smith (5-6 h.p. Clyno sidecar.)

R. E. Guest (Matchless sidecar).

W. F. Newsome (3½ h.p. Triumph with Philipson pulley) about to pass a Dutch rider.

Occasional Comments.—

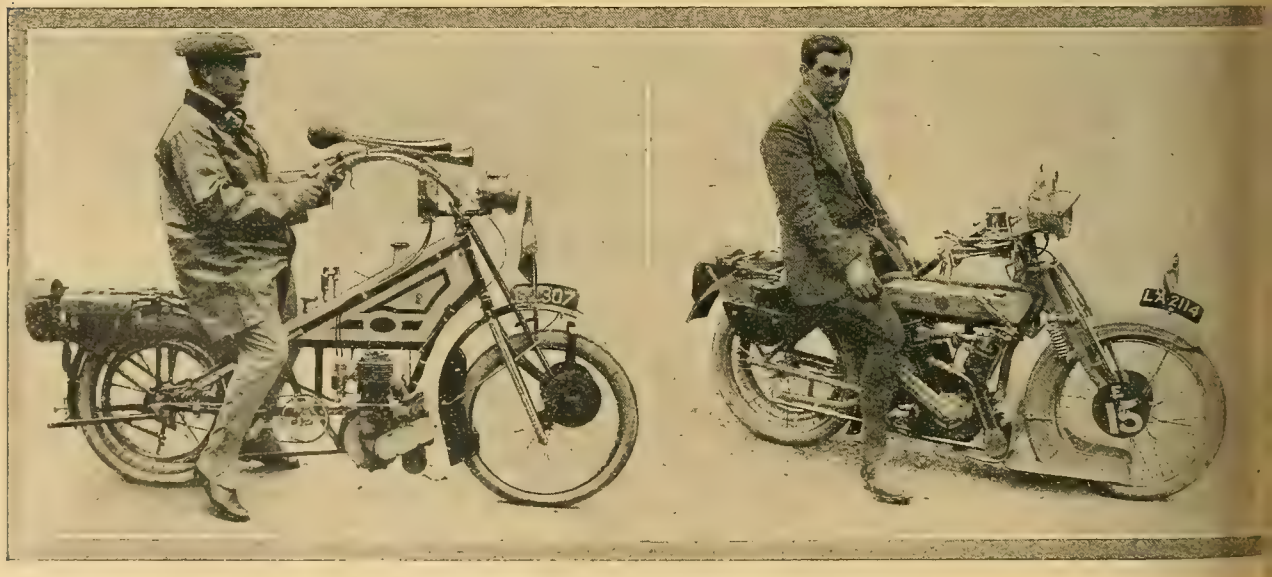
perience is that the little end is the last part of an engine to show appreciable wear. Some years ago I bought a light 5 h.p. twin for a novice friend, and within 100 miles of taking it over, he seized it so badly that the looped ends of the connecting rods, into which the big end bushes are driven, had pulled out oval, and the bushes themselves were recovered in the form of powder from the crank case; yet the gudgeon pin bushes were in such good order that we replaced them *in situ* when we repaired the engine. I should estimate, therefore, that the average life of a big end bearing is well over 6,000 miles, and that the little end bush is good for two seasons at least. In spite of this, I am, of course, an enthusiast for the W.D. or other sound system of forced lubrication. Has not my next door neighbour an inexpensive car which has done five years' hard work without asking for any of its engine bushes to be attended to at all? This may be due to a variety of causes, but certainly one of these causes is the more satisfactory system of lubrication which obtains on cars.

Tyre Holes Under Patches.

Trying for once to assume a purely judicial and dispassionate attitude, notoriously a difficult matter for us Irishmen, I must confess that my correspondents have made out an excellent plea for a verdict of guilty. There appears to be little room for doubt that holes do gape and split and widen under patches in prolonged wear, until a further air leak is set up as the hole extends towards the edge of the patch. We commit the future to the tyre makers and menders—they must try to make this impossible, if they can. In the meantime, we must take temporary measures in two directions: first, we must try to make our patches adhere evenly throughout their entire contact area; we must solution every square millimetre of that portion of the wounded tube which comes under the patch, and we must use one of the handy little spring presses now sold for holding patches in position while they are drying out; if such a press is employed, great care must be taken to prevent any surplus solution from trickling through into the interior of the tube. Secondly, we must study the best ways of removing an old patch, under which a puncture hole has split and extended. Benzole is not recommended; petrol is good; benzoline is apparently better: but above all a little judicious application of heat is very helpful. The heat may be obtained from the iron of the guidwife in the nearest cottage, but is usually to be obtained from the finless waist of the cylinder barrel. There we must leave the matter for the moment. It is a weakness of little moment to men who do not run their tubes to destruction, for my enquiries have not revealed a single instance of a hole splitting to overlap a patch within three months of its application thereto.

The Best Carrier Straps.

From the littered condition of highroads at holiday times, and from various lists and advertisements of articles lost or found, it is obvious that many motor cyclists do not know how to attach luggage to a carrier in a secure fashion. In my time I have lost nearly every imaginable part of my machine, excluding the engine, but at last I have learnt how to tour in comfort without continually twisting my wrist behind me to discover if my kit is still safely aboard. I have utterly abandoned the long narrow straps sold by most dealers and used by most riders, and I have adopted what is practically a leather belt as a carrier strap. I use two, or even three, long, broad, flat straps usually as much as 3in. wide, and only thin enough to enable them to pass between the tops of the pannier toolbags and the tubular sidebars of the carrier. I own a proper punch, with which I stamp clean round holes along the whole length of the belt or strap: if this is not done at the outset, a knife is sure to be used, sooner or later, and with disastrous results. Two of these belt-straps will grip a small handbag and a suit of oilies as in a vice.



EXAMPLES OF ENGLISH AND DUTCH MOTOR CYCLES.

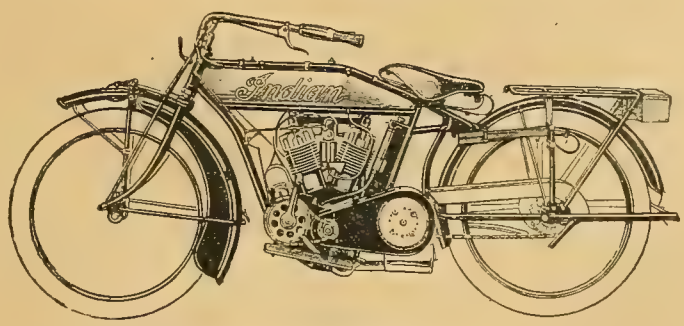
J. M. Bergmans, 4 h.p. Simplex the huge handle-bars of which are a feature.

R. G. Charlesworth, who successfully rode a new pattern Zenith with 6 h.p. M.A.G. engine.

There is no mistaking the power of the Silent Red

Indian

it is where it should be—right in the engine. Riders of Indian motor cycles have that confidence which comes from possessing a machine of absolute dependability. Indian credentials are not mythical, but consist of brilliant performances and the annexing of innumerable records the world over. Investigate the Indian.



Indian machines comprise 3½ h.p. Single and 7 h.p. Twin models. Both are fitted with the well-known chain transmission.

"THE SILENT INDIAN"

THE HENDEE MFG. CO., 178, Great Portland Street, LONDON, W.

Goods and Small Repairs: 89, BOLSOVER STREET, LONDON, W.

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THE

3½ h.p. ROVER

EVER SUCCESSFUL.

SCOTTISH SIX DAYS' TRIAL.

Three Rovers entered and all obtain Gold Medals.
THE TEAM PRIZE also won on 3½ h.p. Rovers.

ANGLO-DUTCH INTER-TEAM TRIAL.

W. D. H. Noble, on 3½ h.p. Rover, obtains Silver Medal.

M.C.C. TRIAL in DEVON.

W. H. Karslake, on 3½ h.p. Rover, first in Class B, Countisbury Hill.

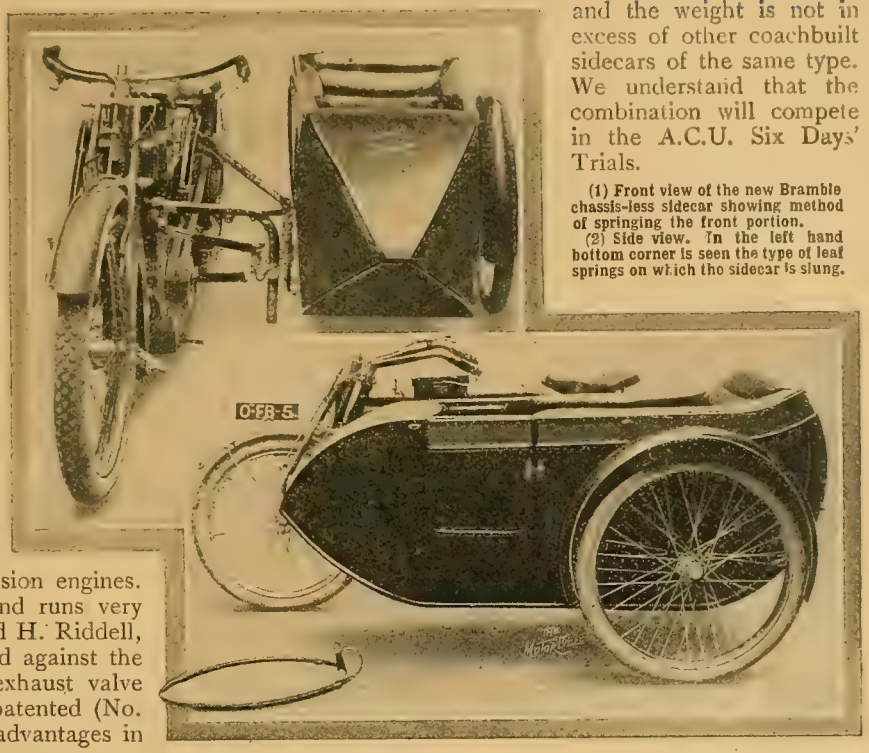
HAMPSHIRE M.C. UNION.

Mr. Matthews, on 3½ h.p. Rover, obtains first award in sidecar class.

The Rover Co., Ltd., Coventry.

A NOVEL SIDECAR.

WE recently had a short but pleasant run in one of the latest Bramble sidecars. This has practically no chassis in the usual acceptation of the term, the necessary channel steel frame being entirely hidden by the sidecar body. This frame is underslung, in the rear by springs such as that shown separately in the lower photograph, and in the front by two small spiral springs. Four-point suspension is employed. The sidecar is well upholstered and comfortable, it has a roomy box below the seat, and the combination steers very well, it being possible to drive without touching the handles. The machine to which the sidecar was attached consisted of a Matchless frame to which was fitted one of the latest 8 h.p. Precision engines. This engine is distinctly powerful and runs very cool; after some miles at a fair speed H. Riddell, the driver, was able to hold his hand against the cylinder without discomfort. The exhaust valve lifter is very neat. The sidecar is patented (No. 4,357, 1913), and possesses many advantages in the way of easy cleaning and neat appearance, and the weight is not in excess of other coachbuilt sidecars of the same type. We understand that the combination will compete in the A.C.U. Six Days' Trials.



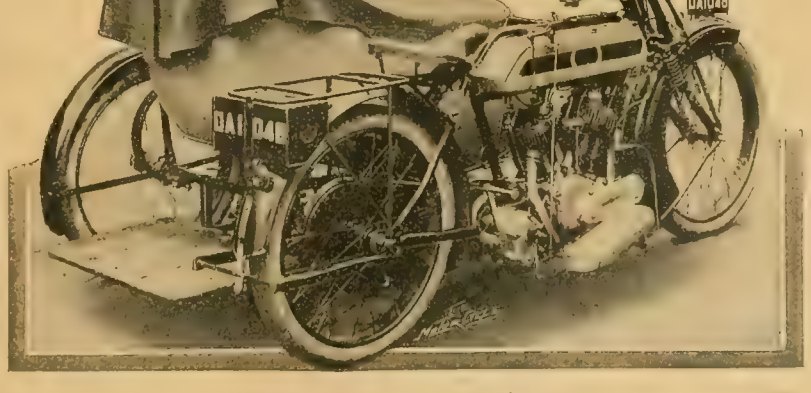
(1) Front view of the new Bramble chassis-less sidecar showing method of springing the front portion. (2) Side view. In the left hand bottom corner is seen the type of leaf springs on which the sidecar is slung.

2,000 Miles on an A.J.S. Sidecar.

IT was early in March last when we took delivery of a 6 h.p. A.J.S. and Millford sidecar, and having ridden this combination over 2,000 miles we are in a position to give our experiences regarding its behaviour. Few motor cyclists are unfamiliar with the A.J.S. twin engine, and its three-speed gear box and method of transmission, as details of these features have been published in *The Motor Cycle* on more than one occasion. The machine we ordered was a standard one in all particulars except tyres, the latter being 650 × 65 mm. Roms, the sidecar having a 26in. × 2½in. Continental. The day we fetched the combination from the works at Wolverhampton was about as bad a day as it was possible to have for motor cycling. Alternate frost and thaw had loosened the road surface, and it rained nearly all the way home, so we were therefore quick to recognise the advantages of enclosed chain transmission, and the efficient mudguarding which kept the engine, magneto, gear box, and all vital parts practically dry and free from mud.

Little Attention Needed.

The mileage accomplished up-to-date comprises undulating Midland roads, the Cotswold hills, the loose and gritty surfaces of Hampshire and the New Forest, a four along the South Coast from Bournemouth as far as Plymouth, and from Plymouth to North Devon over Dartmoor. When we say that beyond adjusting the chains and front wheel bearing we have done absolutely nothing to the machine, and nothing to the engine except grinding the exhaust valves, readers will possibly conjecture that we must be somewhat careless, but there has been nothing in the way of mechanical troubles so far, and we do not think any motor vehicle could possibly be more reliable.



A standard 6 h.p. A.J.S. three-speed sidecar outfit.

2,000 Miles on an A.J.S. Sidecar.—

The sidecar seat is of cane, and fitted on one of the 1913 Millford Cabrio dropped chassis; it is beautifully sprung, and the passenger considers it far more comfortable to ride in than the rear seat of the average small car which she has tried.

The advantages of the A.J.S. twin are a smooth running, quiet engine which never overheats, a three-speed gear which changes readily and without noise or jar, its lowest ratio being capable of taking the combination with driver and passenger and a reasonable amount of luggage up any hill—in fact, it will do this with the second speed in use on all but the severest hills in the country. The clutch acts sweetly, and being hand-controlled can be manipulated with great delicacy; the brakes are adequate for any hill, and, with one or two exceptions in Devon, the powerful rear hub brake, which is internal expanding metal-to-metal like a car brake, is more than sufficient to hold the weight of the combination when required.

The R.O.M. 650 × 65 mm. tyres fitted to the motor cycle and the 26in. × 2½in. Continental on the sidecar wheel have given admirable results in the two thousand miles they have covered.

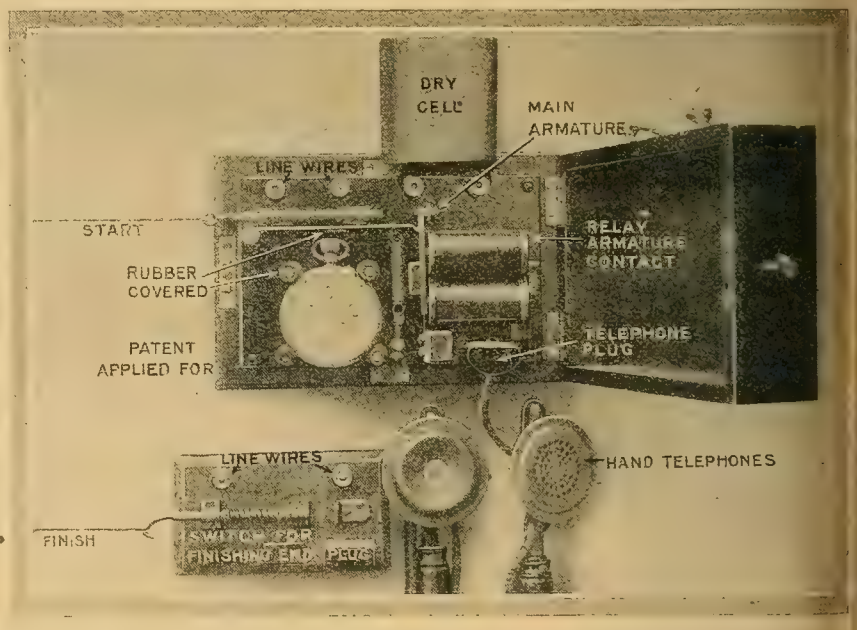
A Mechanical and Electrical Timing Device.

As the intricacies and cost (not to mention the failure at a critical moment) of electrical timing for hill-climbs and speed competitions seem to have been abandoned in favour of flag timing or the telephone method—in both of which the "personal equation" is bound to enter—absolute accuracy being impossible, the following description of a simple, certain, and "fool-proof" method may be of interest.

Referring to the photograph, it will be seen that when the thread stretched across the road, attached to the spring bar marked "Start," is broken (the watch, etc., are fixed at the starting end of the course), the bar, in springing back, impinges on the armature of the electro-magnet, releasing the spring bar over the watch, thus starting it. (So far no current is used.) All the operator has to do is simply to lift the bar back on to the catch on the armature. At the finishing ends, the thread is also stretched across the road (or contact strips may be laid on the road), holding back a spring bar or switch, which simply makes the circuit on being released. A weak current flows along the line (owing to its resistance) just sufficient to move the very light armature shown in the photograph (though not very distinctly) on the right-hand end of the electro-magnet (which acts as its own relay). This cuts out the whole of the live wire, directing the current in full round the magnet, which pulls the main armature, releasing the flat bar and stopping the watch. The watch is held in rubber-covered buffers, and the flat bar also has a piece of rubber attached where it comes in contact with the watch, to prevent any jar or injury to it. In falling, this bar breaks the circuit, so that the only current used is for the very small fraction of a second taken in moving the main armature.

At both the watch end and finishing switch two plug holes are suitably connected, into which it is merely necessary to insert the plug of each hand telephone, speech being quite easy and distinct with ordinary metaphone instruments over a kilometre (the only distance the writer has been able to try it, though he has not the slightest doubt it would be quite as good over a mile course).

The current used is very small, one of the dry cells used in hand flash-lamps, and sold at 5d. each, being sufficient to work the whole apparatus for a dozen competitions; and there are no switches to be put on or off (and probably forgotten at the wrong moment). On a two-line cable (18 S.W.G.) the telephone cannot be used while the machine is running between the two points, but as soon as the motor has passed the finish the plugs are inserted for speech. On a three-line cable the telephone could, of course, be used quite independently of the watch apparatus, using one line common to both circuits.



Simple and inexpensive, mechanical and electric timing device, suitable for use in hill-climbs and speed tests.

The size of the whole affair can be judged in comparison with the watch. Including the mahogany lock-up case, the outside measurements are 7 × 4¾ × 2 inches over all, and the weight, including telephones, watch, cell, and finishing switch (everything excepting live wire), is under 6 lbs. When the live wire is laid it is only necessary to attach the two ends to their respective terminals at each end, put the cell in position, wind up the watch, and, beyond lifting up the bar after the start, the instrument does the rest

Road shocks and—YOU.

After all, the road shock and your touring pleasure never quite agree.

There is nothing more responsible for the fatigue that spoils that pleasure than the road's irregularities, and nothing that will more successfully nullify that baneful influence than a saddle scientifically constructed.

A saddle which will spring without bouncing, be entirely free from roll or side-swing and form a steady stable seat at all speeds and under all conditions.

Such is the

BROOKS B 220—

the most successful "go-between" between "Road shocks and—you."

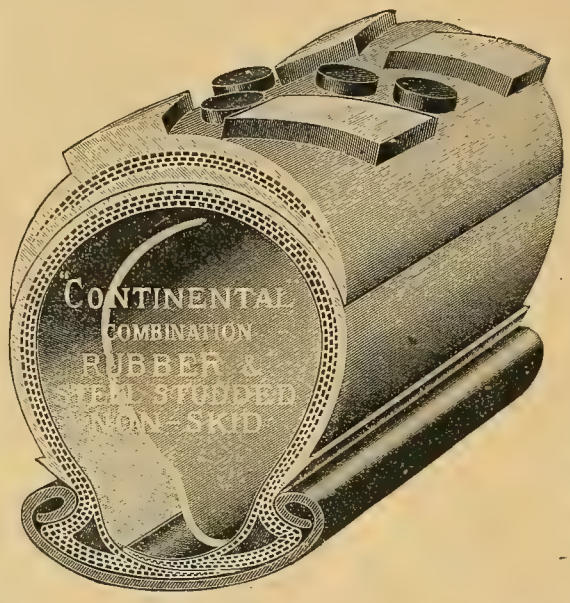
B220—the ideal high-speed touring Saddle, giving an exceptionally low-riding position; seat is suspended on a patented form of laminated springs which, while allowing free movement in a vertical direction, and absorbing all shocks arising from an indifferent road surface, eradicated all tendency to roll, bounce, or side-swing. Price 30/-

Ask for the BROOKS BOOK.

J. B. BROOKS & Co., Ltd.,
49, Criterion Wks.,
BIRMINGHAM.

Note that a full range of the BROOKS Cycle and Motor Cycle Specialities may be seen at our **London Showrooms—Criterion House, 11, Grape Street, Shaftesbury Avenue, W.C.** *(Oxford Street end).*

FOR PASSENGER MACHINES.



You pay more for a heavy machine than a light one, and must expend more on adequate tyres. Our

Combination Covers

are specially made for "big" work, uniting great strength with prevention of skidding.

Made in Sizes: 26 × 2¼, 26 × 2½, 26 × 3.
For "Indian" Machines, 28 × 2½ × 2¼, 28 × 3.
For Voiturette Rims, 650 × 80 mm., 700 × 80 mm.

"Continental"

Undoubtedly the finest "All-rubber" Non-skid for use with the heaviest types of passenger machines is the

Autobi Cover

for Voiturette Rims only.

SIZES:
650 × 65 mm.
650 × 75 mm.

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CONTINENTAL TYRE & RUBBER CO. (Gt. Britain), LTD.,
3/4, THURLOE PLACE, LONDON, S.W.

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In answering this advertisement it is desirable to mention "The Motor Cycle."

Anglo-Dutch Trial

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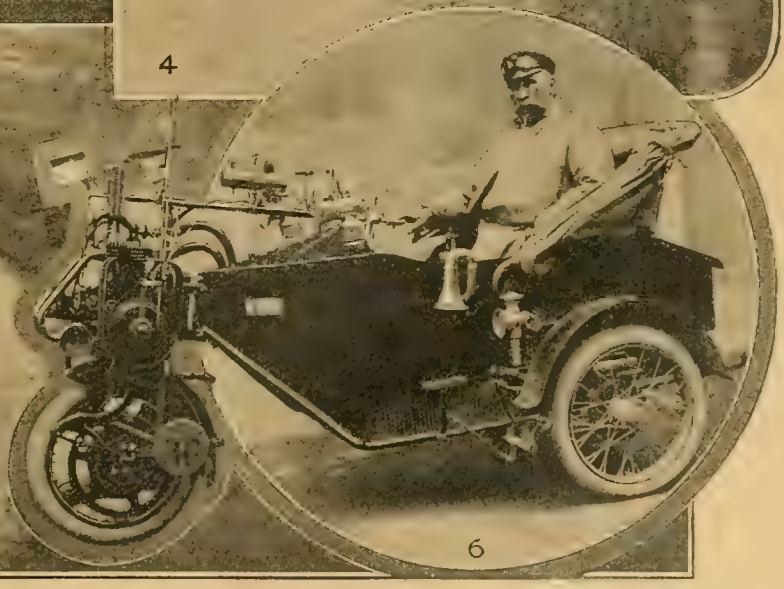
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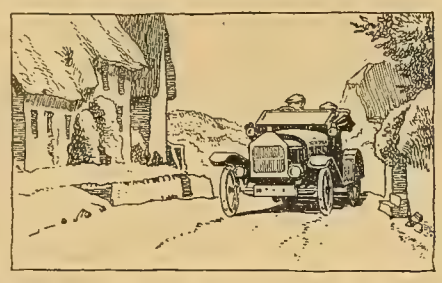
(1) J. van Franlenhuijsen (Douglas) leaving Pangbourne. (2) A. E. C. van Dongen (7 h.p. Indian sidecar) on the hill leading out of Pangbourne.
(3) W. F. Newsome (Triumph) at the top of Beacon Hill. (4) A Dutch competitor being assisted up Kop Hill by another fallen comrade
(5) R. G. Mundy (Triumph) and D. H. Noble (Rover) climbing Kop Hill side by side. (6) J. L. Geidt on the 6 h.p. Cyclonette, which is a thoroughly reliable machine, and attracted much interest throughout the trial.



Dispensing with the Differential Gear.

By ERIC W. WALFORD.

THE designer of the cycle car who endeavours to produce a satisfactory vehicle within the £100 limit is at present almost bound to avoid the conventional motor car live axle construction, and for the most part one of two alternatives is adopted. In the one case one wheel alone is driven, whilst in the other the axle transmits its torque to both road wheels through over-running clutches.

There is, however, a third construction which is, perhaps, more satisfactory, which is simply to dispense with the differential and drive through both wheels, but none of these arrangements are, of course, novel, having been employed in the early days of motor cars.

There are many arguments for and against dispensing with the differential gear, but the most potent is probably the saving of cost. It seems strange, however, that differential gears cannot be purchased on the open market in this country in the same way as they can in America. In that country there are large manufacturing concerns who specialise in particular parts of a motor car, such as the universal joints and the differential gear, with the consequence that a sound differential can be bought at a very low figure, and it would seem that if a manufacturing firm laid itself out to produce inexpensive differential gears this could be done at a very low cost.

A Notable Case.

On the Sunbeam Grand Prix racing cars for 1913 the differential gear was dispensed with altogether, the road wheels being bolted directly to a single live axle shaft. The conditions to which this car was exposed were not, however, quite the same as with a cycle car. A racing car is driven at a high speed, and when taking a corner it heels outwards considerably, and there is but little weight on the inside wheels, with the consequence that the inner back wheel is free to slip without doing much damage to itself. The main object of dispensing with the differential gear in this case was to reduce as much as possible the unsprung weight, and also to prevent loss of power due to the wheels spinning freely in the air. In the ordinary case when one wheel leaves the ground it is, owing to the presence of the differential gear, free to spin at a higher velocity than the wheel on the ground. When it comes down on to the ground again, not only is power lost but the tyre also skids considerably.

From the short experience of these racing cars up to date, tyre wear does not seem to be greater than ordinarily obtains, but doubtless such an arrangement would not be suitable for, say, a taxicab. Immediately after the Grand Prix Race I asked Mr. Coatalen his experience of the type of back axle which he used, and he informed me that it was very satisfactory, and that he found the car would hold the road better than if a differential were fitted. While driving, the absence of the differential could not be detected. Dispensing with a differential gear in this way also possesses certain advantages with regard to braking and side-slip.

The Advantages of Single Wheel Drive.

In cases where a single road wheel only is driven, there is an advantage that such a vehicle is very little liable to side-slip. It is well-known now, and was originally pointed out by the Editor of *The Autocar* in March, 1906, that if one wheel at each end of the car is allowed to run free, *i.e.*, is neither driven nor braked, the car will not easily side-slip. It is for this reason that a motor bicycle with sidecar is so stable, and I am informed by a cycle car manufacturer that this theory is borne out in the machines of his make in which a single back wheel provides the propulsion.

When the road wheels are fitted on over-running clutches the brakes must, of course, be arranged on the wheels themselves, and if provision for reversing is made, the over-running clutch system must be more or less complicated, so it is debatable whether the cost of production is reduced. Again, with this arrangement the engine cannot be started by letting in the clutch when the vehicle is moving.

Automatic Clutch Gear.

In the third alternative each road wheel is driven from the shaft through a friction clutch, and the clutch forks are so connected with the steering that when turning to the right, say, the right hand clutch is withdrawn, propulsion being always by the outside wheel. This overcomes the chief objection to the single wheel drive, namely, that when turning a corner with the driving wheel on the inside the gear ratio is greatly increased. For instance, with a cycle car of this type climbing Sunrising Hill it might be that the gradient in itself is well within the scope of the car's ability, but the right hand turn will so raise the gear ratio that the machine will fail if it was at that time driving through the right hand wheel. Of course, it is only on a sharp bend that this effect is of much importance, but it is on many of the steepest hills that the sharpest of bends are to be found.

There is, of course, another alternative in which the rear wheels are driven by separate belts through a counter-shaft, no differential being used, the supposition being that the belts slip, and possibly this is a very good construction, as it would seem to give the advantages of the differential-less arrangement without the disadvantages of a single wheel drive.

Avon Motor Cycle Tyres

Suitable for all climates.

TRICAR.

24in., 26in., and 28in. diams.

2¼in. **40/-**
2½in. **42/6**
26 x 2½in. to fit 2¼in. rim **45/-**
26 x 3in. to fit 2¼in. rim **50/-**

SUNSTONE.

26in. only.
2¼in. section, **45/-**
2½in. „ **50/-**

Made by our new Electro-Hydraulic process, which ensures uniformity in casing and tread, and produces a superb finish.

BICAR.

24in., 26in., and 28in. diams.

2¼in. **32/6**
2½in. **34/3**
26 x 2½in. to fit 2¼in. rim .. **36/9**
26 x 3in. to fit 2¼in. rim **41/9**

Suitable for 3½ to 5-6 h.p. machine.

STONEHENGE.

24in., 26in., and 28in. diams.

2in. **25/-**
1¾in. **26/9**
2¼in. **28/6**
26 x 2¼in. to fit 2¼in. rim **31/-**

Extra strong casing.

TUBES
(fitted with Motor Cycle Valves).

24in., 26in., and 28in. diameters.

AVON Quality (Red).		NOVA Quality (Red).	
1¾in.	**8/-**	1¾in.	**6/9**
2in.	**8/9**	2in.	**7/6**
2¼in.	**9/6**	2¼in.	**8/3**
2½in.	**10/3**	2½in.	**9/-**

All motor cycle tubes can be fitted with the Avon Dome Ends at **2/-** each extra.

DRUID.

24in., 26in., and 28in. diams.

2in. **21/-**
2¼in. **22/9**

Also 26in. x 1¾in... .. **19/3**

Suitable for 2¾ to 3½h.p. and Sidecar wheels.

Lightweight A.

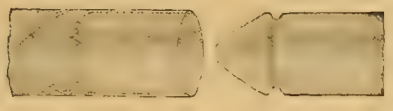
24in., 26in., and 28in. diams.

2in. **17/9**
2¼in. **19/-**

Also 26in. x 1¾in. **16/9**

As a cheap cover this cannot be beaten.

AVON DOME ENDS.



Easily fitted. Easily detached.
Registered No. 572,420.

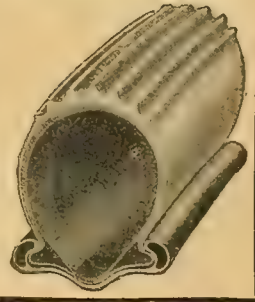
Lightweight B.

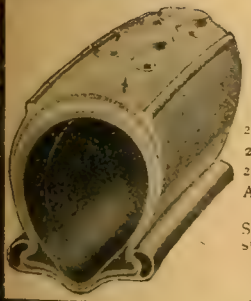
24in., 26in., and 28in. diams.

2in. **15/6**
2¼in. **16/3**

Also 26in. x 1¾in. **14/9**

A special grade at a special price.





COMBINATION.

24in., 26in., and 28in. diams.

2in. **42/3**
2¼in. **44/-**
2½in. **45/9**
Also 26 x 3in. **49/3**

Steel and rubber studs: an ideal all-weather non-skid.

AVON MOTOR CYCLE BELTS.

⅝in... .. **1/4** per foot. ¾in. .. **1/10** per foot.
¾in... .. **1/7** „ „ 1in. .. **2/2** „ „
1¼in. .. .. **2/7** per foot.

RETREADING (any make of Cover).

26in. or 28in. x 2in., 2¼in., or 2½in.

Extra heavy tread, Round Stud or 7-ridge pattern	**12/6**
Medium heavy tread, Round Stud or 7-ridge pattern	**10/6**
Combination tread	**22/6**
Steel-studded tread..	**28/-**

Steel-Studded.

24in., 26in., and 28in. diams.

2in. **45/9**
2¼in. **47/6**
2½in. **49/3**
Also 26 x 3in. **52/9**

Specially constructed studs, large base.

THE AVON INDIA RUBBER CO., LIMITED, MELKSHAM, WILTS, ENGLAND.

Telegrams: "Rubber, Melksham." Codes: A.B.C. 5th Edition Lieber's and Western Union. Telephone: No. 2 Melksham (3 lines).

LONDON: 19, Newman St., Oxford St., W. BIRMINGHAM: 202-4, Corporation St. GLASGOW: 250, Buchanan St.
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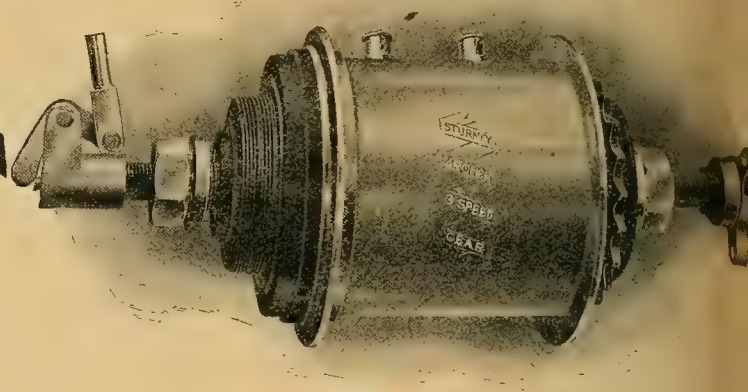
Large Stocks kept at all our Branches. Also at most High-class Motor Cycle Depots.

Whatever machine you ride, see that the Tyres are AVONS.

Scottish 6 Days' Trial.



Sensational Performance by Mr. Hugh Gibson

on 3½ Bradbury-Sidecar with

STURMEY-ARCHER
3-SPEED GEAR.

Mr. Hugh Gibson writes us: "I have succeeded in climbing every hill on the course (all observed)—gaining full marks and gold medal.

Applecross, Amulree, Spittal of Glenshee, Berriedale, Glendoe, etc., etc. All these giant hills were conquered by the aid of the Sturmey-Archer Gear, and you could have no finer advertisement of the reliability of the gear."

Speaking of Mr. Gibson's ascent of Applecross, "Motor Cycling" says: "Before the performance most of the competitors would have said that it was an impossibility for it to be accomplished."

New booklet post free from—

STURMEY-ARCHER GEARS, LTD., NOTTINGHAM.

STAR IMPROVEMENTS.

THE Star Engineering Co., Ltd., Wolverhampton, have made several important improvements to the 4 h.p. Star, which is a single-cylinder chain-driven model with three-speed counter-shaft gear suitable for sidecar touring.

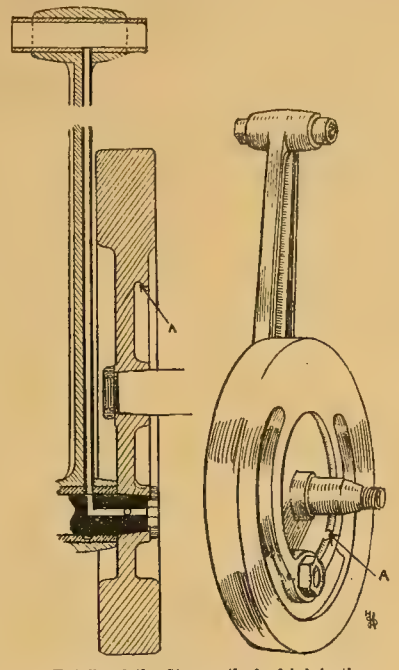
The original gear-changing levers have been discarded, and are now replaced by a quadrant and lever on car lines, the former being attached to the bottom rail under the tank. The lever terminates in a round knob, and is fitted

The Star silencer, showing internal arrangement.

with a spring catch. The *tout ensemble* is neat and workmanlike. The cone leather-covered clutch on the engine-shaft is pedal operated, the levers have been made neater, and the pedal placed in a more convenient position.

A Clean Crank Case.

A slipping clutch is provided on the counter shaft chain wheel. A fibre disc forms the slipping medium, and is held by a strong coil spring between two steel plates. This is intended to absorb any sudden shock which might, owing to careless driving, have a tendency to break the chains. The right half of the crank case, timing gear box, and magneto chain case are all formed in one casting, thus preventing any possibility of oil leakage. The opening for inserting the magneto chain is on the top of the case, and at this point there is a cover and joint, but this and the timing gear box cover are the only places where oil could possibly exude; the result is a clean crank case. A decompressor has been added. This is entirely enclosed in the timing gear box, and is operated from the handlebar by a lever, which, on being moved to its fullest extent, operates an exhaust valve lifter mechanism, which is combined with the decompressor. Large coil springs are fitted under the footboards, which are hinged in front.



Details of the Star method of lubrication. Left flywheel and connecting rod. Right section of flywheel and rod showing oil path. A.A., oil trough.

The silencer has been enlarged, and now consists of one long expansion chamber divided by a circular partition into two compartments. The exhaust pipe runs through the centre, and is stopped midway. Holes drilled in the first half of the pipe allow the gases to expand into the first compartment, thence they flow into the second compartment through holes in the partition, and again expand, entering the final exhaust pipe through another series of holes.

The subject of lubrication is a vexed one, but the Star Cycle Co. claim to have solved all oiling troubles with their system, which functions by centrifugal force.

Centrifugal Lubrication.

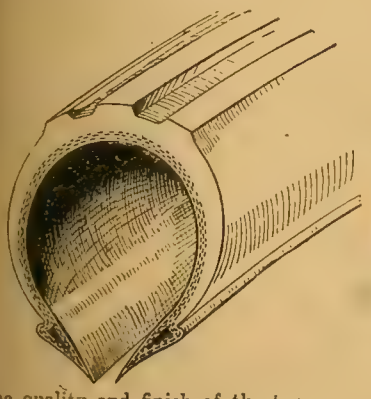
On the tank is a sight drip feed, and the oil flows from this to the timing gear case. On the side of the flywheel next to the timing case is cast a trough, which extends right round except at the boss for the crank pin. The oil is led from the timing case by holes, so that it falls into the trough, and when the engine is running centrifugal force drives the oil from the trough along holes which communicate with the crank pin bearing. From this point it is conveyed up a copper pipe secured to the recessed side of the connecting rod and to the gudgeon pin bearing. The gudgeon pin is hollow, and after the oil has lubricated this bearing it is driven along the hollow pin to each side of the piston, where it lubricates the cylinder wall and falls into the crank case.

Mr. Bradford, of the Star Co., informed us that this lubricating system has given entire satisfaction, and we had ocular proof that the oil so circulated reaches every part of the engine.

AMONG THE ACCESSORIES.

A Substantial Cover.

What appears to be a substantial cover is one sent us for inspection by Messrs. Armstrong and Co., 24, Goldhawk Road, Shepherd's Bush, London, W. It is known as the 26×2½in. Armour Grade 1 heavy three-ribbed cover, and

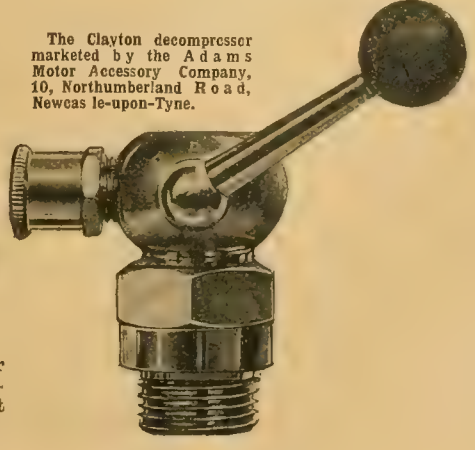


the quality and finish of the tyre appear to be excellent. Readers having powerful machines would do well to inspect this make of tyre.

The Clayton Decompressor.

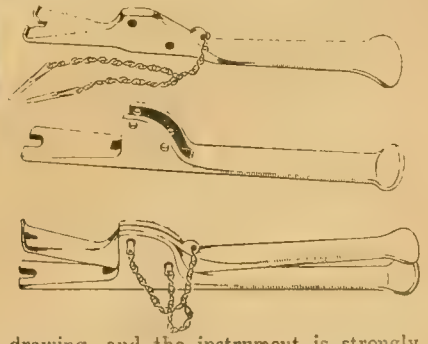
This decompressor is in the form of a two-way tap fitted with a non-return ball valve. The ball is kept in position by a spring, the tension of which can be varied so as to obtain any desired variation of compression of the cylinder. The operating lever has three positions, the first making the decompressor serve the purpose of an ordinary compression tap, the second bringing the decompressor into operation, and the third being the off position. The article appears to be well made, and is well finished.

The Clayton decompressor marketed by the Adams Motor Accessory Company, 10, Northumberland Road, Newcastle-upon-Tyne.

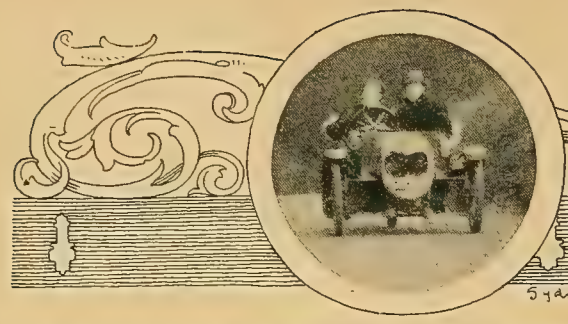


A Useful Implement.

We illustrate a neat tool which combines the offices of a valve lifter and tyre lever. Its action is clearly shown by our



drawing, and the instrument is strongly made and well finished. Its price is 2s. 6d. black or 3s. 6d. nickel-plated, and it may be obtained from the Service Co., Ltd., 292, High Holborn, W.C.



BENZOL AND HOW TO USE IT.

THE following are extracts from an interesting booklet issued by the Petrol Substitutes Joint Committee, which can be obtained by motorists on application to the secretary, Mr. Stenson Cooke, Fanum House, Whitcomb Street, London:

Benzol is a colourless, volatile, and highly inflammable liquid of the hydro-carbon series. In appearance it is very similar to petrol, but chemically there is considerable difference, and it can be divided into various series, *e.g.*, paraffin, olefines, and benzines. Speaking generally, the majority of benzoles are mixtures of the three series mentioned in varying proportions, and they are obtained either by extraction from coal gas, or recovered from the distillation of tar.

It is essential that good quality spirit only should be used. An unwashed or insufficiently washed spirit cannot prove successful. If in appearance the spirit is of water-white colour it is probably of good quality. A yellowish appearance argues caution, although under certain circumstances it may be quite suitable. The only safe way to prove whether a spirit be suitable or unsuitable is by means of a chemical test which indicates the extent of the presence of coumarine.

Coumarine is a dark, sticky, oily-looking substance, which, if present in the spirit, deposits itself on the valve stems near the heads, trickles down into the guides, and after a time "gums up" the valves, prevents their prompt return to their seats under spring pressure, and so renders the engine inefficient.

How to Use Benzol.

With the majority of carburetters benzol may be used equally as well as petrol. When first using it, do not alter the carburetter. After about a twenty mile run, notice if there is any sign of extra heating about the engine generally, or if the exhaust gases are extra hot. If extra heat is observed, adjustment of the carburetter is needed. In carrying out any adjustment of this nature, although somewhat paradoxical, it is a practical truism that benzol gives better results on the less-benzol-to-the-same-air idea than it does on the same amount of spirit with more air. This is an argument, therefore, for reduction of jet orifice.

After a run of about fifty miles, remove, say, a plug in one of the front cylinders and a valve cap in one of the rear ones. If there is anything in the nature of a sooty deposit, reduce the size of jet orifice. At the end of the next 100 miles do the same, and so on until such time as the right proportion has been obtained and the car runs without any deposit of soot at all. These successive jet reductions should be very slight.

As benzol is a stronger solvent than petrol, temporary troubles may be caused by paint (from the inside of the tank), small pieces of rubber, etc., which were innocuous in petrol being carried into the jet by benzol. If such troubles should occur, fill the tank with benzol overnight, and empty it in the morning, through a strainer. Particular care should be taken not to spill benzol on the coach work of cars, as it may attack the paint or varnish.

No Engine Knocking and its Lesson.

Another feature is that the use of benzol will stop knocking in practically all cases where engines are inclined to knock on petrol. The motorist, therefore, must bear this fact in mind and not "hang on" unduly to the top gear on hills just because he notices that the engine does not knock, otherwise excessive strain is being put upon the bearings, gudgeon pins, etc.

The prevalent idea that an extra air valve is needed with benzol is not correct. With the older type of carburetter, an extra air inlet may prove advantageous, but it is preferable to go on the lines of jet reduction with the same air inlet than to try to use the same quantity of spirit with additional air.

In addition to reducing the size of jet orifice, it is also desirable to raise the level of the spirit in the jet in order that it will flow more easily, thereby facilitating efficient carburation. This can be done in a number of ways, one of the simplest being to add to the weight of the float by placing a washer on top.

More Power and Mileage.

From 12% to 15% more power is obtainable when using benzol, and an increase of something in the nature of 20% more mileage per gallon. This latter fact should be borne in mind in regard to the question of price. Really good benzol commands a fairly good price at present, and undoubtedly there are a large number of benzoles obtainable at the moment on the open market which are superior to petrol. If, after trying benzol and attending to the points enumerated in these notes, the motorist does not get good results, then it is time to put a query through to some authority on the subject and try and find out the reason.

LOST AND FOUND.

We receive many letters regarding accessories, etc., both "Lost" and "Found," which we are unable to find space for. As these particular matters are of interest to two persons only, viz., the finder and the loser, we keep a list of such articles, and, should we receive a letter from the finder which corresponds to the article lost, the two persons are put into communication.

Make Pal-a-tine a "Pal-o'-tine"

You can rely upon Palatine Tyres as you would upon a "pal." They are specially made to relieve the motorcyclist of all anxieties of tyre troubles. Punctures, cuts, skids, or bursts are no longer to be feared when "Palatines" are fitted. In every respect—strength, durability, resilience, mileage and speed—they are perfect. Alone amongst motorcycle tyres they have received the A.C.U. Reliability Certificate. This is the hall-mark of excellence. And "Palatines" cost no more than ordinary tyres.

20, Gorse Road, Blackpool, July 29th/13.

Dear Sir,

I have much pleasure in informing you that I was successful in winning the Cup for the best performance with a sidecar combination in the Annual Reliability Trial of the Blackpool and Fylde M.C.C. held on Sunday, July 27th. My machine, a 3½ h.p. Bradbury with sidecar, was shod with 26x2⅜ Palatine Tyres, and on examining these I find them in splendid condition without a cut in either front or back and the pattern still showing, although they have covered 1,600 miles in all; entirely with the sidecar, and including the Liverpool—Edinburgh run. They are still unpunctured, and since fitting I have never had occasion to use my pump, and during the whole of the distance they have not caused me a moment's anxiety or trouble.

I am, yours truly,

JOSHUA J. DAY.

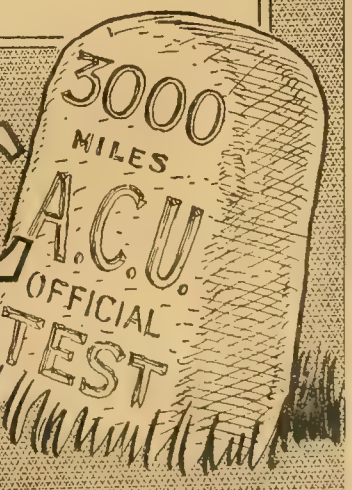
PRICES:

26in.x2⅜in., to fit 2¼in. rim ..	**47/6**	26in.x2⅝in., to fit 2½in. rim ..	**56/-**
Inner Tube (with valve) ..	**10/6**	Inner Tube (with valve) ..	**12/6**

Light Car Tyre (extra thick tread) 650x70 to fit 650x65 rim .. **63/-**

Learn the reasons for the pre-eminence of Palatine Tyres by reading the illustrated booklet describing them, which is sent free on application.

THE PALATINE TYRE CO.
(Branch of the Leyland and Birmingham Rubber Co. Ltd.),
SAUL STREET, PRESTON.



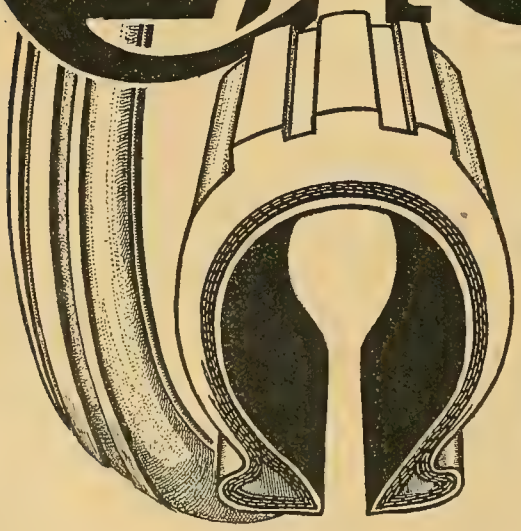
PALATINE
Extra Heavy Motorcycle Tyres

6 RECORDS BROKEN

at BROOKLANDS JULY 16th 1913

the 10 h.p. Calthorpe Minor Car, driven by Mr G.W. Hands, fitted with

CACHER



CYCLE CAR TYRES

won the 6 Hours Cycle-Car Race, averaging

52 MILES PER HOUR

for the whole 6 hours

breaking the following records :-
200, 250 & 300 miles, 4, 5 & 6 hours.

THE CALTHORPE MOTOR CO. LTD. say to us:-
"The Car was fitted with your tyres & we are pleased to inform you they gave us complete satisfaction"

Specify them NOW!

"The Tyres that are Superior"

THE NORTH BRITISH RUBBER Co., Ltd.,

Tyre Sales Department: **CLINCHER HOUSE, GT. PORTLAND STREET, LONDON, W.**

'Phones: Gerrard 8578 and 8579. 'Grams: "Nobrit're, London."

BI2 *In answering this advertisement it is desirable to mention "The Motor Cycle."*

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Military Motor Cyclists.

Sir,—I should be much obliged if you would allow me to inform any motor-cyclist desirous of enlisting in the Special Reserve or in the Territorial Force that he can obtain full information as to the term of service by applying to me. I would point out that a motor cyclist enlisting as such into the Special Reserve is granted the rank of corporal in the Royal Engineers, and becomes a member of the sergeants' mess from the first day of joining. The annual training is performed with the regular unit to which the man is attached and lasts for fifteen days.

R. C. APLEBIE (Capt. R.A.).

Sefton Barracks, Upper Warwick Street, Liverpool.

Lubrication.

Sir,—I see you are asking for opinions of users of Conaught motor cycles on their ingenious lubricating system, so aving ridden one 2,000 miles this summer, will give you iine.

The system works perfectly well I find, its only drawback eing that it is rather messy. The oil and petrol find their ray through the filler cap, and the oil gradually collects on he tank and must be wiped off from time to time. Similarly, he exterior of the carburetter gets covered with oil and dust, hough I do not find the interior needs cleaning out at all ften.

With regard to "Ixion's" notes on the subject, I should ot expect this system to work in the ordinary four-stroke ngine at all, as surely most of the oil which entered the ombustion chamber would be burnt and cause smoking. In he two-stroke I take it most of the oil-fog is condensed on he bearings and in the crank case during the compression n the latter, and only the petrol vapour flows through the ransfer port into the cylinder. J. H. C. BIGGS.

The Scottish Six Days' Trials.

Sir,—You will, we are sure, allow us to correct a slight rror in your excellent account of the Six Days' Trials. The ishap which caused the retirement of Mr. H. F. S. Morgan, ot 100 miles from the finish (up to which point he had lost o marks), was due to a faulty cone which split in the front ub, not to the steering gear, which at the end of the run as in perfect condition. We have learnt that for such evere tests cup and cone bearings are too uncertain.

MORGAN MOTOR CO.

Sir,—Your report of this event is very interesting and ontains perhaps as much information as one could reasonbly expect, having regard to the circumstances under hich it was written, and it is indeed doubtful whether ore useful particulars could be given unless an analysis ould be prepared of each individual competitor's perormance.

In the absence of such analysis the trials are not much uide to a purchaser and, indeed, may mislead him. Take he cycle cars. Three G.W.K. machines were entered and wo were awarded gold medals, one gaining a special award, o other cycle cars gaining any award.

There were two Morgans, a Singer, a Harding and ummers, and a Humberette entered, about which little is aid, and one might suppose the G.W.K. is the best cycle ar on the market, but on investigation one finds that on he very last day the Humberette was run into and put ut of action, and the time spent in repairing the damage as fatal to this car obtaining a gold medal. The official esults do not take cognisance of misfortunes which are not the fault either of the machines or, as appears in the case of the Humberette, the driver, and do not therefore afford any clear indication which is the best of the cycle cars; nor is there any indication that the cycle cars which competed were in the condition which an ordinary tourist would use. The G.W.K.s and Humberette struck me as coming within this description, but some of the other cars were certainly not.

From the sidecars it is even more difficult to select the best. The Bradbury is the only 3½ h.p. to gain a gold medal, but we are told, and I can well believe, that the driver "stands in a class by himself," but there must be many who would like to know what a 3½ h.p. machine with a sidecar can do in ordinary hands.

As to solo machines, those which gained gold medals vary in horse-power from 2¾ to 9, and are of various makes, from which it may be assumed that any machines by the best known makers are reliable for a test of this kind. As a capital way to spend a holiday and a test for a new make of machine and some kind of advertisement for all, these trials are excellent, and it would be a pity if they were to cease, but there are so many causes of success or failure not connected with the machine itself—as the personality of the rider, his skill in driving and in executing repairs, and unavoidable misfortunes of punctures, accidents, and so forth—that at present it is difficult to ascertain what would be the result if these causes could be eliminated. CHARLES D. WRIGHT.

Belfast v. Dublin.

Sir,—I have read Mr. R. G. Lindsay's letter published in your issue of the 17th ult., and as the official responsible for the working of this competition, I would ask you to publish the true facts of the case in your next issue.

At a conference of the Motor Cycle Union of Ireland, representing all centres, held at Dundalk some months ago, it was agreed that the inter-city contest should be run this year under the auspices of the Dublin and District Motor Cycle Club, as the starting point was within their district. Each side had ample notice of the date fixed, and over ten days before the event I wrote to the secretary of the Ulster Centre to forward me the names of the competitors who were to represent them. No reply was received, and although everything was ready, I had (two days before the event) to telephone to Belfast and ask again for the names, at the same time pointing out that the delay was serious, inasmuch as route cards had to be posted. I was then informed that the committee of the Ulster Centre were very busy arranging for the End-to-end contest, and that they had a difficulty in getting anybody to compete, but at their request I arranged to leave the matter over till the next day. I telephoned again, and got the names, and arranged with the secretary to send checking sheets, etc., to him by that evening's mail, and leave the route cards for the Ulster men at their hotel in Dublin.

It is quite wrong for Mr. Lindsay to say that "it was understood, as per custom, that the last pair of riders would collect and bring the returns of the secret and open checking stations with them to the finish."

The contest was run under the strict rules of the Dublin and District M.C.C., and no rider in any competition interferes with the checking sheets. Our method is to appoint one person (a non-competitor) to arrange the checks, and he is furnished with a set of the sheets duly filled in with names, etc. These are collected by him and returned to the responsible official who works out the results.

In this particular contest my club arranged for two secret checks and the Ulster Centre officials for three, one to be taken by Mr. Lindsay, who duly turned up, but for reasons best known to himself his timesheet has not yet been sent in, and, therefore, delay was caused in sending up the results.

Such results as were published were meant really as the result of a competition run by the Dublin and District M.C.C. solely for their own members in conjunction with the inter-city contest.

We feel quite satisfied that even if Mr. Lindsay's time-sheet were forthcoming at this moment it would be found that the victory would lie with us.

JOS. L. WALSHE,
Acting Hon. Sec. Southern Centre M.C.U.I.

Carburetter Experiences.

Sir,—Mr. E. Mays's letter in your issue of last week, giving his experience with the Amac, interested me greatly. I ride a 1912 B.S.A. fitted with one of these carburetters. The engine starts as soon as the valve is dropped on quarter throttle, when the air lever is immediately opened to its full extent and kept there for the whole of any journey. When declutching it is only necessary quickly to pull back the throttle, and the engine will turn over quietly and without fuss at about 80 r.p.m. Geared a little lower than 4½ to 1, I can actually run at from 7 to 50 m.p.h. on the throttle only. Regarding petrol consumption, I recently rode from Wadebridge, Cornwall, to Clevedon, Somerset, a distance of 142 miles, on exactly a gallon of this expensive fuel. My weight is nearly twelve stones, and the machine was laden with luggage.

Personally, I ask for nothing better, and I do not for one moment think that the supposed single lever automatic carburetter would give it. I am entirely unknown to the Amac people. FRANK COMER.

The Freemasonry of the Road.

Sir,—During the last four weeks I have been calling on the trade in the home counties demonstrating a patent side-car on behalf of one of the large West End firms. On the 24th ult. I finished up at Dunstable, and was anticipating a pleasant run home. But alas! a mile or two only of the way had been accomplished when the head of my exhaust valve parted company from its stem and I was stranded. The worst of it was that my wife, who is not strong, was with me. I pushed the outfit for a time until a slight rise in the road compelled my wife to get out.

At this point a gentleman driving a Humberette stopped and, on hearing the trouble, kindly volunteered to call at a certain well-known garage in St. Albans and get a man sent out to meet me with a J.A.P. valve. Further, he offered to take my wife with him, with the idea that she should await my arrival at the above-mentioned garage, and thus be spared a nine mile walk—a feat of which she is utterly incapable.

Left to myself, I pushed on comparatively cheerfully for another mile or two, when I was overtaken by a gentleman driving a sidecar outfit. Without the slightest hesitation—although he had only been driving for a fortnight—he volunteered to tow me into St. Albans. On arriving at that ancient city with a light heart and a more or less paralysed left hand and arm, I was astonished to see my wife waiting outside the Langley Garage at the foot of the hill, for I had expected to see her at quite another garage at the foot of another hill elsewhere in St. Albans. She explained to me that Mr. Gibbons-Ropley (the driver of the Humberette) had gone straight to the garage we had agreed upon and had met with a most curt refusal to send the valve. He had then turned round and called at practically every garage in the town in unavailing attempts to get a valve sent to me. Finally he found a firm (the Langley Garage) willing to do their best, and, not having a J.A.P. valve in stock, turned up a temporary one. Not till then did Mr. Gibbons-Ropley proceed on his way. Who says the freemasonry of the road is dead? We represented rival establishments, and were absolutely unknown to each other.

By the way, when I was fixing my belt to the carrier of the unknown gentleman who towed me, I unfortunately left by the wayside an attaché case containing many spares, maps, a book of calls, a vacuum flask, etc., the contents of which I shall be happy to describe fully to anyone who may have picked the case up. R. MELVILLE BROWN.

An Explanation.

Sir,—As there seems to be some misconception regarding the oil I used in the Grand Prix and Spanish motor cycle race, I would ask you to mention in your valuable paper that I used Wakefield's Castrol C exclusively.

T. E. GREENE.

Fair Treatment.

Sir,—Having heard so much lately about delay in replacements by manufacturers, I feel that I should write and let you know my experience.

On July 25th, outside Llangollen, I broke a spring on my front forks. I wired to Messrs. Newman, of the Ivy Cycle Co., Birmingham, at 7.20 p.m. On the following morning the springs were here by 7.30, and I was ready to continue my tour by 8.30 a.m. Such promptitude is indeed rare and refreshing. OSCAR M. DE JONG.

Sir,—In January I got delivery of a 1913 machine. In the tool-bag was a note saying that certain accessories which appear in the specification would be sent as soon as received from the works. It is now June 25th and I am still lamenting the absence of these accessories. As all the later machines are being sent out complete (and several of the earlier ones were) I am becoming somewhat sceptical of the assurances that these articles will be forwarded as soon as possible. I think you will admit I have a grievance, and should be glad if you could give me any other advice than the historic "wait and see." MICAWBER II.

[We suggest that our correspondent puts his trouble before the makers.—ED.]

Sir,—I have seen a good many references to fair treatment in your columns and would like you to mention the following: Last year I insured a Minerva motor cycle with the North Western Insurance Co. A few weeks ago I had a bad smash, and when I came to claim from the above company I found that I had forgotten to get my policy endorsed for my new machine; thus I could not legally claim a farthing. I wrote the insurance company and explained what I had done (or left undone), and they, like bricks, accepted full responsibility, in spite of the fact that they had paid me a claim a few months ago for breaking a shop window, to the value of £13. WILLIAM LEES.

The surface of Porlock Hill, on the Somerset and Devonshire border line is now covered with two or three inches of dust, which, as may be imagined, makes skidding as prevalent as on muddy roads. The rider in the photograph is E. A. Colliver (7 h.p. Indian), competing in the M.C.C. West Country Tour.

HUTCHINSON

MOTOR CYCLE TYRES.

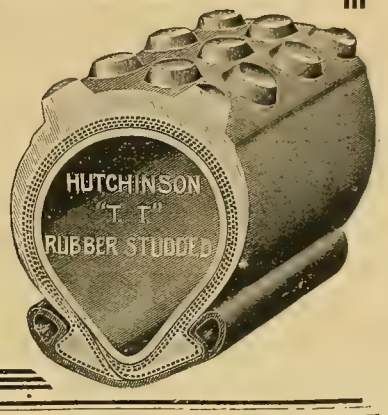
On Top in every Event.

LATEST RESULTS.

Anglo-Dutch Trial, August 4, 1913.

"THE MOTOR CYCLE" CUP. Winner, W. B. Gibb, Douglas.
PLAQUE d'HONNEUR. Winner, W. B. Gibb, Douglas.
GOLD MEDAL. F. A Hardy .. .. Douglas.
GOLD MEDAL. W. B. Gibb .. .. Douglas.
GOLD MEDAL. C. R. Collier .. .. Matchless.
GOLD MEDAL. F. W. Barnes .. .. Zenith.
SILVER MEDAL. R. E. Guest .. .. Matchless.
SILVER MEDAL. A. R. Abbott.. .. Rudge.

Coventry and Warwickshire Motor Club Trial (July 26).
HIGHEST AWARD—the **MANVILLE TROPHY,** won by S. A. Rowlandson on a Rudge fitted with **HUTCHINSON TYRES.**



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THE TRUE CYCLE CAR

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5-6 h.p., 76m. × 85m.
Precision.

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Magneto.

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2 by chains through metal to metal clutches.

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A.M.A.C.

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26in. × 2½in.
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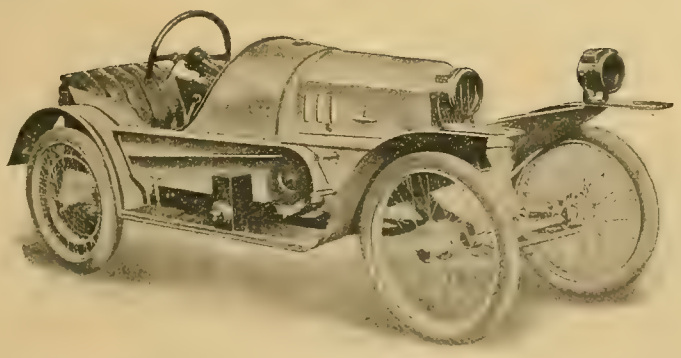

Brakes.
2. Footbrake acting on countershaft.
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Belts.
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Sight drip and pump.

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3 gallons 1 quart.

Oil Tank.
3 quarts.

Clearance.
11ins.

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7ft. 0ins.

Track.
2ft. 9ins.

Over all width.
3ft. 5ins.

SINGLE SEATER.
COMPLETE WITH LAMPS, TOOLS, Etc.
PRICE **£85** NETT.

We have still a few agencies open. Write at once.

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IN ADDITION to all the wins we told you about last, we now have to report that the

MOTOSACOCHE

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THEY ARE MADE.

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A LEATHER CASE WITH FLASK OF HORLICK'S LUNCH TABLETS.

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Also a New and Accurate Road Map of ENGLAND & WALES in Leatherette Case, with Roads shown in Colours and Classified, will be sent FREE with this Case and Flask.

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Horlick's Lunch Tablets contain all the valuable nutriment of full cream milk and choice malted grain in a convenient tablet form. A few dissolved in the mouth from time to time will supply the necessary nutriment to maintain strength and vigour, and restore energy when Touring or Racing, and are useful at all times.

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Send Postal Order to—HORLICK'S MALTED MILK CO., SLOUGH, BUCKS.

Nailsworth Ladder.

Sir,—In your issue of August 7th is a letter signed "J.W." with regard to an A.J.S. climbing the Nailsworth Ladder. We should like to point out that we claim that an 8 h.p. Williamson was the first passenger machine to climb this hill, Mr. Thornhill on one of our 8 h.p. air-cooled machines having been successful in March this year. The machine on which he climbed the Ladder was absolutely standard, and there are many witnesses who could corroborate the climb.

THE WILLIAMSON MOTOR CO., LTD.

Bon Camarade ie!

Sir,—I have seen many letters in *The Motor Cycle* telling of help rendered by motor cyclists, but I should like to mention the help given to me on Sunday by a rider of an ordinary push cycle, who spent from 11.30 till 5 o'clock helping me to dismantle and more or less repair a three-speed hub on the road. I might mention that neither of us had even seen inside one of these things before, but we managed to get it from a state of being entirely jammed to work on top and middle gears, but never again will I touch it on the road if I can help it. I consider that, for a working man to give nearly six hours of his one free day to such a job was one of the most sporting things of which I have heard.

J. C. MILLS.

Hub and Counter-shaft Gears.

Sir,—You are quite correct, hub gears are *not* perfection yet. I rode a 2½ h.p. lightweight last year, and the three-speed hub gear gave no trouble during about five thousand miles. This year I have had a 3½ h.p. machine with three-speed hub gear, and it has been a constant source of trouble. I have had a new gear fitted, but the result has been the same "trouble." Clutch slip has been the most prominent, and, as you say, it is best not to use the clutch; in fact, I have been riding without any clutch rod at all. As the engine has a decompressor, no clutch is needed. The conclusion I have come to is that hub gears are all right for lightweights, but will not stand the kick of a healthy 3½ h.p.

A N 1231

Sir,—"Ixion" mentions that some of his readers have been enquiring whether he has lost his enthusiasm for the counter-shaft drive. We, personally, are not surprised if this is true.

The growing interest in the countershaft drive, brought about by variable gears, not of the hub type, led us to experiment with the counter-shaft three-speed gear in order to determine which was the best form of gearing. We have fitted a number of machines with counter-shaft gears, and after many thousands of miles our own opinion coincides with that of other experts who have tried both the hub gear and the counter-shaft gear, which is that the hub gear is far superior to the counter-shaft. To sum up, in the counter-shaft gear we find the following objections:

The gear runs at high speed and considerable noise is created.

The small chain from engine to counter-shaft adds to the noise, and moreover wears out in about 1,500 miles or less, even when constantly lubricated (which is absolutely essential).

The drive is fiercer and wears the back tyre out much more quickly.

The vibration at all speeds is most noticeable, and very objectionable when engine is running slowly.

The only point in its favour is that the back wheel can be removed more quickly for tyre repairs, but this advantage, of course, would only apply to the novice.

With the hub three-speed gear, of which about 14,000 Sturmey-Archers are now running, we find by comparison the following advantages:

No vibration.

No noise.

An elastic drive; therefore less wear and tear on all working parts, and normal tyre wear.

No driving chain to lubricate, adjust and look after.

Recent trials, such as the Scottish Six Days, have proved that hub gears are improving rapidly, and we feel sure that the man who has tried first a counter-shaft and then a hub gear, would never think of making the counter-shaft his choice.

Theoretically the counter-shaft gear sounds the right thing, and we believe that is why the idea has found favour with quite a large number of people, who in practice would find that it is not nearly so satisfactory as the hub gear.

It would be interesting to hear the opinions of others who have practical experience of both counter-shaft and hub gears.

STURMEY-ARCHER GEARS, LIMITED.
Harold Bowden, Director.

Dangerous Driving.

Sir,—There was a bad specimen of the road hog between Virginia Water and Staines on the evening of August 4th. I have the number of the car, a grey two-seater, with the chauffeur sprawling on the tailboard, and if I can get some more witnesses I am prepared to summon him.

Will the driver and passenger on the sidecar which he was preventing from passing please communicate with me, c/o the Editor, and also the driver of the Brooklands racing car with whom he nearly collided?

One expects a certain amount of bad driving from amateurs and inebriates on Bank Holidays, but maliciously bad driving must be stopped.

E. STANLEY HARPHAM.

A Bird in the Horn.

Sir,—I should like to know if any of your readers have ever had an experience like the following: One day recently whilst driving I suddenly noticed that the note of my Lucas horn became very faint, but imagined that some dust had lodged in the tongue of the reed and did not trouble to examine the horn. The same condition was apparent the next day, and I examined the horn, and found a house sparrow firmly wedged head first into the mouth of it. It must have flown in as I met it along the road. The mouth of the Lucas horn is, as you know, very deep, and this accounts for my not perceiving it at once. Of course, the bird was dead when I removed it. This is a solid fact, and can be vouched for by the proprietor of the garage I use, whom I called to examine the horn before removing the bird.

J. C. PRIOR.

Automatic Carburetters.

Sir,—I was considerably interested in "Autobore's" letter, in your issue of the 24th ult., *re* the B. and B. variable jet carburetter, as I have used them for the last two years with results considerably above the average.

My present machine is a standard touring 1911 Norton, 82×94 mm., with a compression space of about 127.5 c.c., and on a run from Derby to the east coast and back I actually covered 209 miles on 1.42 gallons of benzole, which equals 147 m.p.g.

I have fitted up an extra lever on handle-bar, and Bowden wire to operate the variable jet, so that I can easily make a fine adjustment of the jet area while riding at any speed, and I use this lever a good deal. It is to this, in conjunction with the B. and B. carburetter, that I attribute the remarkably low consumption. The carburetter also has the virtue of extreme flexibility, as I can throttle down to 5 m.p.h. on level, or walk by the machine firing regularly on a 3¾ gear. This carburetter is well named the Universal model as it can be instantly set for maximum speed and power, minimum consumption, or ideal slow running with a rapid acceleration. It is, in fact, a carburetter which can be made large or small at will, with the jet and throat areas always bearing a correct relation to one another. With a carburetter having a fixed size of jet and throat (or choke), the velocity of air past the jet when going dead slow is too low to ensure proper atomization, unless far too small to enable the engine to develop full power at high speeds. I may add that I have no interest in the B. and B.

N.R.C.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected manuscript, drawings, and photographs will only be returned provided a stamped addressed envelope is enclosed for the purpose.

Herts. County and Public Schools Club Hill-climb.

B. C. Barton (5 h.p. Hazlewood) nearing the finishing banner.

THE hill-climb organised by the Herts County Automobile and Aero Club and the Public Schools Motor Cycle Club at Kop Hill, Princes Risborough, on Saturday last, was not quite the success it should have been, partly owing to the vagaries of the weather and partly to the paucity of entries.

In the Public Schools events there were but five competitors in the 600 c.c. class and seven in that open to any machine, while those who competed had entered also in the Herts County events. Thus the event was spoiled from the spectators point of view, as the same machines competed in each class, and the absence of any sensational climb, coupled with occasional showers of rain, sent most of the spectators home before all the classes had been run off.

In the 600 c.c. class for the Public Schools entry, Selby, who lead off, brought his water-cooled Regal-Green up the hill at a good pace. Keller (Triumph), who made fastest time in his class, came up splendidly, the engine "revving" in a surprising manner, even on the steeper gradients at the summit. The Hazlewood seemed slow, but probably obtained third place by reason of a good start. The unfortunate Roberts brought his Rover up to the first bend at a good pace, rounded it well, and then was stopped with a broken belt-fastener. A. Q. Roberts ran his 2¾ T.T. Douglas in this class, as there were insufficient 350 c.c. entries to allow of a separate class. The Douglas appeared to be over-geared for the hill.

In the open class Kennedy's V.S. got away at a great pace, leading Getting's 8 Bat, while, as usual, the Zenith made a fine climb, Luce giving an exhibition of clever gear changing.

The 350 c.c. Herts County event resulted in a win for the little Humber ridden by Anderson. Knowles (Torpedo) rode very steadily but appeared much slower.

FULL SPEED UP KOP HILL. HOW THE DUTCH MOTOR CYCLISTS WOULD LIKE TO HAVE MADE THE ASCENT.
J. Cocker (Singer) just past the bend. He was only beaten by ⅕sec. by an 8 h.p. twin-cylinder machine—A. J. Brewin (8 h.p. Zenith).

erts County and Public Schools Club Hill-climb.—

There being very few starters in the 500 c.c. class this as not particularly interesting, the only incident being aused by the Grandex, which failed to start, owing, it as said, to the air gauges being still in place and the achine being adjusted to start without them. G. L. Vilks, who was placed second, did not appear in the rogramme, which caused some confusion.

A Nasty Fall.

Brewin's 8 Zenith, freed from its sidecar, literally flew up he hill in the fastest time of the day, while Kennedy started s fast, but ran off the road at the first bend. For a second he machine plunged wildly, what time the spectators bolted or cover; then, with a huge swerve, it struck the opposite ank, leaped and bounded for perhaps a second or more, and, winging round on to the road, turned over with a terrific rash. Before the dust had rolled away a dozen people were elping Kennedy up, to find that he was cut about the hand ather badly, had one knee of his breeches torn, but was unurt otherwise. The machine was slightly damaged, one otrest and the brake pedal being badly twisted, and the oil ump plunger bent. The accident seemed to be due to the efective condition of the exhaust valve lifter.

As the passenger class had but one starter, it was a walk ver for Brewin's Zenith, and the general class resulted in nother success for Anderson's Humber. The results were s follows :

PUBLIC SCHOOLS.—Class 1., not exceeding 600 c.c.

		Time.
1.	R. L. Keller (3½ Triumph)	55⅘s.
2.	J. C. Selby (3½ Regal Green)	59⅕s.
3.	B. C. Barton (5 Hazlewood)	61⅖s.

PUBLIC SCHOOLS.—Class 2, open.

1.	J. Kennedy (8 V.S.)	49⅖s.
2.	A. J. Luce (8 Zenith)	49⅘s.
3.	E. T. Getting (8 B.A.T.)	52⅕s.

HERTS COUNTY.—350 c.c.

1.	M. Anderson (2¾ Humber)	60⅘s.
2.	H. S. Knowles (2½ Torpedo)	72s.
3.	M. Heinzel (3 N.S.U.)	75⅗s.

HERTS COUNTY.—500 c.c.

1.	J. Cocker (3½ Singer)	50⅗s.
2.	G. L. Wilks (3½ Triumph)	—
3.	M. Heinzel (3½ N.S.U.)	63⅗s.

HERTS COUNTY.—Open.

1.	A. J. Brewin (8 Zenith)	48s.
2.	J. Cocker (3½ Singer)	48⅘s.
3.	M. Heinzel (3½ N.S.U.)	55⅕s.

HERTS COUNTY.—Passenger machines.

	A. J. Brewin (8 Zenith)	57⅖s.

HERTS COUNTY.—Formula class.

1.	M. Anderson (2¾ Humber)	4145.63
2.	H. S. Knowles (2½ Torpedo)	5562.79
3.	— Hall (8 Matchless)	7140.95

THE SPECIAL RESERVE (ROYAL ENGINEERS): Conditions of Service.

We give below some brief particulars concerning the conitions of service which will be of interest to motor cyclists ho contemplate joining the special reserve.

AGE OF ENLISTMENT.—18 to 30 years.

PERIOD.—For four years.

Recruits on final approval will be promoted to the rank of orporal. They will thus become members of the sergeants' ess from the first day of joining.

TRAINING.—Recruit training not less than seven days or ore than fifteen. To include pistol practice.

ANNUAL TRAINING.—Fifteen days with regular signal unit which they are attached.

PAY AND ALLOWANCES.—Pay and allowances during the riod of training will be received as follows: Regimental ay, 2s. 6d. per diem; messing allowance, 3d. per diem; ration allowance, 6d. per diem; clothing allowance, 6d. per diem; motor cycle allowance, 8s. per diem.

MARRIED MEN.—Separation allowance. If separated, for wife 1s. 1d.; children, 2d. each.

BOUNTIES.—Training: £1 received at end of training. Non-training: £1, October 1st; £1, December 1st; £1, February 1st; total, £4. The issue of bounties will be subject to the cycle of the non-commissioned officer coming up to the required specification at the annual inspection.

TRAVELLING ALLOWANCE.—Motor cyclists will receive travelling allowance at the rate of 1½d. per mile for the shortest suitable route between their homes and the place of training.

Applications should be made to Capt. R. C. Aplebie, R.A., Sefton Barracks, Upper Warwick Street, Liverpool.

J. Bates (2¾ h.p. Douglas) at the corner on Cudham Church Hill in the South-eastern Club's inter-team trial.

The B.M.C.R.C. Sixth 1913 Monthly Meeting.

Start of the 500 c.c. race from the railway straight.

THE above event, which was held in dull and rather cool weather last Saturday afternoon, was both bright and interesting. The programme was a short one, but quite entertaining, and there was a very fair attendance. The chief features of the meeting were the three sealed handicap races, which were an innovation.

Event No. 1 was the 350 c.c. Ten Mile Record Race and Sealed Handicap. The prizes were gold, silver, and bronze medals, which were awarded both on the time and handicap results. The competitors were started from scratch at the beginning of the railway straight and passed the fork four times.

The first time past the fork, Mason, Stanley and Williams came past in a group, while after an interval the rest came by in the following order: Newman, Colver, Iron, and Newbold.

In the next lap the invincible Stanley led by a good distance, while Mason and Williams were having a tussle for second place. Martin retired with a faulty magneto in the first lap, and in the second Newbold dropped out. In the third lap Stanley greatly increased his lead, Mason was second, and Williams third. In the last lap Stanley rolled in with his engine shut off before the others were even in sight. The results given on both time and handicap were as follows:

TIME.

	Rider and machine.	mm.	c.c.	m.	s.	m.p.h.
1.	G. E. Stanley (1-cyl. Singer)	75×79	349	9	54⅖	60.56
2.	H. Mason (2 Nut-Jap) ...	60×61	350	10	36⅘	
3.	C. Williams (1 A.J.S.) ...	74×81	348	10	47⅗	
4.	H. Newman (1 Ivy-Precision)	70×90	346	11	4⅖	

HANDICAP.

	Rider and machine.	mm.	c.c.	Start. m.	s.	m.	s.
1.	C. Williams (1-cyl. A.J.S.) ...	74×81	348	1	54	8	53⅗
2.	G. E. Stanley (1 Singer) ...	75×79	349	scr.		9	54⅖
3.	D. Iron (2 Enfield)	54×74	343	1	54	10	35
	H. Newman (1 Ivy-Precision)	70×90	346	0	29	10	35⅖

Event 2 was the 500 c.c. Ten Miles Record Race and Sealed Handicap which was run under the same conditions and for the same prizes as the above.

The first time past the fork the order was as follows: Stanley, Brewster, Victor, Hill, McDonagh, Cushman, Le Vack, Baker, and Nicholson.

In the second lap Stanley still kept his lead, while Victor and Hill came in second and third.

In the third lap Stanley greatly increased his lead, but the first and second remained as before. In the final Stanley again shut off and glided in well ahead of everyone else.

TIME.

	Rider and machine.	mm.	c.c.	m.	s.	m.p.h.
1.	G. E. Stanley (1-cyl. Singer)	85×88	499	9	3⅕	66.27
2.	L. Hill (1 Rudge)	85×88	499	9	25⅘	
3.	E. H. Victor (1 Singer) ...	85×88	499	9	29	

HANDICAP.

	Rider and machine.	mm.	c.c.	Start. m.	s.	m.	s.
1.	E. H. Victor (1-cyl. Singer)	85×88	499	1	3	8	26
2.	G. E. Stanley (1 Singer) ...	85×88	499	scr.		9	3⅕
3.	P. Brewster (1 Zenith-Jap)	95×77.5	498	0	37	9	20

Event 3 was the 1,000 c.c. Ten Mile Record Race and Sealed Handicap, run under the same conditions and for the same prizes as the above. At the start, Martin had the bad luck to slip as he was mounting his machine, and, falling heavily on the track, injured his hip somewhat severely.

The first time past the fork Remington led, followed by George, Howard, Baldwin, and Baragwanath.

In the second lap Remington forged ahead, Howard ran second, and George third.

In the third lap Remington increased his lead still further, Howard came second, and Baragwanath third. George retired first and Baldwin later in this lap. The result was an easy win for Remington.

TIME.

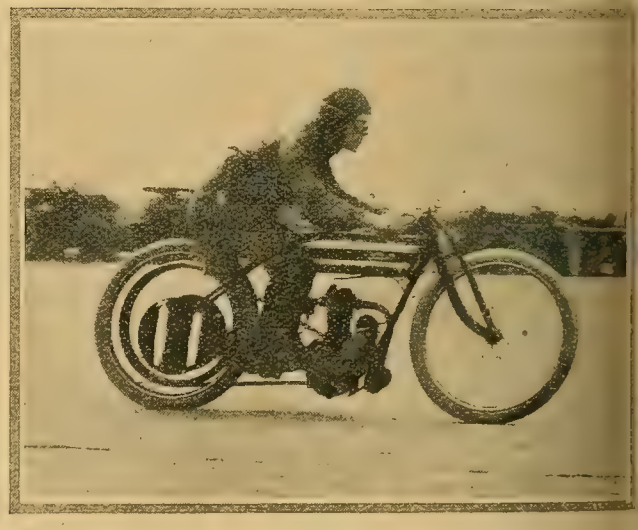
		mm	c.c.	m.	s.
1.	E. Remington (2 Matchless-Jap) ... Speed, 74.04 m.p.h.	90×77.5	986	8	6⅕
2.	W. G. Howard (2 Matchless-Jap)	90×58	738	8	54⅘
3.	E. C. E. Baragwanath (2 Matchless-Jap)	90×77.5	986	9	6⅗

It will be noticed that the Matchless machines swept the board, and it is interesting to note that Remington's fastest lap was accomplished at the excellent speed of 80.45 miles an hour.

In each of the foregoing races the times are better than record, though the speeds must have been higher in existing fifty mile records. The question of accepting the times as record is being considered by the A.C.U.

HANDICAP.

	Rider and machine	mm.	c.c.	Start. m.	s.	m.	s.
1.	W. G. Howard (2 Matchless-Jap)	90×58	738	1	6	7	48⅗



An impression of G. E. Stanley (Singer) at speed. He won the first two races.

AUTOMATIC CARBURETTORS

(BINKS SYSTEM.)

REPRINT FROM THE **AUTOCYCLE.**

AUTOMATIC CARBURATION.

May I, as a very satisfied user of the "Binks carburettor," just say a few words to Mr. Turner? In my opinion, he does not understand how the "Binks carburettor" works. The air lever on a two-lever carburettor does not control the power given out by the engine; it is the engine speeds that indirectly control the air lever; and I wish to try and point out to him how it is possible to do this automatically.

With a "Binks two-jet carburettor," if the engine is running slowly, it is possible to climb any ordinary hill on the pilot jet, that the motor cycle will climb at the same pace with a two-lever carburettor.

Owing to the fact that the pilot jet has a very small choke tube, it is possible to run much slower and get much more power running slowly than with a two-lever carburettor. Likewise, the main jet having a very large choke tube, it is possible to get much higher speeds, and all the air passes straight across the jet, thereby vaporising the petrol more thoroughly.

By opening the throttle of the Binks, one gets a perfectly smooth acceleration, as with a car, because the mixture is absolutely correct at all speeds.

Suppose, for the sake of argument, Mr. Turner is out with his two-lever carburettor, and I am out with my Binks—

(1.) We are running on the level slowly. He has his extra throttle almost shut, and the extra air completely shut. I am running with the pilot jet, and even that is shut down a bit. This would be a much smaller jet than his, thereby saving petrol, yet it gives the same mixture as his, because my choke tube is so much smaller.

(2.) We are running at 50 m.p.h. all out on the level. He has his throttle and air full open. I just move the one lever to fully open the main jet, and when the machine has gained speed sufficiently I move the lever a little further open, and this opens an extra port, thereby getting the perfect mixture for high speeds.

(3.) We come to a hill, and Mr. Turner has to close his extra air slightly as the engine speed decreases. I close my throttle lever a little, and this shuts off the extra air port, but does not move far enough to throttle the engine at all.

(4.) As to his slow climb, I have already said that a machine will climb just as slowly and give more power at slow speeds on the pilot jet of a Binks than with a two-lever carburettor. I know this by experiment.

As to other automatic carburettors, I quite agree with Mr. Turner, they are useless. The only automatic carburettor that gives the correct mixture at all speeds is the two-jet carburettor. I have no interest in Mr. Binks or his splendid carburettor, except as a very satisfied user, and I should like to say that Mr. Binks gave me great assistance by post in regard to tuning it up to suit my machine. My advice to Mr. Turner is, "Buy a Binks, test it, and then give us his opinion of the two-jet automatic carburettor."

A. G. STORY.

I am greatly obliged to Mr. Story, who I do not know in the least, for his letter.

Mr. TIPPET, the well-known Tourist, writes:—

Received carburettor safely, and in the recent Devonshire hill-climbing tour it gave plenty of power on the test hills, and the petrol consumption on the whole 440 miles was only 3½ gallons. On ordinary roads I am sure to get quite 130 miles to the gallon on my 3½ Humber.

WHY NOT YOU DO LIKEWISE.

YOU CAN'T DO IT WITH ANY OTHER CARBURETTOR

C. BINKS, Ltd., ECCLES.

17,871,000

EXPLOSIONS

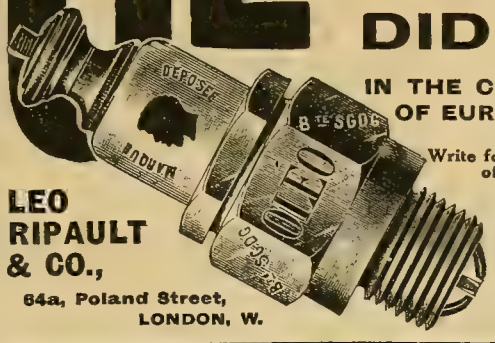
WITHOUT MISFIRE, WITHOUT SOOT.

LEO

THE PLUG

DID IT

IN THE CIRCUIT OF EUROPE.

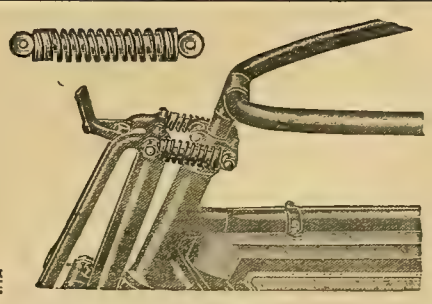


Write for catalogue of these wonderful plugs.

LEO RIPAULT & CO.,

64a, Poland Street, LONDON, W.

TYPE 6D. **4/-.**



TERRY'S SPRING LINK absorbs road shocks.

It is a wonderful auxiliary to motor cycle front fork springing—taking up all the shocks uneven road surfaces create and imparting to the motor cycle the comfortable easy gliding motion of the car. Vibration is reduced to a minimum—and, of course, great economy in running costs is effected. It can be fitted to any front fork of link type. For 3 h.p. machines **10/-**, 6 h.p. **12/6** per pair. Write now for descriptive leaflet—It is post free.

HERBERT TERRY & SONS,
The Spring Specialists, REDDITCH, Eng.

The Important Event of the Year.

In the

SCOTTISH SIX DAYS' TRIALS

the

Ariel

secured

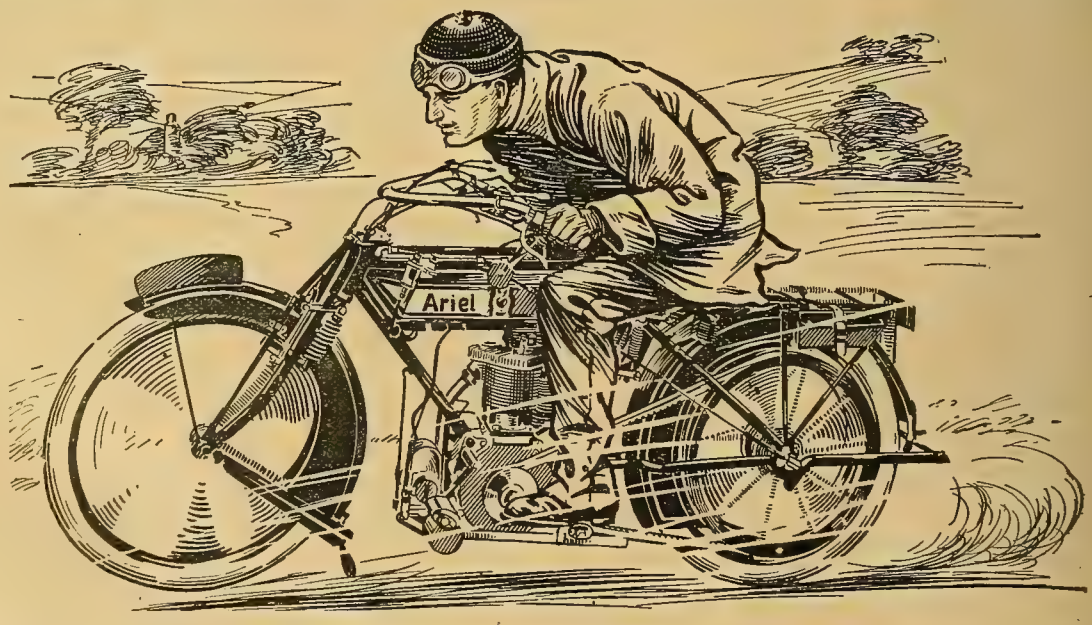
THE TEAM RACE, 5 GOLD MEDALS

(5 ENTRIES) and tied for the

TRADE RIDERS FIRST AWARD

thus demonstrating that for RELIABILITY, THE ARIEL is

THE MOTOR BICYCLE OF THE YEAR.



Write for Art Catalogue to:

ARIEL WORKS (Dept. 2), BOURNBROOK, BIRMINGHAM.

In answering this advertisement it is desirable to mention "The Motor Cycle."

he B.M.C.R.C. Sixth 1913 Monthly Meeting.—

E. Remington (2 Matchless-Jap) ... ... 90×77.5 986 0 14 7 52⅗
E. C. E. Baragwanath (2 Matchless-Jap) ... ... 90×77.5 986 1 6 8 0⅗

Event 4 was the All Comers' Three-lap Handicap. As Remington, Victor, and Williams had won previous races, their handicaps were altered accordingly. All got off the mark well, except Baker and Baragwanath.

Newbold came by at the end of the first lap before the wo scratch men had started. He was followed by Iron, Villiams, Colver, Greenfell, Cushman, Barnes, Newman, O'Donovan, Stanley, Nicholson, Victor, Le Vack, Hill, Brewster, Baragwanath, Baldwin, Remington, George, and Baker. McDonagh retired

In the second lap the order was, Newbold, Williams, ron, Stanley, Greenfell, Victor, Barnes, O'Donovan, Colver, Cushman, Newman, Brewster, Baragwanath, Hill, Reming-on, Le Vack, George, Baldwin, and Baker. Nicholson etired. Newbold made the best of his long start, and came n an easy winner, but Remington had travelled magnifi-ently, and came in second, with Stanley a good third. Newbold's speed was 52.60 m.p.h., while Remington's fastest ap was 76.31 m.p.h.

The order of finishing was as follows:

		mm.		c.c.	Start. m. s.
1.	P. Newbold (1-cyl. Zenith)	85	× 60	345	2 51
2.	E. Remington (2 Matchless)...	90	× 77.5	986	0 9
3.	G. E. Stanley (1 Singer) ...	75	× 79	349	1 18
	E. C. E. Baragwanath (2 Matchless)	90	× 77.5	986	0 54
	C. Williams (1 A.J.S.) ...	74	× 81	348	1 54
	S. George (2 Indian, 8 valve)	82.5	× 93	994	scr.
	E. H. Victor (1 Singer) ...	85	× 88	499	1 9
	P. Brewster (2 Zenith) ...	76	× 82	744	
	J. C. Greenfell (1 Norton) ...	82	× 94	496	1 42
	D. R. O'Donovan (1 Norton)	79	× 100	496	1 30
	L. Hill (1 Rudge)	85	× 88	499	0 54
	L. Cushman (1 N.L.G.) ...	85	× 88	499	1 42
	D. Iron (2 Enfield)	54	× 74	343	2 51
	S. A. Newman (1 Ivy) ...	70	× 90	346	1 42
	H. V. Colver (2 Enfield) ...	60.5	× 60	350	2 3
	H. Le Vack (2 Motosacoche)	64	× 77	496	1 30
	F. W. Barnes (2 Zenith sc.)	90	× 77.5	986	1 33
	O. M. Baldwin (2 Bat) ...	90	× 77.5	986	0 54
	G. W. Baker (1 Peerless) ...	85	× 88	499	1 42

FORTHCOMING OPEN EVENTS.

Coventry Club's Eighth Annual Hill-climb.

The eighth annual hill-climb of the Coventry and Warwickshire Motor Club will be held at a secret venue on Saturday, September 6th. All classes of machines will be catered for.

Speed Trials in Lincolnshire.

The East Midland Centre of the A.C.U. will hold an open speed trial at Thonock Park, Gainsborough, on Sept. 6th. There will be "expert" and "general" classes for machines up to 350 c.c., 500 c.c., 1,000 c.c., sidecars and cycle cars, and half mile flying start (any capacity). Also the East Midland Challenge Trophy for teams of three riders. Entry forms and full particulars from Mr. J. King, 42, Radcliffe Road, Nottingham.

Speed Trials at Weston-super-Mare.

The Bristol M.C.C. intend holding open speed trials at Weston-super-Mare on October 4th. Six open and three club classes have been arranged, also a match between a Brooklands rider and a club member driving a racing Straker-Squire.

Scottish Open Speed Championships.

The Scottish Auto-cycle Union will hold the Scottish motor cycle speed championships on the West Sands, St. Andrews, on Saturday, September 6th, at 1 p.m. (Eliminating heats, if necessary, from 11 a.m.) There will be nine classes, six of which will be open to all-comers, the last three being "expert barred." Gold, silver, and bronze medals will be awarded to the first, second, and third respectively in each class, the gold medal in the case of the "open" classes carrying with it the title of "champion of Scotland." Entry forms are obtainable from all club secretaries and at garages, or from the secretary of the Scottish Auto-cycle Union, Mr. James S. Fulton, 131, West Regent Street, Glasgow. Entries close on August 27th.

OPEN EVENTS.

1. Scottish Lightweight Championship for motor cycles not exceeding 350 c.c. Distance, twenty miles
2. Scottish Medium-weight Championship for motor cycles exceeding 350 c.c. and not exceeding 560 c.c. Distance, twenty miles.
3. Scottish Heavyweight Championship for motor cycles exceeding 560 c.c. and not exceeding 1,000 c.c. Distance, twenty miles.
4. Sidecar race for motor cycles not exceeding 560 c.c. Distance, one mile.
5. Sidecar race for motor cycles exceeding 560 c.c. and not exceeding 1,000 c.c. Distance, one mile.
6. Cycle car race for machines not exceeding 1,100 c.c. and 7 cwt. unladen. Distance, one mile.

"EXPERT BARRED" EVENTS.

7. Three-lap race for motor cycles not exceeding 350 c.c. Approximate distance, 6½ miles.
8. Three-lap race for motor cycles exceeding 350 c.c. and not exceeding 560 c.c. Approximate distance, 6½ miles.
9. Three-lap race for motor cycles exceeding 560 c.c. and not exceeding 1,000 c.c. Approximate distance, 6½ miles.

The sands at St. Andrews have been found to be excellent for the purposes of motor cycle racing. There is ample room for a perfectly safe "oval" circuit with wide ends, the sides of which will each measure a mile, the circuit further providing ample room for starting, pulling up in the mile sprints, and turning. The surface is exceptionally hard.

RANGOON M.C.C. RELIABILITY TRIAL.

The first run took the form of a reliability trial from the Pegu Club to the junction of the Pegu and Prome roads and back (about twenty-two miles each way). Results: 1, C. Fouracres (Triumph); 2, P. Vieland (Rudge). The following made scores of over 200: M. Burnett (Triumph), R. Charleswood (Rover), J. Anderson (P. and M.), R. Best (Triumph sc.), F. Mann (2¼ F.N.), W. Turner (Ariel), M. Rorke (Rover), R. Wenning (Rover sc.), and C. Johnstone (2 Humber).

SETTING OFF FOR A WEEK-END CAMP IN NORTH WALES.

W. Baseley and family, of Alvechurch, Birmingham, on their 6 h.p. Royal Enfield sidecar combination. An amount of camping outfit, as may be seen, is being carried, as well as a large basket on the luggage carrier and further luggage in the fore part of the sidecar.

TIME TO LIGHT LAMPS.

Aug. 14th	...	...	8.24 p.m.
,, 16th	...	...	8.20 ,,
,, 18th	...	...	8.16 ,,
,, 20th	...	...	8.12 ,,

An Abandoned Midland Event.

The Nottingham Club's open trial last Saturday had to be abandoned owing to lack of entries. One of the reasons advanced to the organising secretary by manufacturers for withholding support was that "the press do not give prominence to Nottingham trials."

Durham Road Closed.

The North-Eastern Automobile Association is officially informed by the Durham Rural District Council that the road past Neville's Cross, used as a short cut by through traffic to avoid Durham city, will be closed from August 11th to September 11th for improvement work. Motor cyclists, therefore, will be obliged to pass through Durham city, and are urged to drive with special caution through the narrow streets of the town.

Interesting Road Census.

The following facts of motor traffic on one main road, London to Worthing, on Saturday, Sunday, and Monday (August Bank Holiday) are interesting:

	Motor Cycles (solo).	Sidecars.	Cycle Cars.
Saturday ...	185	345	10
Sunday ...	140	195	37
Monday ...	180	250	10
Total ...	505	790	57

These were all taken by observers specially placed and each one checking only one sort of motor vehicle. 'Buses, engines, vans, etc., were not checked. Time, 8 a.m. to 8.30 p.m. All were taken on the same point of the road, namely, West Grinstead, on the main road.

THE LANCASTER PAGEANT.
A warrior of old on his warhorse of modern times.

The Scottish Dialect—with Apologies to the Scotch.

Two competitors in the recently held Scottish Trials who were endeavouring to imitate the Scottish dialect which they heard on all sides, are alleged to have had the following conversation on the morning of the first day:

First rider: How are ye the noo?
Second ditto: Am-ul-ree-t!

However, he forgot the hairpin on Amulree and was soon Am-ul-wrong!

FUTURE EVENTS

Aug. 18-23.—A.C.U. SIX DAYS' TRIALS Carlisle as Centre.
,, 30.—Streatham and District M.C.C.
,, 30.—Hertfordshire M.C.C. Open Trial
Sept 6.—Coventry and Warwickshire M.C. Annual Open Hill climb.
,, 6.—A.C.U. East Midland Centre Speed Trials.
,, 13.—B.M.C.R.C. Race Meeting.
,, 20.—Streatham M.C.C. Open Speed Trials at Brighton.
,, 24.—A.C.U. Open One Day Trial.
,, 27.—B.A.R.C. Brooklands Meeting.

The Circuit de la Sarthe.

The Grand Prix Race has taught French manufacturers of cycle cars many a useful lesson. It was noticed that in the International Cup Race at Le Mans that the competing machines kept going with wonderful regularity. One cycle car, however, with centre steering front axle lost this important fitting while travelling at full speed. The sidecars were not equal to the cycle cars in speed.

In the motor bicycle races J. W. Woodhouse rode finely and deserved his success. Greame Fenton's retirement was due to running off the road at the first bend on the initial circuit.

A Flying Meeting for Motor Cyclists.

The proprietors of the London Aerodrome, Hendon, N.W., have arranged to hold a special flying meeting, in which some of the most famous aviators will compete, on Thursday, August 28th, beginning at 3.30 p.m. and continuing until dusk (about 8 p.m.) This meeting is intended specially for motor cyclists, and will be held under the patronage of the Auto Cycle Union. All attending the Aerodrome on motor cycles, cycle cars, sidecars, etc., will be admitted at half-price to the 1s. and 2s. 6d. enclosures on presentation of their membership cards. Free passenger flights are offered to readers of *The Motor Cycle*. The card of membership to the club to which motor cyclists belong should be presented.

SPECIAL FEATURES:

A MECHANICAL TIMING DEVICE.
EXPERIENCES WITH PASSENGER MACHINES.
ENTRIES AND ROUTE MAP FOR THE SIX DAYS' TRIALS.

A Dutch Three Days' Trial.

Starting on Tuesday from Amsterdam, Sam Wright is driving a Humberette in a three days' reliability trial over indifferent roads. It is unlikely that he can get back in time to compete in the Six Days' Trials next week.

Hotels during the Six Days' Trials.

The following is a list of the hotels at which lunch will be taken during the A.C.U. Six Days' Trials: Monday, Royal Hotel, Keswick; Tuesday, Ingleborough Hotel, Ingleton; Wednesday, Drill Hall, Ulverston; Thursday, Rose and Crown Hotel, Durham; Friday, Stag's Head, Bowness. Official headquarters, Central Hotel, Carlisle.

Corwen-Cerrig Road.

At this season of the year the main Holyhead Road is used by so many motor cyclists on the way to the North Welsh coast that those contemplating a journey which includes the section from Corwen to Cerrig-y-druidion will be glad to hear that the surface has much improved. In May there were very deep ruts and ridges of mud churned up by the steam traction engines which run between Corwen Station and the Liverpool Waterworks at Cerrig. Most of these ruts have been filled in and steam rolled, and the mud ridges shovelled to the roadside, where they lie in heaps. Although the road for three or four miles from Corwen is still bad, it was (when we rode over it last week) no longer a danger to traffic. The worst section is in Merionethshire, which county is left 3 miles 6 furlongs from Corwen.

Another well-known character at the Lancaster Pageant. They rode into Lancaster on their motor cycles, and were in themselves an excellent advertisement for the pageant.

THE STAFFORD PAGEANT.

A. Garner as Richard II. taking Queen Elizabeth (Mrs. Burekhardt) to the Stafford Pageant on his 3½ h.p. Triumph and sidecar.

Nap Hill in the Dutch Trial.

A. R. Abbott writes to say that his stop on Nap Hill in the Anglo-Dutch Trial was due to being baulked by the Cyclonette. He restarted with the aid of the clutch, and was subsequently awarded full marks on reporting the circumstances to the judges.

A Real Hill.

Rosedale Abbey Bank, near Pickering, Yorks, has just been climbed on a two-speed B.S.A. by H. Taylor, junr., of Beverley, though 6 h.p. twins among the party failed. The bank is about a mile long and is as bad as Stoupe Brow, near Robin Hood's Bay. Previously, it had only been climbed by F. Philipp on a Scott and J. W. F. Tranmer on a 10 h.p. Stoewer car geared 24 to 1.

A Strenuous Holiday.

Our contributor "Mercury" has crowded as much motor cycling into his holiday as it is possible to imagine. In twenty-seven days he has covered 2,490 miles, and included in this distance were 980 miles of the Scottish Trials, in which he gained a gold medal. He rode up to Perth from Berkshire, then followed the trials, and the day after the finish he started off on his P. and M. for South Wales. "Mercury" asserts that the corner work encountered in the Scottish Trials improved his cornering 50%, and we can well believe him from our own experience. During his trip down from Edinburgh he took the opportunity of trying one or two of the test hills selected for the A.C.U.'s Six Days' Trials.

Adventures in Scotland.

"Mercury" had several exciting and interesting moments in Scotland during the Trials. He was on the spot at the precise moment when the G.W.K. burst into flames a few hundred yards above the Devil's Elbow on the Spital of Glenshee, and noticed a puff of smoke and flame shoot out as he was following it. A moment later it was all ablaze. "Mercury" himself escaped trouble during the trials, but as soon as they were over minor misfortunes fell upon him. Such is luck! His machine should know its way up the hills of Britain, as during the past month it has climbed Porlock, Kirkstone, Shap, Lynmouth, Birdlip, Ballymacrow, Amulree, Kenmore, Applecross, and Mam Ratachan.

A French Road Race.

The Liège-Paris-Liège Road Race is to take place on the 15th and 17th insts. On Friday there will be a speed trial, and a hill-climb during the return journey to Liège. There were three successful British riders last year.

A Splendid Record.

The performance of the English trade team in the Anglo-Dutch trial was really wonderful. Each of the nine representatives accomplished a non-stop run and arrived home within schedule time, thereby gaining gold medals. Frank Smith's non-stop was only achieved by riding the last thirty miles on a flat driving tyre.

Auto Cycle Union Notes.

THE INTERNATIONAL TOURING TRIAL.—It is a little disappointing that this the first competition suggested by the recently resuscitated F.I.C.M., which should be the most important international event of the year, should find only two teams to compete in the international touring trial held in conjunction with the A.C.U. Six Days'. These teams are as follows: England—350 c.c. class, W. B. Gibb (2¾ Douglas); 500 c.c. class, W. B. Little (3½ Premier); passenger class, C. R. Collier (8 Matchless sc.) France—Guillereau (Clément-Gladiator); Gabriel (Clément-Gladiator); passenger class, L. Bourbeau (Bedelia cycle car). It is not yet known in which classes the Clément riders will enter. Countries entering are entitled to enter either two 500 c.c. machines, or one of 500 and the other of 350 c.c.

PERMITS.—The A.C.U. has granted permits for the following competitions: Stockport and District M.C.C. open hill-climb, August 30th, and the East Midland Centre A.C.U. speed trials, Sept. 6th.

'Ware Flints.

A correspondent tells us that the Flintshire County Council intend to apply for powers to fix a ten-mile-an-hour speed limit for motors over the whole county. Comment is needless!

A New Three-speed Gear.

Mr. Pedersen, the inventor of the three-speed hub gear for pedal cycles, has patented a three-speed gear for motor cycles which can be fitted in the hub or bottom bracket. It has been tested on a 3½ h.p. motor cycle, and is about to be tried on a 2¾ h.p. sidecar combination. The gear will be manufactured in Dursley by the Pedersen-Alpass Three-speed Motor Hub and Gear Co.

Stolen Machines.

A 1913 model chain-driven B.S.A. with sidecar were stolen from Bridlington on Wednesday last week. The frame number is 3926, and the engine 4228.

A 1913 Triumph, only a month old, engine No. 216,016, was stolen from outside Stratheden, Eaton Crescent, Clifton, the other day. The owner is Mr. S. Brown.

The Gordon in Scotland.

The performances of some of the machines in the Scottish Trials, which finished but did not gain premier awards, were, perhaps, rather overshadowed by the doings of the gold medal winners. One of the less fortunate was the Gordon cycle car, inasmuch as it finished the 980 miles without trouble, but did not qualify for a gold medal, as the average speed of twenty miles an hour over the severe course was rather more than its driver cared to maintain on a standard geared two-speed cycle car. Nevertheless, it finished in good fettle, and for its first performance in a big trial did remarkably well.

SOUTH-EASTERN COUNTIES INTER-CLUB TEAM TRIAL.
Two competitors ascending Salt Box Hill in a cloud of smoke.

Climbing Comparisons on Porlock.

THE ACTUAL SPEEDS ATTAINED DURING THE M.C.C. TEST.

SOME interesting comparisons in regard to hill-climbing powers of various types of motor cycles, sidecars, and cycle cars can be gleaned from the perusal of the official results of the climb of Porlock on the recent Bank Holiday run of the Motor Cycling Club to the west of England. Last week we published a full account of this run, together with the official figures relating to the Countisbury climb, and now we are enabled to give the figures for Porlock. The competitors were divided into three classes, A, B, and C, according to the machines they rode. A represented 350 c.c., B 500 c.c., and C the unlimited class. Minimum speeds up Porlock were arranged as follows for the three classes : A 10, B 12, and C 14 m.p.h. Naturally enough the fastest speeds were obtained by the big machines, the highest being accomplished by G. T. Gray (5-6 Rudge-Multi), who got up at an average speed of no les sthan 19.72 m.p.h., closely followed by B. A. Hill (7 Indian) and A. J. Dixon (3½ Singer) in 19.69 and 19.01 respectively. The latter performance is very remarkable. Dixon's machine was fitted with a Sturmey hub gear, and it demonstrates very forcibly that, given intelligent handling, the 3½ powered machine is capable of anything in reason for touring. The surface of the hill was bad, being deep in a thick sandy covering, making the cornering difficult. L. A. Baddeley (3½ P. and M.) and H. F. Edwards (6 Enfield) also exceeded 18 m.p.h. The slowest clean ascent was that of D. W. Popplewell (3½ Triumph), who climbed at a mean speed of 13.01 m.p.h., and as this, in itself, is an admirable performance, it shows how wonderfully the other machines negotiated this severe ascent.

Sidecars versus Cycle Cars.

Three sidecar combinations and one cycle car competed. Of these one of the sidecars failed to get up inside the limit, but the other two, both 5-6 Clynos, had a rare tussle with the 10 Singer cycle car for supremacy. Honours just went to the Singer, driven by Lionel Martin, whose average speed was 14.67 m.p.h., against 14.64 m.p.h. by R. C. Davis on the Clyno, while H. G. R. Slingo, also on a Clyno, averaged 13.67.

It would, therefore, appear that for severe climbing the best sidecars and cycle cars have little to choose between them if well driven, but their speeds were materially bettered by a couple of Douglases, ridden by S. G. Frost and E. Kickham, who averaged respectively 15.78 and 15.20 m.p.h., a really splendid feat. Probably the handiness of these little machines on the bad corners had something to do with their success, though good driving probably played its part, as two others in the 350 c.c. class failed to ascend at the required average speed. But taken as a whole the various performances show that all classes from 350 c.c. to 1,100 c.c. provide adequate touring mounts of the go-anywhere order.

MM. Guilloreau and Gabriel (Clements) two of the French International team in the Six Days' Trials, accompanied by Greame Fenton and A. J. Sproston. The third team member is Bourbeau (Bedelia).

The winning Woolwich, Plumstead and District M.C.C. Team in the Brooklands M.C. Inter-club team trial. From left to right they are: J. W. Wood Enfield sidecar), R. E. Guest (8 h.p. Matchless sidecar), H. A. Collier (3½ h.p. Matchless), C. R. Collier (8 h.p. Matchless sidecar), T. J. Ross (3½ h.p. Triumph) and G. D Hardee (3½ h.p Triumph).

SPEED JUDGING COMPETITION.

The Woolwich, Plumstead and District M.C.C. recently held a reliability and speed judging test to Hythe and back to Ruxley. Result:

		error
1.	F. I. Ellis (3½ Matchless)	16s.
2.	J. W. Wood (Enfield sc.)	22s.
3.	S. W. Gibson (Enfield)	121s.

THE FRENCH TEAM IN THE INTERNATIONAL TRIAL.

On Monday afternoon last Messrs. Greame Fenton, Gabriel, and Guilloreau arrived at 3.25 at Charing Cross, together with their Clément Gladiator machines, and were welcomed on arrival by a representative of *The Motor Cycle*. They spent the night in London, and then proceeded to Carlisle by train on Tuesday to explore the country and get an idea of the English gradients. Neither Gabriel nor Guilloreau has been in England before, so they will be entirely new to the conditions prevailing over here. Fenton is, unfortunately, unable to ride, as in the recent race at Le Mans he met with a rather serious accident, dislocating his shoulder, knocking out a tooth, and sustaining serious bruises. Sproston is therefore riding in his place. Bourbeau, who is riding a Bedelia, did not arrive with the party. The Clément Gladiator machines are practically the same as those entered in the Paris-Nice Trial. They are finished in French grey and fitted with M.A.G. engines, and outwardly strongly resemble the Motosacoche. The machine Guilloreau is riding is a twin of 350 c.c., but Gabriel's mount has a larger engine, bore and stroke 64×77=498 c.c. Two-speed counter-shaft gears and chain drive are standard features. The performances of the belt-driven Bedelia will be watched with particular interest on such a severe course.

IMPORTS AND EXPORTS OF MOTOR CYCLES.

The British imports and exports of motor cycles and parts are still on the increase and show a vast difference from the amount for the corresponding periods of 1912. We quote figures culled from the latest Board of Trade returns for the month of July :

IMPORTS.
For month ended July 31st.

	1911.	1912.	1913.
Motor Cycles	£2,971	£4,857	£2,640
Parts thereof	7,267	13,444	16,204
Total	£10,238	£18,301	£18,844

BRITISH EXPORTS.
For month ended July 31st.

	1911.	1912.	1913.
Motor Cycles	£24,411	£43,148	£71,287
Parts thereof	5,249	13,051	23,737
Total	£29,660	£56,199	£95,024

The exports for the seven months ended July 31st totalled £165,646.

A SPECIMEN A.C.U. SIX DAYS' TRIAL TEST HILL, INCLUDED IN TUESDAY'S ROUTE.
It has a double hairpin, long stretches of loose stones, and gates. A photographer who went to investigate on his 8 h.p. Matchless sidecar, has returned most impressed with the severity of the test hills.

NEXT WEEK'S A.C.U. TRIALS.

Complete List of Entries with Official Numbers. The Main Features.

NEXT week the roads of Lakeland will be alive with motor cycles, for the annual A.C.U. Six Days' (or rather five days) Trials will take place in that district, with Carlisle as a centre. There will probably be not short of 160 actually competing.

The official maps and routes were published in our issue of July 31st last, also the contour sections of the roads, from which it would be seen that the hill-climbing tests set the riders will form the chief feature of the trial. But, although the gradients selected are undoubtedly severe, and many of the corners acute, the surfaces are, in the main, good, and provided the machines are up to the mark and sensibly ridden, there ought not to be any very great difficulty in surmounting all the numerous test hills.

An innovation has been introduced this year in the shape of the flexibility test, and in addition to this a speed trial will be held over a kilometre at Underley Hall, Kirkby Lonsdale, on Friday, a flying start being allowed.

The introduction of a flexibility test is, perhaps, the most interesting innovation by the A.C.U. for some time, and is undoubtedly a step in the right direction. We deal with this matter in our leaderette this week.

Suffice it to say here that the test will take place up a gradient averaging one in ten 250 yards in length, the first fifty yards being a slow and the last 200 yards a fast run. 7.2 m.p.h. maximum and 5 m.p.h. minimum are set for the slow test, and 18 m.p.h. minimum and 20 m.p.h. maximum for the fast part of the run. Nothing is to be gained by slower or faster running respectively. We feel sure that an immense amount of interest will be aroused by these tests, especially by the slow portion. No stopping the engine or leg assistance will be permitted.

The general running conditions are strict and a very close adherence to schedule will be necessary to qualify for a gold medal. We published last week a full list of penalties and marks to be lost through incurring them. An interesting point to be noticed is the penalising by one mark each day of any excessively dirty or untidy machine or driver. Here again we think the A.C.U. is acting wisely and in the best interests of the pastime. One last word; competitors and all others attending the trials are particularly requested to drive with the utmost consideration through Carlisle each morning and night.

DIVISION 1.—MOTOR BICYCLES.

Class B.—350 c.c.

1. C. Percival (2¾ Douglas).
2. Jas. B. Sproston (2¾ Sunbeam).
3. A. G. Cocks (2¼ Connaught).
4. P. Phillips (2¾ Douglas).
5. F. G. Edmond (2¾ Humber).
6. E. Gutgemann (2¾ Veloce).
7. T. C. de la Hay (2¾ Sunbeam).
8. W. R. Steel (2¾ Sunbeam).
9. F. G. Ball (2¾ Douglas).
10. Tom Knowles (2¾ Humber).
11. F. L. Bassett (2¾ Sun-Villiers).
12. Albert Milner (2¾ Levis).
13. Howard Newey (2¾ Levis).
14. P. W. Moffat (2¾ Douglas).
15. W. B. Gibb (2¾ Douglas).
16. M. Guilloreau (2¾ Clément).
17. A. J. Sproston (3½ Clément).

Class C.—500 c.c.

18. W. J. M. Sproulle (3½ P. & M.)
19. G. D. Hardee (3½ Triumph).
20. T. J. Ross (3½ Triumph).
21. Fred Dover (3½ Premier).
22. J. H. Kerr (3½ N.S.U.)
23. Albert E. Catt (3½ Triumph).
24. S. Sawer (3½ Premier).
25. F. W. Applebee (3½ B.S.A.)
26. W. C. Drake (3½ P. & M.)
27. P. Shaw (3½ P. & M.)
28. Harry Moore (3½ P. & M.)
29. Maurice C. Breese (3½ B.S.A.)
30. F. E. J. Bartlett (4-5 Endurance)
31. C. B. Moss-Blundell (3½ Green-Precision).
32. H. V. Colver (3 Enfield).
33. E. Keyte (3 Enfield).
34. H. Graham Dixon (3½ James).
35. J. Ingham (3½ Veloce).
36. S. Tubb (3½ Humber).
37. T. B. G. Vale (3½ Rover).
38. G. E. Cuffe (3½ Premier).
39. W. E. Cooke (3½ A.S.L.)
40. S. Browne (3½ James).
41. Ellison Hawkes (3½ Rudge).
42. F. C. North (3½ Ariel).
43. J. M. Ritchie (3½ Rudge).
44. Herbert Bali (3½ Triumph).
45. J. Oliphant (3½ Premier).
46. J. S. Holroyd (3½ Motosacoche).
47. W. B. Little (3½ Premier).
48. C. Q. Roberts (3½ Blackburn).
49. W. H. Longton (3½ Alldays)
50. H. F. Edwards (3½ B.S.A.)
51. L. Newey (3½ Ariel).
52. K. A. Macdonald (3½ Singer).
53. W. Maurice Greenwood (3½ New Imperial).
54. H. Taylor, jun. (3½ B.S.A.)
55. A. C. F. Andrews (3½ Ariel).
56. Vernon Busby (3½ Ariel).
57. R. S. Scoon (3 N.U.T.)
58. G. E. Keel (3 N.U.T.)
59. James Robinson (3 N.U.T.)
60. J. Hoult (3½ Matchless).
61. H. Berwick (3½ Hampton).
62. T. B. Westmorland (3½ Premier).
63. H. C. Mills (3½ Zenith-Green).
64. Sydney J. Hine (3½ Humber).
65. D. M. Brown (3½ Rover).
66. G. J. Francis (3½ Lea-Francis).
67. Norman Lea (3½ Lea-Francis).
68. L. Sealey (3½ B.S.A.)
69. A. G. Fenn (3½ B.S.A.)
70. D. H. Noble (3½ Rover).
71. G. Featherstonhaugh (3½ Rover)
72. C. T. Newsome (3½ Rover).
73. T. Pollock (3½ James).
74. C. Lester (3½ P. & M.)
75. M. Gabriel (3½ Clément).
76. Rex G. Mundy (3½ Triumph).
77. G. J. Shemans (3½ Triumph).
78. W. Westwood (3½ Triumph).
79. C. E. Murphy (3½ Triumph).
80. A. W. Walden (3½ Premier).

Class D.—750 c.c.

81. J. A. Neumann (5-6 Rudge).
82. Ian P. Macdonald (4½ Norton).
83. G. T. Gray (5-6 Rudge).
84. H. W. Teeton (3½ James).
85. H. E. Ashley (4 L.M.C.)
86. Dan Bradbury (4 Norton).
87. Ray. Drinkall (4½ Quadrant).
88. J. J. Day (3½ Bradbury).
89. Gordon Castognoli (4 L.M.C.)
90. L. A. Bees (4 L.M.C.)
91. Fred W. Roberts (5-6 Rudge).
92. H. Blamire (5-6 Hazlewood).
93. F. H. May (5 A.J.S.)
94. A. W. Brittain (3½ Bradbury).
95. G. W. Braithwaite (5-6 Rudge).
96. P. Platt (3½ Bradbury).
97. H. E. Haswell (3½ Bradbury).
98. George Hunt (5-6 Campion).
99. H. J. Beal (4 L.M.C.)
100. J. Richard (4½ Sun-Precision).
101. J. D. Drysdale (5-6 Hazlewood).
102. A. T. Stanton (3½ Bradbury).

Class E.—1,000 c.c.

103. J. Douglas Morrison (5-6 Bat).
104. H. H. Hutchinson (6 Trump).
105. E. A. Colliver (7 Indian).
106. B. Alan Hill (7 Indian).
107. S. T. Tessier (5-6 Bat).
108. J. R. Alexander, jun. (7 Indian).
109. G. A. Gregson (6 Bat).
110. J. V. Edge (6 Brough).
111. A. Sumner (8 Zenith).
112. J. Haslam (6 Zenith).
113. H. Jepson (8 Zenith).
114. C. W. Smith (5-6 Bat).
115. Reay S. Morrison (5-6 Bat).
116. R. E. Townshend (6 Trump).
117. E. H. Lees (8 Zenith).
118. M. Hands (8 Williamson).

DIVISION 2.—SIDECAR COMBINATIONS OR 3-WHEELED CYCLE CARS.

Class G.—500 c.c.

119. H. C. Marston (3½ Triumph).

Class H.—750 c.c.

120. Jesse Baker (3¾ Scott).
121. Hugh Gibson (3½ Bradbury).
122. A. J. Stevens (6 A.J.S.)
123. D. Bell (6 A.J.S.)
124. F. A. Applebee (3¾ Scott).
125. J. Norman Longfield (3¾ Scott).
126. R. C. Davis (5-6 Clyno).
127. Philip Grout (6 A.J.S.)
128. Thomas Stevens (3½ James).
129. Cecil Duplock (6 A.J.S.)
130. Rex Pearson (5-6 Clyno).
131. Claude Freeman (5-6 Clyno).
132. J. A. Poxon (3½ Bradbury).
133. George Wray (5-6 Clyno).
134. George Nott (5-6 Clyno).
135. A. D. Arter (4½ James).

Class I.—1,000 c.c.

136. C. H. R. Norrington (6 Enfield).
137. H. Greaves (6 Enfield).
138. W. H. Eggington (6 Enfield).
139. Fred Crostwaite (8 Matchless).
140. J. Chater-Lea, jun. (8 Chater-Lea).
141. E. B. Glisson (8 Wall tricar).
142. Denis Buckley (8 Matchless-Precision).
143. Fred Turvey, jun. (6 Enfield).
144. Victor Garland (8 Chater-Lea).
145. T. Silver (7 Quadrant).
146. W. Land Dibb (6 Rex).
147. C. R. Collier (7-8 Matchless).
148. R. E. Guest (7-8 Matchless).
149. T. Rutherford (7-8 Matchless).
150. H. F. S. Morgan (8 Morgan).
151. Doug. Alexander (8 Williamson)
152. J. B. Blackbourn (8 Morgan).
153. R. A. Rhodes (6 Wulfruna).

DIVISION 3.—CYCLE CARS.

Class K.—1,100 c.c.

154. F. K. Portway (9 Paragon).
155. P. D. Walker (10 Harding and Summers).
156. C. M. Keiller (8 G.W.K.)
157. W. Chater-Lea (8 Chater-Lea).
158. Alan T. Tamplin (8 G.W.K.)
159. Lionel Martin (10 Singer).
160. E. B. Slater (8 J.B.S.)
161. R. Bourbeau (8 Bedelia).
162. W. Cooper (8 Humberette).

The Leaders.

The starting order in the Six Days' Trials will be varied as last year, so that those who finish late on the first day will be much earlier on succeeding days. The leaders on the five trials days fall as follows:

Monday: 116, R. E. Townshend (6 Trump-Jap).
Tuesday: 42, F. C. North (3½ Ariel).
Wednesday: 45, J. Oliphant (3½ Premier).
Thursday: 5, F. G. Edmond (2¾ Humber).
Friday: 50, H. F. Edwards (3½ B.S.A.)

The start is at 8.0 a.m. each morning, except Friday, when the start is timed for 7.0 a.m.

The International Teams.

In the International Trial France's colour is blue and the British team green.

The details of the machines are as under:

No.			mm.		c.c.
	Great Britain.				
15.	W. B. Gibb (2¾ Douglas) ...	...	60.8	× 60	349
47.	W. B. Little (3½ Premier) ...	...	85	× 88	499
147.	C. R. Collier (8 Matchless sc.)	...	85	× 85	964
	France.				
16.	M. Guilloreau (2¾ Clément-Gladiator)		54	× 75	350
75.	M. Gabriel (4 Clément-Gladiator) ...		64	× 77	498
161.	M. Bourbeau (8 Bedelia c.c.)	...	82	× 100	1,100

THE ROUTES FOR THE SIX DAYS' TRIALS.

MONDAY (124 miles). — Carlisle, Cotehill, Armathwaite, Kirkoswald, Lazonby, Penrith, Ullswater (North), Watermillock, Matterdale, Ullswater, Patterdale, Kirkstone Pass, Ambleside, Foolstep Hill, Red Bank, Dunmail Raise, Whitburn, Thirlmere, Keswick (lunch), Braithwaite, Whinlatter Pass, Low Lorton, Whinfell, Loweswater, Crummock Water, Buttermere Hause, Newlands, Stair, Gutherscales Hill, Grange, Derwent Water, Keswick, Bassenthwaite, Uldale, Aughertree Fell, Dalston, and Carlisle.

TUESDAY (164 miles). — Upperby, Southwaite, Calthwaite, Penrith, King's Meaburn, Crosby Ravensworth, Orton, Grayrigg, Kendal, Dent, White Shaw Moss, Ingleton (lunch), Newby Head, Hawes, Butter Tubs Pass, Keld, Stonesdale Hill, Tan Hill Inn, Brough, Appleby, Long Marton, Skirwith, Glassonby, Kirkoswald, Gumwhitton, and Warwick.

WEDNESDAY (147 miles).—Dalston, Warnell Fell, Caldbeck, Hesket Newmarket, Mungrisdale, Wythburn, Dunmail Raise, Grasmere, Red Bank, Skelwith Br., Coniston, Blawith, Lowick, Kirkby Moor, Ulverston (lunch), Higher Lath, Grizebeck, Broughton-in-Furness, Ulpha, Kiln Bank, Broughton-in-Furness, Ulpha, The Seat, Eskdale Gn., Gosforth, Calder Br., Cold Fell, Ennerdale Bridge, Crossdale, Lamplugh, Cockermouth, Bothel, Mealsgate, Red Dial, and Thursby.

THURSDAY (170 miles).—Warwick, Croglin, Renwick, Hartside, Alston, Nenthead, Slate Hill, Wear Head, St. John's Chapel, Westgate, White Edge, Bolts Burn, Stanhope, Horseshoe Hill, Edmundbyers, Lanchester, Witton Gilbert, Durham (lunch), Brancepeth, Tow Law, Wolsingham, Eggleshope, Newbiggin, Grass Hill, Alston, Knarsdale, Hallbank, Gate, Warwick, and detour to Wetheral.

FRIDAY (178 miles).—Carleton, Low Hesket, High Hesket, Plumpton Wall, Penrith, Clifton, Thrimby, Shap, Forest Hall, Kendal, Brigsteer Brow, Natland, Underley Hall (speed trials), Casterton, Kirkby Lonsdale, Lupton, Sampool Bridge, Staveley, Gummer's How, Bowness (lunch), Low Wood Hotel, Skelwith, Hollin Bank, Coniston Water, Oxen Park, Thwaite Head, Devil's Gallop, Satterthwaite, Ambleside, Kirkstone Pass, Patterdale, Ullswater, Dacre Bank, Skelton, and Ivegill.

SOUTH-EASTERN COUNTIES INTER-CLUB TEAM TRIAL.

J. T. Wood (G.W.K.) ascending Cudham Church Hill.

THE South-Eastern Counties' Inter-club Team Trial was held last Saturday, the first man being despatched from the Crown Hotel, Leaves Green, at ten o'clock. The rules stated that any man stopping automatically retired from the trial, and should two or more teams finish with an equal number of men left in, the winning team would be decided on the lunch and finishing time checks.

The route for the greater part of the journey lay through twisty lanes, and included the ascent of Chalk Pit, Polsteeple, Crown Ash (usually called Salt Box), and Cudham Church Hills. There were also several acute hairpin corners which required very careful negotiation. This course had to be covered twice, once in the morning and again after lunch, and it was agreed by all that it was a very tricky route. Three officials went round before the start and posted arrows, but, unfortunately, there is a great deal of ill-feeling towards motor cyclists in this district, and some mischievous persons had removed some of the arrows, which caused a great many of the competitors a lot of trouble to find their way.

About two miles from the start we passed Gibson, who had suffered a puncture. The first hill, Cudham, accounted for Smith on an Enfield and sidecar, who failed to climb it. Chalk Pit Hill was dry, but full of bumps, which made it very awkward to take the bends, and here Henfrey (Ariel) failed on the bottom corner, while just before reaching this hill Meredith (Bradbury sidecar) had the misfortune to break his belt. Polsteeple was climbed easily by all.

Crown Ash was undoubtedly the worst hill of the day, it being in a very bad condition, and the gradient is quite severe enough at the best of times, but in addition to this it was covered with loose stones. However, on the whole, the performances were quite good, although Belsham's 3½ Rudge-Multi emitted some ominous konks. Sydenham (Clyno) met his Waterloo, while Graham Price managed to reach the top when his belt broke, truly hard luck. Some very good performances were put up on Cudham Church Hill, amongst these being Hardee, Collier, and Mundy. The next hill of any note was Hog Trough, where most of the competitors performed admirably. About here Breeze (B.S.A.) punctured and Taylor (2½ A.J.S.), who stopped his engine going downhill with no clutch out, was unable to get it to fire again in time before reaching a bad corner.

Twisty lanes brought us to the start again; but many went wrong about one mile out owing to a missing arrow. After lunch the men were started on their second circuit, and Willoughby retired. Only Charlesworth and he were left in the Purley team, and up to this point they had both made non-stop runs. Charlesworth, who was riding his Zenith with M.A.G. engine, as in the Anglo-Dutch trials, decided to withdraw, and Mitchell, who had had the word to start and had gone only a few yards when his tyre went flat. Belsham, although managing to make a clean ascent in the morning, failed on the bottom bend of Chalk Pit in the afternoon. Wood (Enfield sc.) had to stop on Cudham Church Hill to clean a plug, and Meeten (3½ Rudge) was reported for footslogging on the bottom corner of Crown Ash, but was allowed to claim a non-stop. Edwards was put out by trouble with his hub gear, and C. Collier, who punctured a few miles out, retired. Harry Collier was riding a 3½ twin Matchless with chain drive to the counter-shaft and thence a belt to an Armstrong hub gear, and was only slowed by Crown Ash. Mitchell stopped about fifty yards from the finish trying to run slowly, as he was too early. A few miles from the finish was a hairpin corner, and to prove how acute this was, Wood had to reverse on both rounds with his G.W.K.

A word must be said for the big twin Premier handled by Oliphant, for this machine climbed in splendid style, although the driver told us that he found it necessary to keep his engine turning round fairly fast.

Officials Astray.

A. G. Reynolds was on the programme as timekeeper, but we were informed that the A.C.U. had in some way failed to communicate with him, and so Mr. F. J. Ellis, of the Woolwich Club, had to undertake his duties. The Rev. E. P. Greenhill, the A.C.U. representative, arrived rather late in the afternoon, this time on a three-speed James. The result was that the Woolwich Club beat the Brookdale Club by 1m. 24⅘s., both with four finishers, the Surrey Club being third with three finishers, and the Streatham Club fourth. The Purley Club had none to finish.

We must congratulate the officials on the smart way in which they announced the results, H. A. Cooper in particular being responsible for some very hard work. The following made non-stops :

WOOLWICH CLUB.

G. D. Hardee (3½ Triumph)	H. A. Collier (3½ Matchless)
R. E. Guest (8 Matchless sc.)	T. J. Ross (3½ Triumph)

BROOKDALE CLUB.

J. O. Oliphant (8 Premier sc.)	E. H. Fuller (3½ Premier)
J. D. Drysdale (6 Hazlewood)	W. F. Guiver (3½ Ariel)

SURREY CLUB.

J. T. Wood (G.W.K. c.c.)	T. Meeten (3½ Rudge)
H. Crow (3½ Ariel)	

STREATHAM CLUB.

J. Bateson (2¾ Douglas)	Rex G. Mundy (3½ Triumph).
W. L. Barratt (2¾ Douglas)	

The members of the winning team to make non-stop runs will each receive a gold medal

Coupe Internationale des Motocyclettes, Circuit de la Sarthe.

500 c.c. class--Woodhouse (Clement) first on

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AUGUST SIDECAR HANDICAP.

FIRST.....A. Sumner (Zenith) **on Continentals.**
3rd. .....Kenneth Holden (B.S.A.) **„ Continentals.**

13th LONG MOTOR CYCLE HANDICAP.

FIRST.....E. E. Elwell (Douglas) **on Continentals.**
2nd .....V. E. Horsman (Singer) **„ Continentals.**
3rd .....P. Brewster (Zenith) **„ Continentals.**

16th SHORT MOTOR CYCLE HANDICAP.

FIRST.....Kenneth Holden (B.S.A.) **on Continentals.**
2nd .....V. E. Horsman (Singer) **„ Continentals.**

WINNERS' HANDICAP.

FIRST.....E. E. Elwell (Douglas) **on Continentals.**

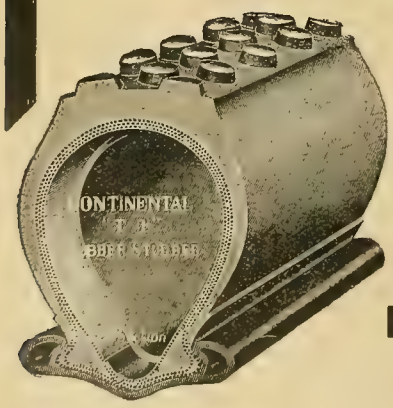
Thus every Motor Cycle Race
was won on Continentals.

SCOTTISH SIX DAYS' TRIALS

Perfect satisfaction
and
FIVE GOLD MEDALS
on Continentals.

Try Continental Belts.

CONTINENTAL TYRE & RUBBER CO.
(GT. BRITAIN), LTD.,
3/4, THURLOE PLACE, LONDON, S.W.



D333

Car Practice Applied to Motor Cycles.

THE two-cylinder engine produced by the Triumph Co., which we illustrated last week, is interesting inasmuch as it marks a distinct step towards merging the design of power units of cars and motor cycles into closer harmony. Some few years ago cars were notoriously a jumble in the way the necessary component parts were assembled, but gradually out of disorder has come compactness, and now the best practice affords a neat unit-giving engine, clutch and gear box in one compact whole. It is now universally acknowledged that a change-speed device giving preferably, at least, three speeds should be employed, and what could be better, lighter, or stronger than that the engine base chamber and gear box should be in one piece, so arranged that the whole can be removed bodily from the frame by the removal of two or three bolts at the most.

The final drive could be arranged either by shaft, chain, or belt, and the accessibility of the back wheel would be unimpaired. Weight would be centred at the point where it is most wanted, and cleaning would be enormously simplified. Already engines are on the market with the gear box integral with the engine, and they are giving satisfaction. The difficulties in evolving a successful design are not enormous, and if it were possible to lift out the unit containing engine, gears, clutch, magneto, and carburetter, and transfer it to the bench, overhauls and adjustments would become a matter of ease, and reassembling an operation of absolute simplicity. This desideratum has been reached in quite inexpensive cars—we believe it to be only a question of time before the ingenious designer applies the same skill to the design of motor cycles.

PEERLESS CYCLE CAR MODELS.

A few days ago we paid a visit to the works of Peerless Motors, Ltd., Bradford Street, Birmingham, and inspected a very neat little single-seated cycle car fitted with a 3½ h.p. Green water-cooled engine with water tank and petrol reservoir placed under the scuttle dash. The Green water-cooling system being embodied with the cylinder the bonnet of this little car is pointed in shape, and provided with openings through which the air can reach the radiators of the cylinder.

This firm has taken over the Rollo designs, and is now occupied in turning out a water-cooled model under the title of the Peerless. An 8 h.p. water-cooled engine is employed, this being placed under a taper bonnet with pointed radiator.

The Peerless Co. are also at work on an entirely new model cycle car which will be ready for exhibition at Olympia. The engine and gear box will form one unit, two speeds and reverse being fitted, while the transmission will be by propeller-shaft and differential.

SCENES IN THE BROOKDALE M.C. SOUTH EASTERN COUNTIES INTER-CLUB TEAM TRIAL.

ON THE TRACK OF THE TRIALS.

The Adventures of a Novice in the Scottish Highlands.

MUCH has been written about the Scottish Six Days' Trials, but possibly the experiences of an absolute novice during that very strenuous and exciting week in the Highlands may prove of interest.

Originally my intention had been to cover the route as the passenger in a competing sidecar, but circumstances arose which made it imperative that I should go round on my own. My experience of motor cycling was limited, and before the trial I had covered at the most only 200 miles on a petrol-driven machine. Thus the prospect of tackling a thousand miles in one week over the most severe road in the land o'cakes did not appear too alluring, and caused many a qualm of uneasiness before even the start from the fair city of Perth. The sympathetic remarks of my friends were also not calculated to elevate my somewhat low spirits, and judging by their concern regarding my welfare, the majority had visions of my early return to the city on the Clyde—if I returned at all—*via* one of the many luxurious express trains from the North. "Nothing venture nothing win," however, is particularly applicable to all sports, and especially so in relation to motor cycling, and loaded with as little luggage as possible on the carrier, my camera on my back, and tons and tons of advice, I started upon the most memorable week which it has been my luck to experience.

A few words as to my mount will not be amiss. This was a 1913 3½ h.p. Rover, fitted with Armstrong three-speed gear, which had covered about 500 miles before it came into my hands. As a special precaution against tyre trouble, I fitted a pair of Bates special heavy 2½in. tyres and tubes, and it may be stated here that, with the exception of one small puncture repaired in the garage in Edinburgh at the conclusion of the trial, they caused me no trouble from start to finish. Undoubtedly a splendid tribute to their wearing and puncture-resisting qualities.

Wriggling Up Amulree.

Amulree was my objective on the first day, and the famous hill was reached without trouble. Like a good many one-time test hills it does not now possess the terror it once did, and although one or two very strained expressions were seen during its ascent, the majority of the competitors rounded its hairpins with an abandon and sangfroid which would have been entirely absent a few years ago. My own ascent I will never forget, and neither will the spectators who derived so much amusement from my tortuous efforts. The first hairpin was rounded quite easily, and so was the second. Then the fun began. With a violent wobble of the front wheel I charged first the right bank, then swung across to the left, then back to the right, finally finishing with a straight dash up the hill. Despite my antics, however, I climbed the hill on my first attempt, without coming off, and was pardonably pleased at my success. As if to cure me of my pride, however, I had not proceeded far on the road to Kenmore when in crossing some loose surface I parted company with the machine, incidentally losing my left pedal.

My Second Spill.

Nothing further happened until the long climb up the Spital of Glenshee, which culminates in the bends of the Devil's Elbow. Too much oil was the trouble, the plug sooting up. Here occurred my second fall, the loose sand on the second bend bringing me to earth, greatly to the delight of a few personal friends on the hill. Like good sportsmen, though, they assisted to set things aright, and with their best wishes I went on for Braemar, where I arrived without further mishap.

Lunch fortified me for the journey over the "worst road in Scotland," and after an uneventful trip I arrived in Inverness with the last of the competitors. The afternoon's itinerary did not appeal to me as being as severe as it was painted, and were it not for the atrocious surface, the majority of the hills would be easily climbable. The bracing air and the unaccustomed mode of travelling made me feel rather fatigued, and it was with a feeling of relief that I threaded my way through the narrow streets of the northern capital, having covered more miles in one day than I had previously done altogether.

Looking back in calmer reflection upon this first day, no incident stands out pre-eminently, and if any one thought remains in my memory more than another, it is of the execrable road surface. In many places the trip resembled an obstacle race, the loose metal being strewn all over the so-called roads. Of the magnificent scenery through which we passed I saw little. My whole time was occupied in keeping watch over the front wheel and preventing its many tendencies to go off on its own.

Days Too Long and Nights Too Short.

The few hours abed on the Monday evening were all too short, and the following morning found me disinclined to start, and, in common with a few fellow spirits, wishing the Trials anywhere. I really think an event of this type should be one day trial and one day rest. Perhaps the officials will make a note of this suggestion for future occasions!

In a week such as this one day is very apt to resemble another, hence we have rough roads and hills or hills and rough roads. Of one thing we can be

On the Track of the Trials.

certain, and that is that good surfaces are uncommon in Scotland. If asked to give my opinion as to the worst, I should plump for the stretch between Tongue and Melvich. I know that not many of the competitors will agree with me, but I have vivid recollections of the journey to Thurso, and shall never forget the sigh of relief which I heaved on coming to the last twelve miles of road into this town, which is really excellent.

Wednesday was the most enjoyable day of all, a glorious "blind" from beginning to end. With the machine going splendidly, the road excellent, and the scenery magnificent, what more could one want? No wonder a feeling of exhilaration coursed through my veins. The mighty billows of the North Sea dashing upon the rocky coast of Caithness was a picture worthy the brush of an artist, and I was tempted to linger with the camera and obtain views of the seething foam. But this was no time to tarry, and, with the smell of the sea in my nostrils, the call was On! On! On! The charms of the panorama of loveliness through which I passed were, however, not lost. On the left, as far as the eye could see, stretched the wind swept ocean. On the right, the undulating moors vanished in the haze, out of which the rugged Sutherland peaks towered like sentinels guarding the lands beyond.

The North-west Highlands.

Strathpeffer, the spa of the Highlands, beautifully situated in a hollow in the hills, was a delightful stopping place after so glorious a day. The journeys to the West, Applecross, Mam Ratachan, Glenelg, and Glendoe, were again a test of tyres and frames. With Applecross, I confess to being a little disappointed. Were it not for the bad surface, there would be no difficulty in the climb, and the same holds good regarding Mam Ratachan. The chief difficulty of the hills lies in their length and the test of overheating. From the scenic standpoint, both are magnificent; the views from the summits stretching for miles in a panorama of hill and loch.

A Word for the Machine.

So much for the Thursday and Friday. The last day very much resembled the first, and a recital of the various hills and road surfaces covered, would serve no useful purpose. Edinburgh was reached in the evening without mishap, and so finished a week brimful of incident.

From start to finish the Rover had done splendidly, and, even in my novice hands, the only trouble was a sooting of the plug, due, as before mentioned, to over oiling. With the exception that I opened my toolbag for the purpose of removing the plug, I never required a spanner for anything else. The engine possessed plenty of power and climbed all the hills encountered quite easily. As to the Armstrong gear, this was only adjusted twice during the week, and never failed on any gradient. At the time when we hear so much about the failure of hub gears, I would like to state my absolute freedom from trouble during this strenuous week, which should go to prove the reliability of this type of gear.

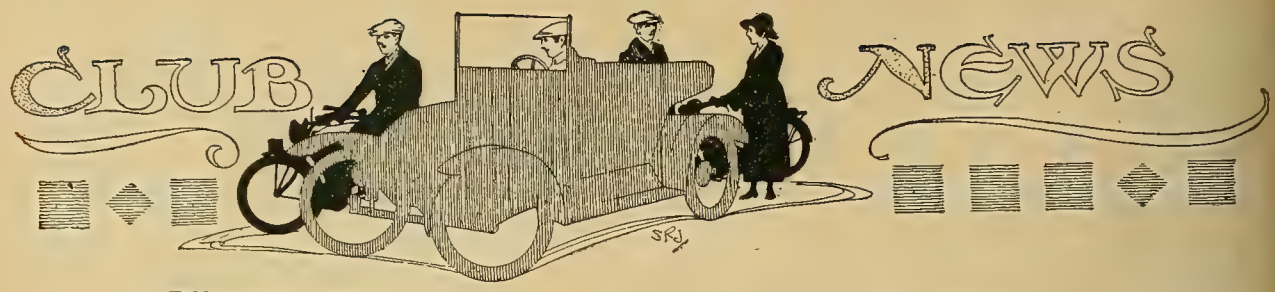
J.L.G.

A REMARKABLE RUN.

Round Scotland on a Single Gear.

IN these days, when nearly everyone considers two or three speeds essential fitments to a motor cycle, it is remarkable to find anyone with the temerity to take a single-geared machine through a six days' trial, and when the trial selected was the late Scottish Six Days, it is a really wonderful performance to carry out. George Brough, mounted on a 6 h.p. twin Brough of his own manufacture, has performed this feat, and as the route of the Scottish trials fell twenty miles short of the round thousand, he asked us to accompany him a further twenty miles to complete that distance. Brough believes in moderate weight and plenty of power, and he quite eschews low gears. By far the greater portion of the run was accomplished on a 3⅞ to 1 gear ratio; only on Amulree, Applecross, and Kenmore did he fit a smaller section belt which gave him a ratio of 4½ to 1. Anyone who has had experience of these roads will appreciate Brough's performance to the full, for even allowing for great skill in the handling of the machine, it requires an engine of remarkable flexibility and suppleness to tackle these acute Scotch hairpins on any gear of a single figure ratio. While applauding the skill of the rider and the excellence of his motor, it must not be imagined that we look with favour on the single-geared machine for touring. We do not, nor do we suppose does Brough, but he set out to prove that he can build a twin engine capable of extraordinary performance, and in that he amply succeeded. Fitted with a change-speed device, such a machine as this should be capable of taking a sidecar and full load anywhere under any conditions, while the moderate compression employed renders it a most comfortable mount to ride.

George Brough of Nottingham, and the 6 h.p. Brough which he rode through the recent Scottish Six Days' Trial on a single gear.



Tyldesley and District M.C.C.

The annual reliability trial was concluded on Bank Holiday. The course was *via* Leigh, Dinas Mawddwy, Aberystwith, Newtown, Knighton, and Tarporley. Result:

1. A. Peters (3½ Triumph)
2. A. Hobson (3½ B.S.A.)
3. C. Newton (3½ B.S.A.)

Aberavon, Port Talbot and District M.C.C.

The following are the results of the reliability trials held on the 3rd and 4th inst. to Aberystwith and back: Winner of the Deere Challenge Cup and gold medal, G. Clarke (3½ Zenith), 3m. error; 2, F. Abbott (3½ James), 4m. error. Gold medals: G. Clarke, T. Evans, F. Abbott, H. Davies, and L. Davies. Silver medals: J. Davies and B. Wheeler.

The Public Schools M.C.

Two runs will be held, starting from Birmingham, to give members an opportunity of meeting one another. The first run will start from the Grand Hotel at 2 p.m. on Saturday, August 16th, for Llangollen, *viâ* Wellington, Shrewsbury, Chirk, to put up at the Hand Hotel, Llangollen. The second run will take place on Saturday, August 30th, starting from the Grand Hotel, Birmingham, at 2 p.m., for Henley-on-Thames, *viâ* Stratford-on-Avon, Shipton, and Oxford, and putting up at the Lion at Henley.

Liverpool Amateur M.C.C.

A 140 miles reliability trial was held in North Wales on August Bank Holiday. The course was a fairly stiff one, and eliminated a number of the competitors. The following are the winners in the order named: 1, C. Stuart Ashcroft (Rudge-multi); 2, E. V. Taylor (Bradbury); 3, W. D. Williams, jun. (Douglas); 4, J. Wood (Clyno).

The committee have now issued the result of the hill-climb recently held at Halkyn Mountain: 1, George Flinn (6 Brough); 2, W. D. Williams, jun. (Douglas); 3, C. H. Dalmer (6 Royal Enfield).

Finsbury Park C.C. (Motor Cycle Section).

A flexibility test, consisting of fast and slow hill climbs was held on the 4th inst. near Pangbourne. The same gear had to be used for both climbs and the machines could not be altered in any way, so that the results depended entirely on the real flexibility of the engine and the riders' skill. The hill was threequarters of a mile long, having an average gradient of about 1 in 8 with two corners.

The Motor Cycle formulæ were used, $\frac{1{,}000\ W}{C \times T^2}$ for the fast, and $\frac{W \times T}{1{,}000\ C}$ for the slow, the results being as follows:

FAST.

1.	C. F. Revelle (3½ B.S.A.)	.186
2.	C. W. Cooke (3½ Triumph)	.174
3.	R. Gordon Barrett (3½ Motosacoche) ...	.166
*4.	J. Evans (5-6 Bat)	.164

*Fastest time.

SLOW.

1.	R. Gordon Barrett (3½ Motosacoche) ...	.229
2.	C. W Cooke (3½ Triumph)	.153
3.	J. Evans (5-6 Bat)	.122

The Touche Challenge Cup and gold medal is presented this year to the member gaining the best aggregate in all competitions held by the club, of which the above were the first two this season, and the resultant score to date is as follows:

1.	R. Gordon Barrett (Motosacoche) ...	.395
2.	C. W. Cooke (Triumph)	.327
3.	J. Evans (Bat)	.286

Cape Peninsula M.C.C.

A novices' flexibility hill-climb was recently held near Camps Bay. In the fast climb C. Baard (3½ Triumph), reaching the hairpin bend, misjudged his speed, mounted the bank with both wheels, but got back to the road and continued his ascent. Results: 1, C. Baard (3½ Triumph); 2, M. N. Clarke (4 James); 3, T. Grady (3½ Triumph).

Maesteg and District M.C.C.

A slow hill-climb took place on the 30th ult. Results:

Class I.—Single-geared machines: 1, G. Thomas (4 J.A.P.); 2, H. Tamblyn (3½ Triumph).

Class II.—Variable gears: 1, W. Thomas (2¾ Douglas); 2, W. John (3½ Bradbury).

Class III.—Sidecars and cycle cars: 1, W. Thomas (2¾ Douglas); 2, H. Anderson (3½ Premier).

Class IV.—Open: 1, W. Thomas (2¾ Douglas); 2, W. John (3½ Bradbury).

Ballymena M.U.

A hill-climb was held at Roguery Hill on the 6th inst. *The Motor Cycle* formula was used. Results:

CLASS II., 500 c.c. and upwards.—1, W. Cameron (Triumph); 2, D. Hanter (B.S.A.).

CLASS III., Sidecar.—1, J. Stewart (Douglas); 2, W. Cameron (Triumph).

The Ladies' M.C.C.

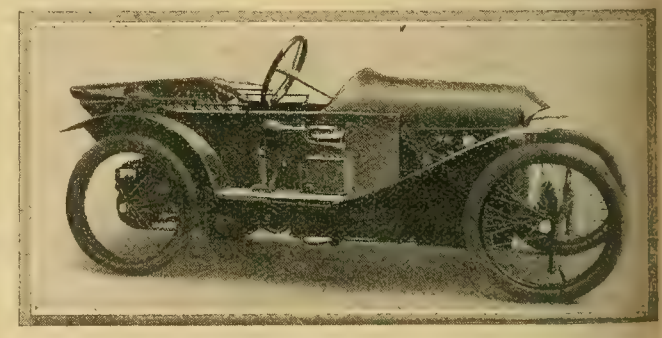
It is proposed to form a motor cycle club for ladies only—motor cyclists and drivers of cycle cars. Men will not be barred from all competitions; on the contrary, they will be welcome to take part in some of the events. The headquarters of the club will be in London, and the trials held will be within easy distance of the Metropolis. Those interested should write Miss Mary Ellis, 35, Portland Place, London, W.

Westmorland M.C.C.

A two days' reliability trial was run off on the 3rd and 4th insts. for Mr. S. Watson Weatherburn's challenge bowl. Route: Mint Bridge, Kendal, Shap Fell, Carlisle, Lockerbie, Crawford, Stirling, and Dunfermline to Dysart, in Fifeshire, the home of Mr. Watson Weatherburn, who entertained the competitors on their arrival. The return journey was made by Queensferry, Edinburgh, Galashiels, Hawick, Carlisle, and Kendal. The total distance travelled by the competitors was about 370 miles. Results:

Solo Machines.—W. Hutchinson (6 Zenith) and W. Westwood (3½ Triumph) tied for first place.

Sidecars.—1, B. Jefferys (8 Zenith); 2, G. W. Braithwaite (5-6 Clyno).



A specimen of an Austrian cycle car which sells for £110.

A "Big Performance" —by a Big Man—

on a BIG BELT!

Messrs. Lycett's,

"The Saddlery," Birmingham.

Dear Sir,

"Just a line to let you know how delighted I am with the new Lycett's "RELIABLE" Belt. Last week I got the following successes all on one Belt, viz:—

N.W. Middlesex M.C.C., 12 hours 200 Miles Trial. NON-STOP and Highest Award, SILVER MEDAL. B.M.C.R.C. Open 6 Hours Race. WON the 750 CLASS.

Herts. County M.C. Half Day Open Trial. Won the 1,000 c.c. Class, and made FASTEST TIME in Speed Trials and Hill Climb.

—and *that* without having to shorten it once. Any gear alteration I got by using different fastener links. The way this Belt grips in wet weather on a powerful Twin is an eye opener."

F. A. McNAB, Golders Green, London, N.W.

"You will no doubt be interested to hear how your belts behaved on my wife's and my own machines in the Scottish Trials, in which we each gained Gold Medal. Well, I put both belts on absolutely new for the Trials, and had not time to run them even a few miles, so naturally on the second day I took about an inch out of each, and thereafter, during the whole Trial, the belts did not give a second's trouble, did not slip or pull through. We were both delighted with their behaviour, and both belts are good for at least another 1,000 miles, which, considering the power of the machines, I consider to be excellent. I do not think it possible to obtain a stronger or more flexible belt than yours."—E. F. BAXTER, 5, Blantyre Road, Sefton Park, Liverpool. July 31st, 1913.

—also note the NORTON successes on Lycett's "RELIABLE" Belt:—

SCOTTISH BORDER M.C.C. OPEN HILL CLIMB, July 12th.

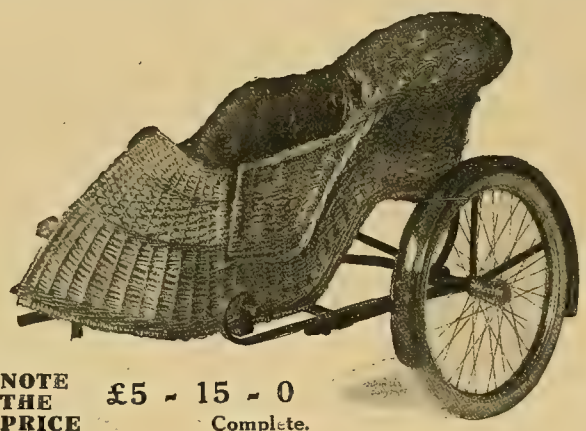
—Mr. Roy MacGibbon on a Norton fitted with "LYSO" won Class 4 (Open), and Class 9 (General)—and made FASTEST single cylinder time of the day!

LYCETT'S, "The Saddlery," Bromley St., Birmingham.

In answering this advertisement it is desirable to mention "The Motor Cycle."

R.H.S C29

BARGAINS IN SIDECARS

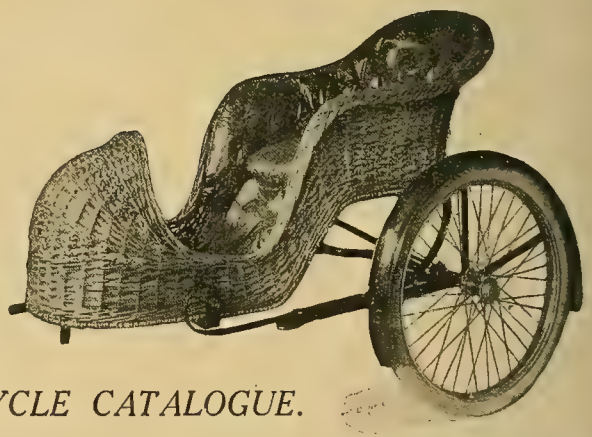


NOTE THE PRICE £5 - 15 - 0 Complete.

Visitors to London, and all motor cycle users, should make a point of calling at Dunhill's Showrooms at 359-361, Euston Road, to inspect the really magnificent selection of Sidecars on view. These Sidecars are splendid examples of the new Autumn models, and are presented in a variety of elegant designs.

Among the Sidecars to be seen at Dunhill's are a few late Summer models of excellent workmanship and design. These must be cleared to make room for a more extensive stock of Autumn models, and hence they are OFFERED AT CONSIDERABLY REDUCED PRICES. Here is a good opportunity for *you* to benefit by the inter-season change of stock.

Dunhill's Sidecars are unrivalled for value and reliability. The chassis is thoroughly tested, strong, and well-sprung, and is fitted with first quality tyres. The body is wrought in durable wicker, or coach built, with plenty of storing space, and can be upholstered to suit the requirements of the purchaser.



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Club News.—

Blackpool and Fylde M.C.C.

The annual reliability trial was held on the 27th ult. Route: Blackpool, Lancaster, Ingleton, Hawes, Sedbergh, Kendal, Shap, Penrith, Patterdale, Kirkstone Pass, Windermere, Newby Bridge, Milnthorpe, Lancaster, Blackpool, a total distance of 210 miles. Result:

		Marks lost.	Time error. m. s.
1.	F. Naylor (7 Indian)	0	0 0
2.	S. O. Taylor (3¾ Scott)	0	2 45
3.	W. R. Furlong (3½ Bradbury) ...	7	9 25

Special Prize for Best Sidecar Performance.—J. J. Day (3½ Bradbury sc.), 0, 0m. 45s.

Hampshire M.C.U.

A reliability trial took place on the 4th inst. over a course of 106 miles, including many well-known hills—South Harting, Duncton, Down Place, and Hyden Wood. Two of these were observed, and the other two were in non-stop sections. The following clubs took part: Portsmouth and District M.C.C. (the organising club), Bournemouth M.C.C., Southampton A.C., Southampton and District M.C., Fleet M.C., and Winchester M.C. The following gained first-class awards:

Class I.—H. Adams (3½ Matchless), W. P. Brandon (3½ Triumph), F. Tappenden (3½ Premier), J. Edney (3½ James), C. Bennett (3½ Rover), C. Jeffries (2¾ Humber), and J. Tuffin (3½ Rudge).

Class II.—R. C. Pearson (3½ Premier sc.) and S. C. Matthews (3½ Rover sc.).

Class III.—C. H. R. Norrington (6 Royal Enfield sc.), W. J. Fleetwood (8 Matchless sc.), and D. Druitt (6 Royal Enfield sc.).

Burma Motor Association.

A fast half-mile and a flexibility trial were held at the Mandalay (Upper Burma) centre on July 6th, the events being on handicap, cars and cycles competing together. Results:

Half-mile: 1, Maung Suliman (2¾ Humber); 2, Engr.-Lieut. C. Constable, R.I.M. (25 Overland); 3, Capt. C. E. Dease, 91st Punjabis (7-8 Bat); 4, L. Stewart (3½ P. and M.); 5, H. Walton, P.W.D. (3½ Rudge Multi); 6, G. Calogreedy (3½ Triumph); fastest time of the day, Capt. C. E. Dease (7-8 Bat), 63 m.p.h. Six cars and nine cycles ran.

Flexibility: 1, Engr.-Lieut. C. Constable, R.I.M. (25 Overland); 2, L. Stewart (3½ P. and M.); 3, Major H. A. Williams, I.M.S. (16-18 Bedford); 4, J. Morrison, P.W.D. (3½ Triumph); Capt. C. E. Dease, 91st Punjabis (7-8 Bat); 6, Capt. P. K. Tarapore, I.M.S. (12 Renault). Six cars and nine cycles competed.

It is proposed to hold a six days' trial in November over a very difficult course, comprising no less than fourteen hill-climbs of upwards of 2,500ft.

H. R. Lane (8 h.p. Rex-Jap sidecar) fastest time and first on formula in Class IV. at the Sutton Coldfield and Mid-Warwickshire A.C. members hill-climb.

"The Motor Cycle" Diary of Week-end Club Events.

Aug. 16th.	East Essex M.C.C. Hill-climb.
,,	Dublin and District M.C.C. Slow hill-climb at Glencullen Bridge.
,,	Liverpool A.C.C. Social run to the Lake District.
,,	Banbury and District M.C.C. Run to Bicester, Brill, and Oxford.
,,	Bristol Sports Club. Run to Congresbury.
,,	Leicester and District M.C.C. Run to Derby.
,,	Purley and District M.C.C. Annual hill-climb.
,,	South-Eastern Counties Inter-club Team Trials for Woolwich Club's cup.
,,	Surrey M.C.C. Penalty run.
,,	Walthamstow M.C. Run to Harlow.
,,	Stirling and District M.C.C. Gymkhana at Bridge-of-Allan.

INTERNATIONAL CUP RACE IN FRANCE.

The above event, which was briefly reported in our last issue, was held at Le Mans, and resulted in a fine race in the 500 class between Cuzeau (Terrot) and Woodhouse (Clément). Gabriel (Triumph) was third, less than a minute behind the second man, and another British machine, a B.S.A., ridden by Isodi was fifth.

The distance was 201¼ miles, and below we give the times of the first four riders:

	Rider and machine.	h. m. s.
1.	Woodhouse (Clément)	3 47 54
2.	Cuzeau (Terrot)	4 13 18
3.	Gabriel (Triumph)	4 14 15
4.	Isodi (B.S.A.)	5 7 5

The 350 c.c. class was rather tame, as only three out of the total entry completed the distance, and five only finished the second round. Guilloreau (Terrot) won in 5h. 11m. 24s., Lehmann (Alcyon) being second in 5h. 23m. 46s.; Lacroix (Peugeot), 5h. 32m. 49s.

In the sidecar classes (167½ miles) Delaunè's B.S.A. was the only competing machine in the 500 c.c. class, and he had a walk over.

The times for the 1,000 c.c. class were:

	Rider and machine.	h. m. s.
1.	Vanella (7 Indian)...	4 33 9
2.	Besnier (Premier)	5 6 2

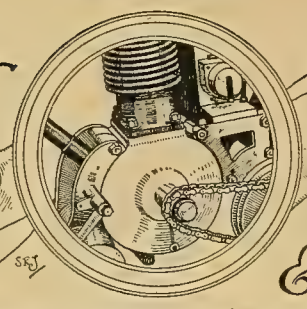
The cycle cars were much faster than the sidecars, and out of a total entry of twenty in the two classes (1,100 c.c. weight limited and 1,100 c.c. weight unlimited) the Violet-Bogey, driven by M. Violet, and the Ronteix driven by M. Muraour, were first in their respective classes. The times and positions of the first three were:

Rider and machine.	h. m. s.
Muraour (Ronteix)	3 37 25
Violet (Violet-Bogey)	3 38 54
Bas (Baby Peugeot)	3 39 52

STREATHAM OPEN HILL-CLIMB.

The Streatham and District M.C.C will hold their fourth open hill-climb on the 30th inst. The locality of the hill will be announced on the day of the climb at the Crown and Sceptre Hotel, Streatham Hill, and the White Hart, South Harting, where weighing in will take place between twelve and two o'clock. There will be ten classes decided on time and formula, divided in "open" and "expert barred." *The Motor Cycle* formula will be used except in one case where the A.C.U. formula is thought to be more suitable. The awards will consist of the Tilley Challenge Cup and gold and silver medals. In the case of sidecars and cycle cars, competitors must obtain the weight of their machines, rider, and passenger, and bring the weighbridge ticket with them to hand to the Clerk of the Scales. Winners' weights in these classes will be checked after the competition.

QUESTIONS & REPLIES



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Overloading on Hills.

I should be obliged if you would answer the following questions: Why my 1911 Kerry-Abingdon with sidecar, when ascending hills, if I give more than about half throttle, loses speed instead of gaining? I have fitted caps to take up clearance between the tappet and the valve lifts $\frac{3}{16}$ths. Should I get more power on hills if I time magneto a little late? The points are about to break when the piston is at the top of the stroke. I have to retard quite half when ascending hills. What is the best way to get the magneto chain wheel off? I have tried, but cannot move it.—H.D.

You do not state in your letter whether you have a change speed gear fitted to your machine, but from the symptoms we imagine you have not; and, if not, it is probably a case of overloading your engine. If instead of opening the throttle wider on hills you tried closing down the air instead, you will probably get better results. The tappet and magneto adjustment are probably correct, as mentioned in your letter. As a general rule, it is not advisable to take the wheel off the magneto at all, but if it is essential that you remove it, it should be quite easy to take it off if, after removing the holding nut, you give it a few light taps with a copper-headed hammer, and at the same time hold a piece of wood firmly behind the wheel, so as to help to wedge it off; but we strongly advise you to leave this wheel alone.

Yorkshire to Cornwall.

Will you kindly give me the best route from Sheffield to Mevagissey, Cornwall? Please give distance and a route suitable for $3\frac{1}{2}$ h.p. three-speed and sidecar. I should like good scenery and roads, preferably missing the large towns. I find if you miss large towns, in which I generally get lost, it increases the net speed for the journey considerably. I suppose you would consider the above journey too much for a long day's riding? I believe the Bath-Cheltenham Road is bad.—P.H.D.

Your best route is Sheffield, Chesterfield, Ripley, Derby, Burton, Ashby-de-la-Zouch, Nuneaton, Coventry, Warwick, Stratford, Evesham, Tewkesbury, Gloucester, Bristol, Red Hill, Bridgwater, Taunton, Wellington, Cullompton, Exeter, Okehampton, Tavistock, Callington, Liskeard, Lostwithiel, St. Austell, to Mevagissey. The run would certainly be too far in one day in comfort, and we would suggest Bristol as a stopping-place for the night. It is impossible to make this journey to avoid all towns, but we have drawn it up to enable you to miss Birmingham, and the only town on this route that is at all difficult to negotiate is Bristol. This town also can be avoided by turning to the right at Filton, where the Bristol trams are met, and going over Clifton Downs and the new bridge over the Avon.

A Question of Liability.

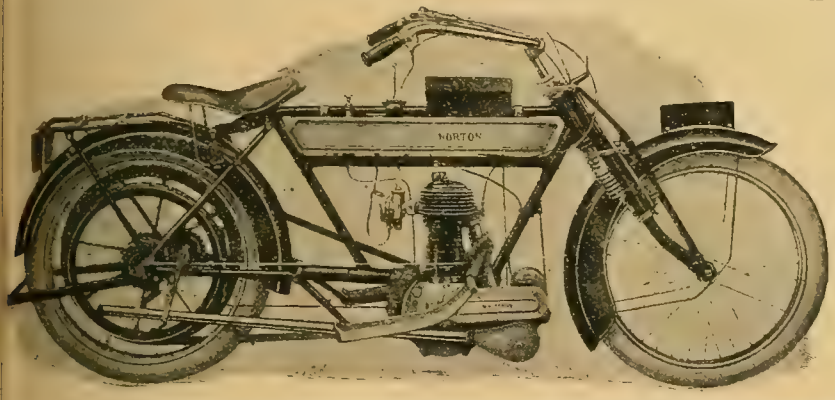
I should be greatly obliged by your legal expert's advice in the following case: My brother was lately driving a sidecar outfit with empty sidecar, and overtook a motor char-à-banc, which, after duly hooting, he attempted to pass. He apparently cleared the back wheels of the vehicle, and was abreast of the front wheel, when the driver turned sharply to the right and caught the sidecar with his wheel or guard. The outfit overturned and was badly smashed, and my brother is now in bed suffering from cuts, bruises, and shock. My brother says that he had passed the rear wheels when the char-à-banc swerved, and he could not avoid the collision, as the pavement was too high to mount. (1.) Was my brother entitled to pass? (2.) Can he claim for damages and injuries sustained? (3.) Was the char-à-banc entitled to turn without due warning and care?—HAMPDEN.

We have submitted your letter to our legal adviser, who replies as follows: "If the Court is satisfied that the information he gives is correct, I think your correspondent's brother has a good claim against the owner of the motor char-à-banc. I therefore answer the three questions as follows: (1.) Yes. (2.) Yes, but he ought to have some witness to support his own evidence before actually commencing proceedings. (3.) No. I notice nothing is said as to the rate at which your correspondent's brother was going. Of course, if he was going at too fast a speed, he was guilty of contributory negligence, and this would debar him of any right he would otherwise have to claim damages. As before mentioned, I cannot recommend proceedings unless there is some independent evidence to support the claim."

Motor cyclist University students at the Officers' Training Corps Camp at Ilkley, Yorkshire.

COMFORT is one of the outstanding features of the unapproachable NORTON

Not only the comfortable riding position afforded by the exceptionally long wheelbase, comfortable footboards, and entire absence of vibration due to perfect balance, but the comfort due to the knowledge that underneath you there is **POWER** and **PLENTY OF IT,** that nothing will go wrong or come adrift, that you are certain of climbing any hill on any road anywhere.



That is what is meant by the combination of the word in **"COMFORT"** with the unapproachable **NORTON.**

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S.E. TYRES give better and longer service than any other.

Equally superior for SOLO or SIDE-CAR use.

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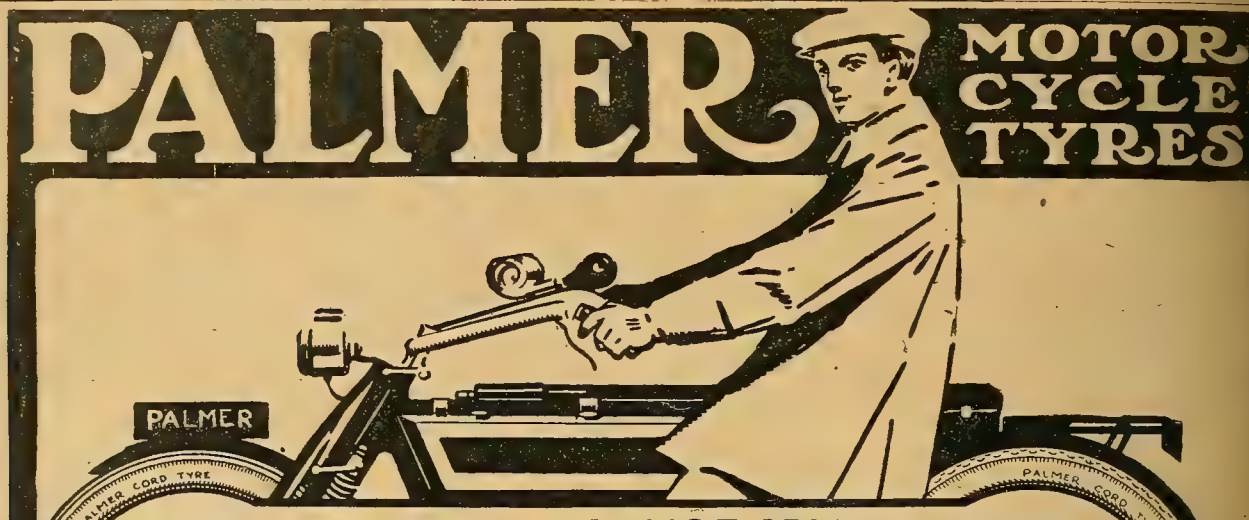

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are infinitely more reliable under the strains of motor-cycle work than any tyre with a canvas foundation; they wear longer, give regular, satisfactory service, and are practically immune from punctures.

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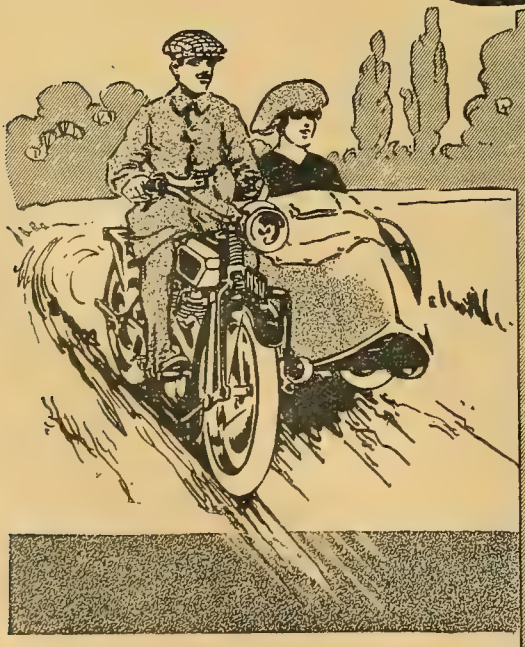
119, 121, 123, Shaftesbury Avenue, London, W.C.
Motorcycle Tyre Dept. :
103, St. John Street, Clerkenwell, London, E.C.

FOR SIDE-CAR WORK THE 6½ H.P. N.S.U



fitted with the N.S.U. two-speed gear and free engine, and our special sidecar, is a combination guaranteee to give the utmost satisfaction. The overhead inlet valve type of engine employed on these machines is not only extremely economical and efficient but keeps remarkably cool even when run for a long period on the low gear.

The lessons of eleven year's experience embodied in these motor cycles are as invaluable to you as they are to us, and it will prove a machine, the choice of which you will never regret.

MODELS (with adjustable pulley) :

2 h.p. Single cylinder, **£34.** 3 h.p. Twin cylinder, **£45.**
3 h.p. „ **£43.** 6½ h.p. „ **£58.**

The N.S.U. two-speed gear and free engine can be fitted to practically any make of machine. It is simple, reliable, and above all, extremely light.

With fixed pulley, **£7.** With adjustable pulley, **£8.**

Write for further particulars.

THE N.S.U. MOTOR CO., LTD.

Offices and Showrooms : 186, Great Portland Street, London, W.
Goods and Repairs : 83-85, Bolsover Street, London, W.

Wholesale Distributing Centres :
LONDON : Eagles & Co., 275, High Street, Acton, W.
WREXHAM : North Wales Motor Exchange, Holt Street
WALES : J. Rould Ltd., 198, City Road, Cardiff.
IRELAND : H. S. Huet, 5, South Anne St., Dublin.
SCOTLAND : North British Machine Co., Ltd., 56, Great Clyde Street, Glasgow.

Buying a Magneto.

I have a tricar fitted with accumulator ignition, and I wish to convert it to magneto in place of the accumulator and coil, as the latter are a constant nuisance. I have been on the point of purchasing several second-hand magnetos, but feel that I want some advice, as I have never had any experience with this form of ignition, except what I have read about it. Will you kindly inform me how I should test a second-hand magneto before purchasing, and if out of order can I get it repaired, and, if so, is such a repair expensive? Does the magneto have to be timed to suit the engine?—A.F.

To purchase a good second-hand magneto requires experience. To test it fit a special spanner on to the high-tension terminal, or connect a piece of wire from the terminal, and adjust either the magneto or the wire so that there is a gap of about the thickness of a visiting card between it and the magnets, rotate the magneto spindle with the hand sharply in the correct direction, and if there is a good spark, as far as can be told the magneto is in order. Do not attempt to buy one which is out of order. Magnetos last almost indefinitely. They are fairly expensive, however, to be repaired. You have to time the magneto to suit the engine, and, generally speaking, the larger sized magnetos afford easier starting.

A Carburetter Difficulty.

Would you be good enough to advise me on the following points: I have a new 1913 Douglas to which I have fitted an Amac carburetter. It will not run slowly, and if I throttle down it misfires, and if I throttle down further it fires only on one cylinder, and then stops. No dodging about with the air lever rectifies this. In addition to this it pops and spits violently in the carburetter if the exhaust valve is raised. At a fast pace it travels well, though the machine is not as good at hills on top gear as it should be. Consumption is roughly 100 miles to the gallon, which I consider bad. I also consider the new mudshields overheat the front cylinder badly. There is no air leak to carburetter.—H.T.M., M.D.

At the present moment we are using a 3 h.p. Motosacoche fitted with an identical carburetter, which, however, has a 26 jet. In this machine it is absolutely automatic. One starts with the air lever half open and leaves it there the whole day long; it will run slowly and behaves perfectly. Probably it is a little bit more extravagant adjusted in this manner, but the machine is such a pleasure to drive that we should not think of altering it. Perhaps the fitting of a similar jet might help matters. We do not think 100 miles to the gallon is at all bad, and probably any alteration in your carburetter or change of carburetter will make this consumption a good deal worse. The Amac carburetter is perfect when correctly adjusted, and we advise you to try different jets till you get perfect combustion, and do not worry if your miles per gallon fall to ninety or so.

Benzole and Rust.

I should esteem it a favour if you can supply me with the following information: (1.) Quite recently I gave a trial to benzole, and found it gave a 10% increase in mileage and also a distinct advantage over petrol on hills. However, I am given to understand that its use will rust the tank if its specific gravity is more than .750, owing to the larger percentage of impurities in a heavier spirit, and should this be the case I consider the advantages are more than counterbalanced. (2.) Can you recommend me the best standard works dealing with the theory and construction of petrol internal combustion engines as applied to cars and motor cycles?—H.G.W.

(1.) We have never heard that benzole will rust the tank, and are unaware that it will do any harm to the engine if the mixture is anywhere near correct. Benzol does, however, damage the enamel. (2.) The best-known work on the subject is that by W. Worby Beaumont, entitled "Motor Vehicles and Motors," Vols. I. and II., price £2 2s. each.

READERS REPLIES.

Steering with Sidecar.

I have the same experience in rounding left-hand corners (at any fast speed) as "E.S.," and I presume it is general, with a rigid type of sidecar wheel. I do not pose as an authority, but would ask whether the tendency of the combination to run straight on, and the sidecar wheel to leave the ground, is not due to the speed being too great to allow of the sidecar wheel to act as a pivot for the cycle to turn on? I suggest that such is the case, and if "E.S." will adopt the simple expedient of slowing down at corners, he need have no more nightmares.—R. G. S. Buckland.

Taking Machine to Australia.

I noticed a letter in *The Motor Cycle* of July 31st asking for information on this subject, and as I have some knowledge of Australian Customs, I give the following facts: (1.) Twelve months' possession (proved by production of registration and original invoice, etc.) entitles the machine to be classed as "personal effects" free of duty. (2.) Your estimate of cost, packing, etc., seems rather low, and the extra cost of having it shipped per mail steamer is worth the extra, as there is more system exercised in discharging small shipments. (3.) Duty on second-hand machines is according to the Customs valuation, which is generally in the vicinity of the original wholesale price. (4.) It makes no difference to the percentage of the duty whether the machine is new or second hand. (5 and 6.) The duties of 25 and 30% are charged on the value, plus packing and forwarding to steamer (except actual cost of case), and to this is added 10%, and duty charged on the whole. Documents supporting these charges must be produced to the Customs. Most of the leading makes, such as Rudge, Bradbury, Triumph, F.N., Zenith, Douglas, New Hudson, Humber, and many locally built J.A.P. and Precision-engined machines, can be obtained in any of the Australian cities, and prices for both new and second-hand average about 30% above London figures. Personally, I should never think of again taking a machine out. As it happened, I was saved much trouble by my machine being burned at sea on the voyage in another boat. I have since been in the trade in Western Australia, and my experience with the Customs has convinced me that it is cheaper in the long run to buy a second-hand machine locally. It should also be borne in mind that, whilst the private owner pays duty on the retail price, the local importer in the trade pays on the wholesale value.—F. L. Parsons.

EXPERIENCES WANTED.

"J.H.L." (Edinburgh).—Automatic oiling arrangement of the Enfield.

"G.R.S.B." (Bideford).—Whittle and Wood-Milne steel-rubber belts, and Stanley link. Size of belt used on Rudge Multi with sidecar.

"E.W.G." (Birmingham).—Wall Autowheel. General reliability and wearing properties.

THE INCREASING USE OF MOTOR CYCLES IN THE ARMY.

Motor cyclist members of the London Scottish Regiment in camp at Abergavenny. Their kilts give one the impression that they find motor cycling the coolest pastime extant.

Spare Tube Cases.

Messrs. Bransom, Kent and Co., have been appointed distributing agents for the neat leather spare tube bag, illustrated on page 977 of our issue of July 24th.

Sidecars in Scotland.

J. Chater-Lea, junr., writes to inform us that it was the sidecar springs that broke in the Scottish Trials on his 7 Chater-Lea sidecar, and not the frame as reported.

A Puncture Preventer.

L. L. Sealey, who won a gold medal in the recent Scottish Six Days' Trials, has, we hear, expressed his appreciation of Puncture Seal, which, he says, enabled him to get through the week's strenuous work without the slightest trouble.

A Successful Tyre.

In the Scottish Trials Kempshall tyres were awarded sixteen gold medals and special prize for best performance of a private owner, in addition to which Mr. S. T. Tessier, using these tyres, tied for special trade prize.

Oil in Scotland.

We understand that out of forty-one gold medal winners in the recent Scottish Trials, thirty-four used Castrol motor oil, and that the winners of the team prize, the lightweight prize, private owners' prize, and trade riders prize also used this brand of lubricating oil.

To Manufacture a Cycle Car.

We are informed by Messrs. Marshall Arter and Co., Beavor Lane, Hammersmith, W., that the concern has just been registered as a limited liability company. Messrs. Marshall Arter, Ltd., will continue to specialise in the production of the well-known cycle car bearing their name.

Frank Philipp, the Scott rider, who will be a notable absentee from the Six Days' Trials. He has lately been able to ride to and from the Scott works to his home.

Big Australian Order.

We are informed that a consignment of Puncture Seal to the value of £1,000 has been despatched to Australia.

Tyres at Brooklands.

Four winning machines at the Brooklands August Bank Holiday meeting were fitted with Continental tyres, in addition to which riders using these tyres also secured two second places.

A Correction.

In our report of the reliability trial of the Islington and District M.C.C., which took place on the 20th ult., we mentioned that H. Ward, the winner, rode a 4¼ Precision sidecar. This should have been stated to be a 4¼ Grandex-Precision sidecar.

A Successful Belt.

Lyso belts have performed well in recent trials. In the Scottish Six Days' Trials Mr. and Mrs. Baxter, J. Morrison, and J. A. Hoult were successful users, while in the Dutch Trials, R. Holloway and Sam Wright gained gold medals on machines fitted with this make of belt.

Tyres for Six Days' Riders.

We are asked to state that Messrs. J. Pedley and Son, Ltd., will have a supply of their tyres and belts at the Electrical Engineering and Motor Co.'s garage at Carlisle during the forthcoming Six Days' Trials, for the benefit of competitors who desire to fit these goods.

A Comprehensive Stock.

Messrs. Palmer's Garage, Tooting, S.W., send us a very comprehensive catalogue of the machines and accessories in which they deal. The list is admirably illustrated, and really a very interesting production, a copy of which may be obtained by any reader of *The Motor Cycle* on request to Messrs. Palmer's Garage. A large number of cycle cars, motor cycles, and useful accessories are illustrated.

Catalogues Received.

J. Pedley and Son, Ltd., Oxford Works, Great Charles Street, Birmingham (Pedley tyres and belts); The City Ignition Co., 359, Goswell Road, E.C. (Cicoy-Fein magnetos, accessories, and fittings); John Piggott, Ltd., 117, Cheapside, E.C. (July sale catalogue, containing much of interest to motor cyclists); F. C. Armstrong, 507-9, Harrow Road, London, N. (Armstrong motor cycles. These machines are made with 2¾ h.p. two-speed Villiers motor unit); Terry and Co., Redditch ("A Few of Terry's Motor Specialities"); Norton and Co., Sampson Road North, Birmingham (1913 Norton).

Bowden Success at Ghent.

We learn that Messrs. Bowden Wire, Ltd., London, and its associated concerns in Paris, Berlin, Milan, and Brussels, have been awarded the Diplôme d'Honneur for their joint exhibit of Bowden articles at the International Exhibition at Ghent.

A Rear Mud Flap.

The Cycle Necessities Manufacturing Co., of Vine Street, Birmingham, are now making their Pivotal Mud Stop, recently illustrated in these pages, for attachment to the cross stay of the rear stand. This attachment will fit any motor cycle, and stops all mud flung from the rear wheel. When ordering, the diameter and width of the cross stay on the stand should be given; the price is 4s. 6d.

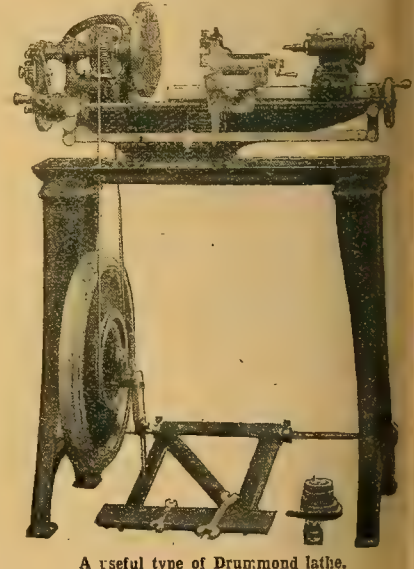
A Useful Lathe.

Particulars of a new design of Drummond lathe have been sent us from Drummond Bros., Ltd., Rydes Hill, Guildford. This well-designed tool should form an essential part of every amateur's workshop, since this particular make of lathe is noted for accuracy, even after a long period of work.

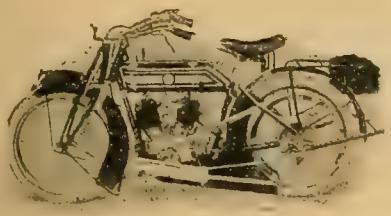
The bed is of heavy pattern with a short gap mounted on a cast iron tool tray and standards. There is a back-geared headstock with steel hollow mandrel bored from the solid and running in adjustable gunmetal bearings. The advantage of a hollow mandrel is, of course, that material may be fed through it. The saddle is self-acting, sliding and traversing. The lead screw (full length of bed) is fitted with hand and automatic throw-out action, and is provided with a handwheel. All gears are cut from the solid.

We hear from Messrs. Drummond that a 3½ h.p. motor cycle engine was actually made on one of the new 3½in. centre lathes. This is certainly a proof of the suitability of this lathe for the more intricate work, and for jobs on a larger scale than are ordinarily undertaken.

The length of this lathe is 3ft. and breadth 1ft. 9in. The net weight is 365 lbs., and the length of bed is 2ft. 6in.



A useful type of Drummond lathe.



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The Premier Motor Co., Ltd.
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Once again the Scott Motor Cycle has provedits superiority over every other make.

Immediate delivery from the Largest Scott Agents in the World.

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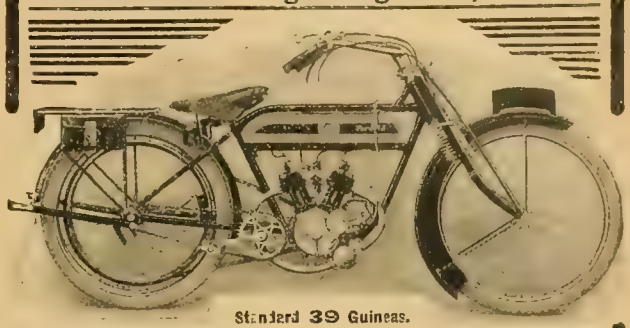
SPANISH TOURIST TROPHY RACE

Bilbao to San Sebastian and back, 158½ miles.

"FORWARD" Lightweight 1st, V Twin.



Standard 39 Guineas.

ONLY ONE STANDARD (same as you can buy) **"FORWARD"** entered, by G. Pradera (Spanish rider).
Send at once for 1913 *Lists.*

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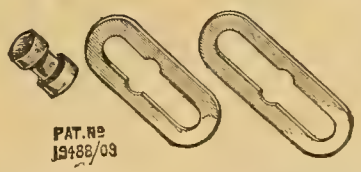
"FORWARD" the World's BEST FASTENER



CAPTURED **25** **WORLD'S RECORDS IN ONE DAY.**
Brooklands, July 16th.

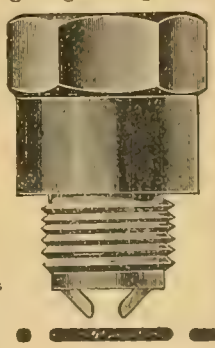
World's Six Days' Sidecar Record broken
with a Forward Fastener, 1,800 miles.

SPANISH TOURIST TROPHY RACE.
Class II. **1st.** BELT-DRIVEN machine.
Class I. **1st.** V Twin machine, fitted with **"FORWARD"** Reliable Fasteners.

For Lasting Satisfaction buy a **BRITISH 'FORWARD' PLUG** made entirely in our own factory by British workmen for British riders.

FORWARD Patent Detachable,

An absolutely gastight Plug that can be instantly taken apart for cleaning. There is no asbestos packing, and no pressure on insulator, which therefore cannot crack or break.



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Everlasting Wear,
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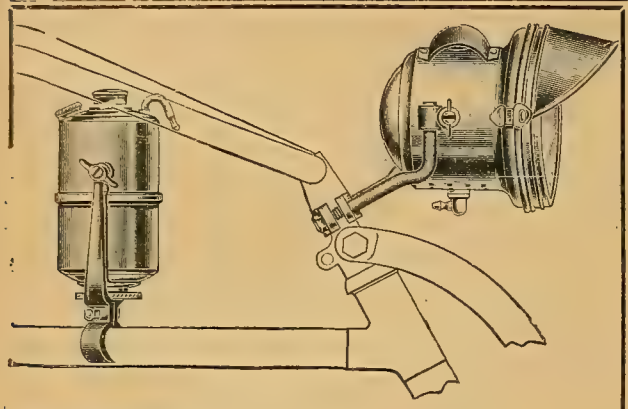
Other Forward Plugs from **2/-**



Mangin Lens	4in.
Beam	500ft.
Lamp Body	4½in.
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BEST DRIP GENERATOR, ADJUSTABLE Side Sockets for Lamp and Generator.

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Scottish Wholesale Agents: North British Machine Co., Glasgow.
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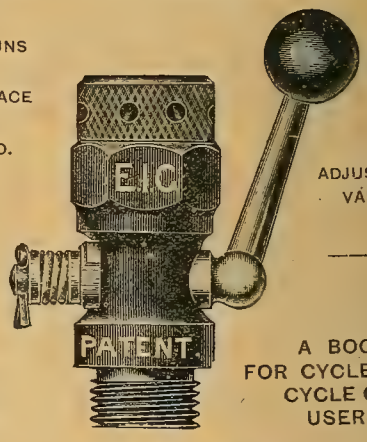
E. I. C. DECOMPRESSOR

ENGINE RUNS AT WALKING PACE IF REQUIRED.



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EFFICIENT AND RELIABLE.

A BOON FOR CYCLES AND CYCLE CAR USERS.

PRICE 8/6

WILL NOT INTERFERE WITH MIXTURE.

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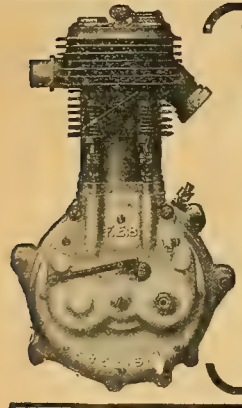
SAMPSON ROAD NORTH, BIRMINGHAM.



"Precision" Engines
"The Same as You can Buy."
The Record Breakers.

F. E. Baker, Ltd., Precision Works, Moorsom Street Birmingham.

London Stockists for "Precision" Engines and Spare Parts: Messrs. E. S. Thomas & Co., 154b, Gt. Titchfield St., W.C.

Wholesale Distributing Agents for Australia: Messrs. A. G. Healing & Co., 354-356, Post Office Place, Melbourne. Agent for South Africa, Rhodesia, and Portuguese East Africa: Victor S. Wellsford, P.O. Box 883, Durban. Agents for New Zealand: Messrs. J. B. Clarkson & Co., 120, Victoria Street, Wellington.

GRAVES

MILLFORD 1913 MODEL SIDE-CARS
On Monthly Payment Terms.

Every Motor Cyclist should write at once for our illustrated Catalogue of the latest model Millford Side-cars. Contains photo illustrations and full specifications of cars to fit every make of cycle. This interesting book is full of information, with practical tips and wrinkles bearing on the sport. Lowest rock-bottom prices are quoted throughout and full particulars as to ordering and delivery are given in the clearest possible way. **WE DELIVER** any model carriage paid to approved orders on receipt of a small payment with order. The balance being payable in monthly payments after delivery, if purchaser is entirely satisfied with the car when fully examined at his home.

CLINCHER TYRES
At CASH PRICES or EASY TERMS.

The 'CLINCHER' B Motor Cycle Tyre with beaded edge. Cover only.

26 x 2	21/-	3/6 Monthly.
26 x 2½	27/6	4/7 Monthly.

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The 'CLINCHER' De Luxe Rubber Studded Non-Skid Motor Cycle Tyre, made with beaded edge only. Single Covers supplied in the following sizes:—

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AMAC AMAC
BELT FASTENER.

PRICE 2/6

ONE YEAR'S GUARANTEE. MADE OUT OF SOLID STEEL BARS. HARDENED—UNBREAKABLE.

ASTON MOTOR ACCESSORIES Co. Ltd.
97, Aston Road North, BIRMINGHAM.

AMAC AMAC

8 Points about the BRAMPTON Variable Gear

1. It gives seven speeds
2. And a free engine.
3. It is light and compact.
4. Simple and easily operated.
5. Gives a positive drive in all weathers.
6. Never slips, even on bottom speed.
7. It enables a low or medium powered machine to do the work of one double its h.p., and is therefore an *economy*.
8. It can be fitted to practically all engines where the boss does not necessitate a recess in pulley flange of more than 7/16th in. deep.

Proof of efficiency is shown by the following letter—typical of many.

Selous Street,
Blackburn,
7th July, 1913.

Dear Sirs,
The Brampton Gear fitted to my 3½ h.p. Rudge has given me every satisfaction, and I consider it equal to a 6 h.p. machine with fixed pulley. In fact, on a previous run I remember a 6 h.p. stuck half way up a very steep gradient, which I took at low gear without trouble, with a 14 stone passenger.

Yours truly,
(Signed) T. ENGLAND.

Price: 3½ h.p. £4-4
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Write for full particulars to—

Brampton Bros., Ltd.,
Oliver Street,
Birmingham.

POWER ON THE ROAD OR SPEED ON THE TRACK.

High speeds attained in competition over specified distances on the track or road is not a true test of the capabilities of a motor cycle under every day touring conditions.

Machines competing in speed events are, like race horses, tuned up to just stay the distance. Their constructional defects quickly become apparent when subjected to hard road work, yet under the guise of widely advertised speed successes potential motor cyclists are lured into buying such a frail piece of mechanism in the belief that it will render them an efficient and reliable road service.

The public, however, are realizing more fully day by day that purely speed successes are simply an astute business device for creating demand and influencing sales. Like motor cyclists who know, they pertinently ask "What kind of road service will such a machine render?" and then with greater compunction turn to the consideration for choice of mount to a motor cycle that has given a good account of itself on **all** roads under **all** conditions **all** over the world.

The L.M.C. has never failed to acquit itself creditably in any land; proved by its consistent success in road trials and confirmed by the testimony of owners, whose opinions are quoted at length in our art catalogue.

Here is an extract of a recent letter eulogising the power and reliability of the L.M.C.

"The machine has never given me any trouble. I can climb any hill in Anglesea with two on the motor, and have so far never met with any hill which I have failed to climb. My machine is now nearly three years old and I can always rely upon it. H.C.H. 12/7/13."

LMC
The Motor Cycle of *PROVED* Greatest Reliability

Write for a copy of illustrated art catalogue to-day, post free, from

LLOYD MOTOR ENGINEERING Co., Ld.
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FUTURE CLUB EVENTS.

EAST MIDLAND CENTRE A.C.U.

Open SPEED Trials

At THONOCK PARK, GAINSBOROUGH

(By kind permission of Sir Hickman Bacon),

ON SATURDAY, SEPTEMBER 6TH.

EIGHT EVENTS (One Cycle Car).

Entry Forms and full particulars Hon. Secretary—
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NOTICE OF SPEED TRIAL

Under A.C.U. Rules.

Canford Park, Wimborne, Dorset.

Bournemouth and District M.C.C. Second Annual Speed Trial, Wednesday, September 3rd, commencing at 1 o'clock.

All competitors ride in pairs.

Entries close August 25th.

Trials Hon. Sec.: E. L. Herring, 54, Seamoor Rd., Bournemouth West.

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Cardam STAINES

ESTABLISHED 1860. **WORKS COVER 5 ACRES.**

6ft. x 4ft. x 7ft. high	£2	2	6
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Double doors 2/6 extra.

Prices are on rail Staines Station.

These houses are tenants' fixtures, and can be bolted together in a few minutes. They are made of sound, well-seasoned matchboard, and complete **with floor.** Window in any desired position. Roofs of Stoniflex Felt. We treat each house with Brown Sideroleum. Catalogues with particulars of other sizes Free.

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Maybank Cottage,
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Dear Sirs,—I feel it only right to inform you of the successful sale of my sidecar, which was disposed of the same day that the issue of "The Motor Cycle" containing advertisement was published ! !

Wishing your paper every success,

Yours faithfully,

R. G. HALLETT.

IF you wish to dispose quickly of a machine, a sidecar, or accessories, try a small advertisement in "The Motor Cycle." Amongst its vast army of readers you are practically sure to find a ready purchaser.

THE "S.F." PUNCTURE-STOP

Filibuster

PATENT.

A wonderful Puncture Sealing Composition for hermetically sealing small and nail-hole punctures in all kinds of Pneumatic Inner Tubes.

This preparation is not in any way of a sticky nature and in the event of a bad burst, the inner tube can be patched and repaired in the ordinary way.

Invaluable for Porous ——Inner Tubes.——

Cycle Size (One Wheel) 9d. each.
Motor Cycle ,, ,, 1/6 each.

Stanley Feast & Co., Steedman St., Walworth, London.

STAG ENGINES

4½ h.p. 90 × 95
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The Successful Big Singles for Sidecar and Cycle Cars.

Magnificent engines, beautifully finished, and giving enthusiastic satisfaction to numerous users.

STAG CO., LTD.,
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SPECIALLY ATTRACTIVE OFFERS IN NEW AND SECOND-HAND MACHINES.

FOR CASH OR EASY TERMS, ARE ON SHOW THIS WEEK AT

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ALUMINIUM CASTINGS MADE & REPAIRED

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COAN CASTS CLEAN CRANK CASES

LARGE & SMALL IN PURE & HARDENED FOR ALL TRADES.

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IRON CYLINDERS ALSO REPAIRED.

NOTE THIS— **WE GUARANTEE ALL PETROL TANKS MADE BY US** OF EVERY DESCRIPTION

ESTABE 1902

PERFECT

PHONE MIDLAND 257 TELEGRAMS "TURWILL" BHAM. PATENT DETATCHABLE SUMP

SPARE PETROL TANKS

QUART SIZE 6/-
½ GAL 8/-

CARRIAGE PAID.

TURLEY AND WILLIAMS LD

RELIANCE WORKS, GREEN ST. BIRMINGHAM

VEVO

SWING HANDLE. Brass, Nickel Plated.

SWING FOOT. Braided Connections.

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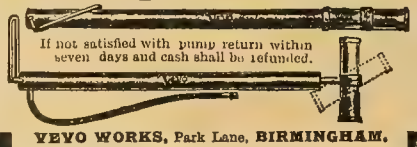
From all Dealers, or Post Free from Makers.

5/6 Large. ∴ 4/6 Small.



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CYLINDER GRINDING

with guaranteed accuracy.

J. C. DALMAN & SONS, BIRMINGHAM.

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WHEN FITTED, WILL PASS THROUGH 80 INCH SPACE.

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Quality and Cheapness Combine

Immediate disp
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£2 - 7 - 6.

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Photography and FOCUS (1D)

Edited by R. CHILD BAYLEY.

Helpful to every camera worker. Splendidly illustrated by half-tone reproductions of the best work of the day. Pithy and practical paragraphs. Lessons for beginners. Numerous competitions.

Published every Tuesday. Price 1d.

Of all Newsagents.

Published by

ILIFFE & SONS LTD.

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YOUR OPPORTUNITY

of completing your holiday outfit at a big saving in cost.

GREAT STOCKTAKING SALE.

- Clearance Bargains in - Motor Cyclists' Outfitting.

BEST VALUE EVER OFFERED. - UNEQUALLED BARGAINS.

LEATHER CLOTHING.	Usual Price. £ s. d.	Sale Price. £ s. d.
Black Leather Waistcoats, lined flannel	15 6	11 3
Double-breasted Black Leather Waistcoats, with sleeves	1 7 6	18 11
Grey Chamois Leather Waistcoats, single-breasted	15 6	12 11
Tan Leather Waistcoats, with sleeves	1 15 0	1 5 11
Ladies' Leather Waistcoat, grey chamois leather	1 15 0	1 7 6
Ladies' Leather Waistcoats, chrome leather	1 19 9	1 9 11
Ladies' Small Waistcoats, without sleeves	10 6	8 11
Tan Leather Undercoats, 30in. long, double-breasted, all sizes	2 2 0	1 5 11
Service Leather Overboots and Leggings combined, tan or black	18 6	14 6
Quantity of Black Leather Breeches, all sizes	1 15 0	1 2 9
Tan Leather Throat and Chest Protectors, extra large, lined lambs' wool	14 6	10 9
Small Leather Throat and Chest Protectors	3 9	2 9
Woollen Neck Wraps, brown and grey	4 6	2 9
Jaeger Throat and Chest Protectors, all wool, slightly soiled	2 9	1 6
OILSKINS.		
Double-breasted Silver Grey Oilskin Jacket and Leggings, very light in weight	1 5 0	1 1 0
Double-breasted Black Oilskin Jacket and Leggings, suit complete	1 1 0	10 11
Jackets only	—	6 9
Overalls only	—	3 11
Black Oilskin Leggings, straight legs	3 11	2 10
Special Service Oilskin Cape for sidecar passengers, 42in. long, will completely cover sidecar, and also has detachable hood	12 6	7 10
Ladies' Oilskin Coats, in silver grey, with velvet collar	1 5 0	16 11
Oilskin Ponchos, with sleeves	12 6	7 11
Oilskin Sou'wester Caps	2 11	1 7½

SERVICE DUST SUITS for present wear.

Light Double-breasted Jackets and Leggings, suit complete	12 6	8 11
Brown Casement Cloth Jackets and Leggings	15 6	10 11
New Shade Grey Cotton Jacket and Leggings, fitted with belt, suit complete	1 1 0	17 6
5 only Shop-soiled Jackets and Leggings	13/6 to 18/-	6 9
20 only Long Dust Coats, best quality	10 6	7 11
40 Ladies' Grey and Ecru Dust Coats. Sleeves require altering. Must be cleared	1 1 0	7 6
Several pairs of separate Leggings	6 9	2 6
ALL-WEATHER WATERPROOF GARMENTS.		
A few slight Shop-soiled Suits	25/- to 30/-	18 6
All-weather Suits, Jackets, and Leggings complete	1 5 0	1 0 0
Double-texture Waterproof Suits, superior qual.	1 15 0	1 4 11
Service 3-flap Suits, recommended for winter riding	1 12 6	1 3 11
Special line of 3-flap Suits, with woollen lining, extra strong	2 5 0	1 17 9
Service Belted Suits, 40in. long, double-breasted	1 15 0	1 8 9
Best Quality Waterproof Suits, untearable material, double-breasted jackets and overalls	2 5 0	1 17 6
Double-breasted Jackets, extra strong double-texture material, fitted with windcuffs and detachable fleece lining	1 10 0	1 2 6
Separate Leggings	9 6	6 9
Ladies' Mackintoshes, specially made for lady sidecarists	1 17 6	1 4 9
Gent's Mackintoshes, 46in. long	1 15 0	1 1 9

'Phone; 260 Central. Wires: Admittedly, London.

THE SERVICE CO., LD.,

289-292-293, HIGH HOLBORN, LONDON, W.C.

BURBERRY TIELOCKEN COAT.

Illustrated Catalogue and Patterns of Gabardine Post Free.

When buying Burberry see that— The label says 'Burberry'— The bill says 'Burberry.'

BURBERRYS LATEST INVENTION for the Motor Cyclist or Motor Boatist—a double-breasted, buttonless coat, designed to provide unequalled security and comfort under the severest conditions.

BURBERRY WEAVE-PROOF GABARDINE, lined with proofed wool or camel-fleece, makes the Tielocken Coat a perfect safeguard against driving rain, chilling wind, dust, or spray.

LIGHTWEIGHT, YET WARM, Burberry Gabardine provides efficient protection against the worst weather vicissitudes, yet ventilates like ordinary cloth, thus preventing all danger of overheating or chill.

THE TIELOCKEN COAT, fastened with single strap-and-buckle, is easily put on or taken off. Worn with Trouserettes of Gabardine and Tielocken Gaiters, it supplies the finest protection available against the ill effects of exposure to wet or cold.

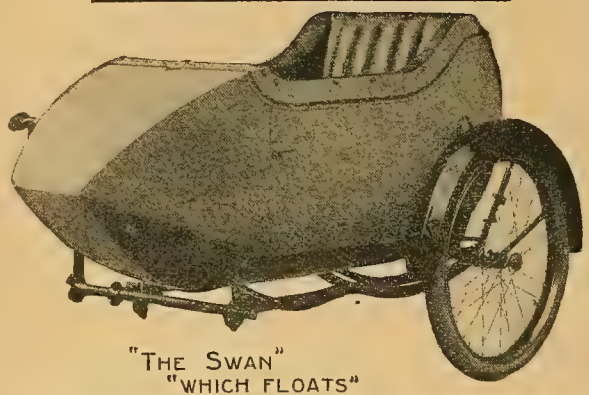
TIELOCKEN DUPLEX PROTECTORS, an application of the same principle, provide a four-fold yet airy safeguard of proofed Gabardine and proofed wool for keeping the knees and thighs dry in the heaviest rain.

PRICES: Tielocken Coat in Gabardine, lined proofed wool, 63/-; Gabardine Trouserettes, 31/6; Protectors, 15/-; Motor Cycle Cap, which can be readily transformed into a snug-fitting helmet, 15/-.

BURBERRYS Haymarket, LONDON;

8 and 10 Bd. Malesherbes, PARIS, and Provincial Agents.

"THE SWAN."



"THE SWAN"
"WHICH FLOATS"

Is it not a most important point that you should know the genuine makers of the sidecar of your choice, and thus then be able to judge for yourself what class of material would be likely to be used in the construction thereof?

We can fairly claim that we do, from start to finish, make the "Swan"—the rough material coming in, and the finished article going out—and thus are we able to see that the very best is used in its making and construction—and thus also are we able to control the skilled work that turns such material to advantage. Such finely finished work as is entailed in the "Swan" would be soiled in other hands but our own.

——— **PRICE OF CAR £13 10s.** ———

Catalogues of Midland Motor Co., Oxford.

Sole London Agent: A. P. REY, 173, Great Portland St., W.

EYE RISK.

Do not risk injury to your eyes by using common and ordinary tinted glasses in your goggles this holiday, when

CHLOROPHYLLE LENSES,

scientifically worked and optically correct, afford perfect protection against all bright light, sun and road glare, motor head lights, etc.

"RECORD" HOLDERS say—PERFECT in all WEATHERS.

PRICE from 4/9 CHLOROPHYLLE LENSES, 3/6 PLAIN (Postage 2d.)

Write—CHAPPELL & CO., 11, HATTON GARDEN, LONDON.

Sole Manufacturers—

J. B. JACQUEMIN BROS., LTD., 65, Hatton Garden, London.

9/- 12/- and 14/- each.

Bursts and other Repairs equally cheap.

RETREADING MOTOR CYCLE COVERS.

—o—

We have specialised in all kinds of TYRE REPAIRS —— FOR 15 YEARS. ——

—o—

Send for Sections and all particulars to—

The Excelsior Tyre and Rubber Co., Hurst St., BIRMINGHAM.

HAND CAMERAS

Second Edition NOW READY

A book for amateur photographers

By R. Child Bayley

(*Editor "Photography and Focus"*)

THIS new edition has been very fully revised, and many alterations made in order to bring it up to date in all details.

A number of new plates have been also included.

Price 1/6 net. By Post 1/9

Indispensable to the amateur worker.

Obtainable from—

Iliffe & Sons Ltd., 20, Tudor Street, London, E.C.,

And all leading booksellers.

SIX DAYS' RELIABILITY TRIALS.

Important Notice.

MOTOR cyclists will find that the Garage most convenient for the Trials is right opposite the Official Garage at the foot of LOWTHER ST., CARLISLE, and the ELECTRICAL ENGINEERING AND MOTOR CO., LTD., are holding large stocks of tyres, belts, and other spare parts which may be required, suitable for every machine on the market. They are also providing a clubroom for the motorists during the trials, and will be pleased to attend to every requirement.

THE GARAGE IS OPEN DAY AND NIGHT, AND CAN EASILY BE DISTINGUISHED BY THE LARGE FLAG ON THE ROOF.

"The Motor Cycle Journal of Canada," for April, 1913, says:—

COVENTRY CHAINS

"A large number of the racing machines in the States are fitted with **COVENTRY** chains. One rider, Ray Peck, used this chain on his mount all last summer and

DID NOT SUFFER A SINGLE BREAK

in any of his many races.

"THE COVENTRY" CHAIN CO., LTD., COVENTRY, England.

SELFRIDGE'S

The Ideal Store for Motor Cyclists.

YOU can have immediate possession of any of the Motor Cycles listed below on payment of a fifth of its cost.

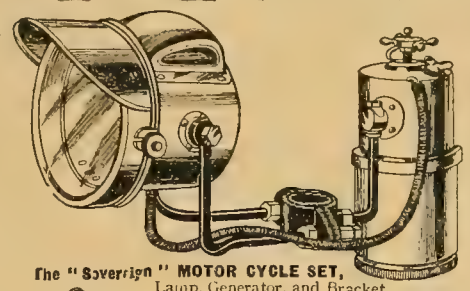
Payment of the balance can be extended over a year. For this added convenience we charge 2½% on the balance only.

The extra is only 2%, or less, on the entire cost of your machine. The greater your original deposit, the less your machine costs in proportion.

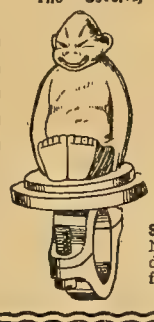
Motor Cycles in Stock.
1913 Models.

A.J.S., 6 h.p., 3-speed	£72 9
DOUGLAS, Model O, 2¾ h.p., 2-speed	£48 0
DOUGLAS, Model R, 2¾ h.p., 2-speed	£52 0
DOUGLAS, Model P, 2¾ h.p., 2-speed	£48 0
TRIUMPH, 3½ h.p., 3-speed	£59 15
REX, 6 h.p., 2-speed	£62 10
SINGER, 2¾ h.p., fixed engine	£39 0
ARIEL, 3½ h.p., 3-speed	£59 10
B.S.A., 3½ h.p., 2-speed	£60 0

Certain makes of Motor Cycles supplied on makers' terms



The "Sovereign" MOTOR CYCLE SET, Lamp, Generator, and Bracket, Special price, complete .. **20/-**



JACK for Sidecar (as sketch), very light in weight and convenient for travelling, taking up little space **3/6**

BILLIKEN MASCOT, will fit ⅞ & 1in. bar. Nickel finish, **5/6**

SPARE INNER TUBE CASE in Nut brown leather, Circular, 6½in. diameter, 3½in. deep, with straps for attaching..... each **5/-**

SELFRIDGE & CO., Ltd., OXFORD ST., W.

Slightly Store-Soiled Motor Cycles, all 1913 Models.

	Usual Price.	Reduced to
LEA-FRANCIS, 3½ h.p., twin-cylinder, 2-speed, countershaft gear, chain drive	£68 5	£63 0
NEW HUDSON, 3½ h.p., 3-speed, belt drive	£60 18	£56 5
SUNBEAM, 2¾ h.p., 2-speed countershaft gear	£63 0	£53 5
MARTIN-J.A.P., 8 h.p., fitted with speedometer	£64 6	£59 10
ZENITH, 3½ h.p., Gradua gear, kick starter	£63 0	£59 17
ZENITH, 6 h.p., Gradua gear, kick starter	£78 15	£75 0
ROVER, 3½ h.p., 3-speed	£58 0	£56 0
MATCHLESS, 8 h.p., 2-speed, chain drive	£73 10	£70 0

Fit your mount with the popular P&H

—the "perfect service" Headlight—you will then have "NO TROUBLE" with your lighting equipment.

—THIS Lamp is British-Made and Highest-Grade throughout, and can be depended upon to give a powerful, penetrating light always. Note its practical and desirable features :—

OUR MODEL 127C. PROJECTOR of extra large size, has 6½in. Front with large Hood Reflector; very powerful best quality 5in. real Mangin Mirror Reflector; Bray "RONI" Burner, which cannot crack lens or reflector, fitted into a perfect arrangement for adjusting; and 5½in. Plate-glass Convex Lens. Special GENERATOR can be easily cleaned and recharged; with adjustable stamped steel DOUBLE CARRIER of new design and exceptional strength to withstand excessive vibration, complete with best grey Rubber Connection. Can be easily fitted on handle-bar stem, or lamp bracket.

Price: Nickel or Ebony Finish, complete..... 36/6

—Examine this Model at your Agents—and note its superior Quality and Value. Ask for "Lamp Booklet" describing all our latest Models.

Powell & Hanmer, Ltd., Chester St., Birmingham.

Our leading Model.
Can be adjusted and set in perfectly horizontal position.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To insure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmorland.

SECTION II
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

WAUCHOPE'S

BARGAINS ALWAYS SATISFY.

Our system ensures it. We carry the largest stock in the Kingdom giving greatest variety of choice. Every machine new or second-hand delivered perfect in all details, ready for riding, and fully guaranteed. Lowest cash prices on any machines sold in

WAUCHOPE'S EASY WAY

¼ DOWN & 11 EASY EQUAL PAYMENTS.

Write for full details, Order Form, and to-day's Bargain List, including—

7376.	3½ h.p. 1912 2-speed **CENTAUR** and Sidecar	£37	10
7380.	3½ h.p. 1911 F.E. **TRIUMPH**	£34	0
7383.	2¾ h.p. 1912 3-speed **HUMBER**	£34	0
7385.	6 h.p. 1913 2-speed **MATCHLESS**	£57	10
7395.	2¾ h.p. 1911 2-speed **F.N.**	£28	0
	6 h.p. 1910 2-speed **MATCHLESS** and Sidecar	£45	0
7343.	6 h.p 2-speed **N.S.U.** and Sidecar..	£30	0
7344.	3½ h.p. 1909 **T.T. TRIUMPH**	£36	0
7345.	3½ h.p. 1911 2-speed **P. & M.**	£36	0
7350.	3½ h.p. 1912 free-engine **TRIUMPH**	£38	0
7356.	6 h.p. 1912 **REX** Sidette	£50	0
7360.	2¾ h.p. 1912 2-speed **DOUGLAS** ..	£35	0
7372.	3½ h.p. 1913 T.T. Roadster free-engine **TRIUMPH**	£45	0
7332	8 h.p. 1913 **HUMBERETTE**.....	£105	0
7336	2 h.p. 1912 **HUMBER**	£24	0
7302.	3½h.p. 1909 **TRIUMPH**	£25	0
7307.	3½ h.p. 1912 2-speed **HUMBER** ...	£38	0
7311.	6 h.p. 1912 2-sp. **BAT** and Sidecar	£60	0
	6 h.p. **ANTOINE**	£15	0
	2¾ h.p. 1912 2-speed **ENFIELD** ...	£35	0
7281.	3½ h.p. 1910 2-speed **P. & M.**	£32	10
7284.	3½ h.p. 1912 F.E. **TRIUMPH**	£40	0
5596.	3½ h.p. 1910 **KERRY ABINGDON**	£27	0
5621.	2¾ h.p. 1912 3-speed **HUMBER** ...	£34	0
5742.	3½ h.p. 1910 T.T. **TRIUMPH**	£29	0
6082.	5 h.p. 1908 **V.S.**	£17	10
6161.	3½ h.p. 1912 F.E. **RUDGE**	£38	0
6170.	3½ h.p. 1911 **REX** tourist	£28	0
6176.	3½ h.p. 1912 free-engine **RUDGE** ..	£35	0
6179.	3 h.p. 1912 2-speed **N.S.U.**	£30	0
6276.	8 h.p. 1912 **ZENITH**	£55	0
6296.	3½ h.p. 1912 F.E. **KYNOCH**	£35	0
6343.	8 h.p. 1911 3-speed **CHATER-LEA** and Sidecar	£58	0
6378.	6 h.p. 1911 **ZENITH** and Sidecar	£50	0
6397.	8 h.p. 1912 3-speed **CHATER-LEA** and Sidecar	£65	0
6421.	3½ h.p. 1908 **MINERVA**	£18	0
6516.	8 h.p. 1911 3 speed **CHATER-LEA**	£47	10
6543.	3½ h.p. 1911 2-speed **ALLDAYS** and Sidecar	£35	0
6646.	5-6 h.p. 1911 **A.C. SOCIABLE**	£52	10
6799.	7 h.p. 2-speed and F.E. **INDIAN**	£40	0
6834.	5-6 h.p. **F.N.** and Sidecar	£23	10
6837.	3½ h.p. 1911 F.E. **RUDGE**	£35	0
6857.	5-6 h.p. 1910 **A.C. SOCIABLE**	£39	0
6863.	3½ h.p. 1910 **BAT**	£27	0
6900.	3½ h.p. 1912 F.E. **ROVER**	£38	0
7043.	3½ h.p. 1912 **ZENITH-GRADUA** ..	£38	0
7080.	6 h.p. 1912 **CLYNO** and Sidecar..	£55	0
7081.	3½ h.p. 1909 2-speed **TRIUMPH** and Sidecar	£32	10
7098.	3½ h.p. 1911 **ZENITH** and Sidecar	£37	10
7108.	3 h.p. **GIVAUDAN**	£20	0
7110.	1½ h.p. 1909 **MOTOSACOCHE**	£14	0
7116.	3½ h.p. 1912 2-speed **BRADBURY**	£39	0

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Telephone: 5777 Holborn.

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SECTION I.

Northumberland, Cumberland, Durham, and Westmorland.

ONE Motor Cycle, 3½h.p. Ariel, 1910, splendid con dition.—McBride and Brown, 3a, Warwick Rd Carlisle. [X461

1911 Moto-Reve, engine just overhauled, mag., B.B carburetter; £12, or nearest.—Brown, 6, Ree bank Terrace, Carlisle. [X575

1910 3½h.p. Excelsior, good order, very reliable with Philipson governor pulley, £25; without £22; offers; photo.—Howie, Gillingate, Kendal. [X563

PREMIER, 1912½, 2½h.p., recently overhauled, new belt, Dunlop tyres, appearance new, lamp, horn spares; 24 gns.—Box 3,865, *The Motor Cycle* Office Coventry. [X568

SECTION II.

York and Lancashire.

L.

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TRIUMPH, James, and Veloce motor cycles, Swift and Crescent cycle cars, Montgomery, Gloria, and Gondola sidecars; sole agents.—Prompt deliveries and absolute satisfaction guaranteed by Hitchings', Ltd 74, Bold St., the firm of good repute. [172

LIVERPOOL, Birkenhead, and Manchester.

COLMORE Depots, 31, Renshaw St., Liverpool, and 261, Deansgate, Manchester.—New and 2nd-hand at the leading depots for the north, Colmore Depots agents for Douglas, Scott, Matchless, Bat, Clyno, Premier, Chater-Lea, New Hudson, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, 31, Renshaw St., Liverpool, and 261, Deansgate, Manchester. [X604

SCOTTS, 1913, immediate delivery.—Seal and Ball Southport.

TRIUMPH, free engine, 1911, in very fine condition and order; £30.—Seal and Ball, Southport.

C. POTTER, Leicester Grove, Blackman Lane, Leeds (Tel.: 4041), has

1913 Clyno and Clyno coachbuilt sidecar; what about the Clynos in the Scottish Trials on top again, special price to-day.

MORGAN Runabout Cycle Cars can be used all the year round; sporting and standard models in stock; trial runs; tuition free; call and inspect.—Potter, agent Leeds. [X574

NEW Fixed Engine Rudge; £40.—Redfern's Garage Westgate, Rotherham. [X566

6h.p. A.J.S., just arrived; £72/9.—Redfern's Garage Rotherham. [X566

2-SPEED and F.E. N.S.U., in good order; £12.— Redfern's Garage, Rotherham. [X566

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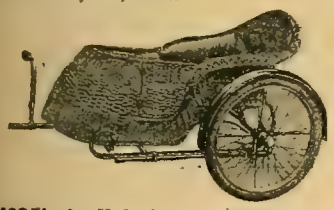
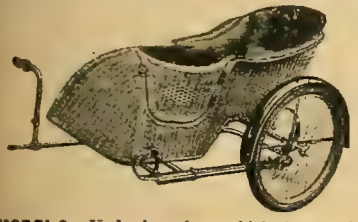
are the acme of perfection. Perfect in springing, smart in appearance, good in use, long in life, and, above all, low in price, they will appeal to you. We have prepared an interesting and instructive booklet dealing with them in detail. We shall be very pleased to send you a free copy—may we?

MODEL 1.—High-class canoe front body, quick detachable joints, **£6 6s.**



MODEL 9.—Underslung frame, body fitted with side door, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£7 7s.**



MODEL 8.—Underslung frame, high-class reed cane body, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£8 17s. 6d.**

MODEL 7.—Underslung frame, coachbuilt body, tool-box under front, also under seat. A real high-class sidecar. **£10 15s.**

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£30—1912 Premier single, with 3-speed gear; cash, approval.—Golby, Batley. [9996

£25, Phelon and Moore; £35, Phelon and Moore; cash, approval.—Golby, Batley. [9997

1913 Scott, absolutely as new, perfect order; £55.—152, North Rd., St. Helens. [9935

3 h.p. Quadrant, mag., good running order; £8.—Hilton, 72, Foxhall Rd., Blackpool. [X5217

8 h.p. Williamson, 1913, done 800 miles; cheap.—G. Roebuck, Somerset Rd., Huddersfield. [X5245

A.J.S., 6h.p., sidecar machine, in stock; no waiting.—Timberlake, Wigan. [X5708

1913 Premier, 3½h.p., 3-speed, Armstrong, perfectly new, £46; also 3½h.p. 2-speed countershaft model, same price.—Timberlake, Wigan. [X5709

1913 Singer, 3½h.p., 3-speed, Armstrong mark VI., perfectly new; £49/10.—Timberlake, Wigan. [X5830

1913 Enfield 3h.p. Lightweight, 2-speed, chain drive, self-acting lubrication, shop-soiled; only £44.—Timberlake, Wigan. [X5711

1913 Rover, 3½h.p., 3-speed, Armstrong mark VI., perfectly new, shop-soiled; £49.—Timberlake, Wigan. [X5831

1913 Triumph, 3 speeds, in stock; immediate delivery; no waiting.—Timberlake, Wigan. [X5712

1913 Scott; immediate delivery; no waiting.—Timberlake, Wigan. [X5713

ROBINSON and Price, 39, Whitechapel, Liverpool, have in stock for immediate delivery:

PREMIER, 1913, 3½h.p., 2-speed, countershaft model; price £56.

PREMIER, 1913, 2½h.p., free engine, lightweight; price £42.

PREMIER, 1913, 3½h.p., 2-speed, countershaft model, only ridden 200 miles; rare bargain, £48.

INDIAN, 5h.p. model, 1912, second-hand, equal new; bargain, £22. [X5567

1913 Clyno, 5-6h.p., unpacked; cannot take delivery; offers.—106, Ribbleton Lane, Preston. [X5691

3h.p. Quadrant, perfect, B. and B., low; £8/10, quick sale.—England, Station Rd., Blackpool. [X5621

INDIAN, red, 5h.p., clutch, in beautiful condition; £37.—149, Stockport Rd., Levenshulme. [9890

1912 6h.p. Clyno, excellent condition, £38; with Chater sidecar, £42.—45, Low Rd., Leeds. [0590

CHATER-FAFNIR, bought 1911; £17/10; exchange Douglas, F.N.—40, Andover St., Sheffield. [X5236

3½h.p. T.T. Norton, perfect condition, speedometer, and lamp; illness reason for selling.—Below.

LATEST Model 10h.p. Singer Light Car, in stock, standard green.—Above at Cunliffe's Garage, Southport. [X5602

1911 Enfield, £18; 1912 2-speed Indian, 33gns.; 1909 P. and M., £26.—95, The Moor, Sheffield. [1833

DOUGLAS, late 1910, good running order; £16, bargain.—Carter, Mines, Coniston, Lancashire. [9947

TRIUMPH, 12/12/08, new cylinder and piston, everything perfect; £26.—18, Lincoln Rd., Blackpool. [X5244

BRADBURY, 1912, enamel and plating very good; sacrifice £28.—41, South Castle St., Liverpool. [X5585

4h.p. Roc, free engine, sidecar, good order; only wants seeing; £15.—Danks, Bewsey St., Warrington. [X5632

3h.p. Kerry, B. and B., Bosch mag., Druids, good order; £12.—Thompson, Beckett St., Barnsley. [X5750

1911 3½h.p. Bradbury, excellent condition; £29.—Gibson, 120, Victoria Rd., Stretford, Manchester. [X2927

3½h.p. Singer, Bosch, Palmers, Lyco, splendid condition; £13.—Barton, 47, Oakland St., Widnes. [X5670

1912¾ Rex, 3½h.p., ridden 900, accessories, spares; bargain, £28/10.—Manager, Picturedrome, Earby, Colne. [X5248

1911 Triumph, new tyres, £28; 1913 F.E. Triumph, done 1,500 miles; £45.—Cross, Jeweller, Rotherham. [X5755

INDIAN, 3½h.p., 2-speed, 1912½, done 2,500, runs well, good condition; £38.—Dakeyne, Monks Hall, Eccles. [X5643

CALCOTT Lightweight, with 3-speed gear, unridden, shop-soiled only; first cheque £34.—Seal and Ball, Southport. [X5213

P. and M., 1913, 3½h.p., perfect order, only run 150 miles; £62/10.—British Cycle Co., 1, Berry St., Liverpool. [X5048

1912 4h.p. Hobart Twin, 2-speed, perfect condition, full accessories, spares; £38, offers.—Heald, Park Rd., Southport. [X5769

REX, 3½h.p., excellent condition, fast, reliable, new tyre, re-enamelled; £12.—Gregson Bros., Thornton-le-Fylde, Lancs. [X5644

1913 Zenith-Gradua, 3½h.p., perfect condition, very fast, climb anything, spares; £46.—61, Church St., St. Helens. [9826

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1913 £52 10s. MACHINE.

Fitted with 3⅜ h.p. Precision engine, Bosch weatherproof magneto, Best and Lloyd drip feed lubricator, Hutchinson rubber-studded tyres, handle-bar control, and complete with stand, carrier, number-plates, toolbag, and spare spring. Limited number only. If you are a cash buyer we will

ALLOW A DISCOUNT.

We will take your present machine in exchange if required. We will supply 2-speed gear and free engine for **£5 15s.** extra. Don't miss this bargain.

OFFERS WANTED FOR THE FOLLOWING:

New 1913 3-speed 3½ h.p. **HUMBER.**

8 h.p. **BAT-J.A.P.,** P. and M. 2-speed	£35 10
2 h.p. **MOTO-REVE,** 1910	£13 10
4 h.p. Twin **N.S.U.** on Rex frame, magneto	£13 10
3½ h.p. **PREMIER,** 1911½, B.S.A. 2-speed	£32 10
3½ h.p. **HUMBER,** 1913, 3-speed model, done about 200 miles, complete with sidecar	£46 0
8 h.p. **G.W.K.,** 1912 model, not much used	£98 0
2½ h.p. **GRANDEX-PRECISION,** 1912	£19 10
3½ h.p. **A.S.L.,** brand new, 1913 model	£35 10
3½ h.p. **PREMIER,** 1913 model, 3 speeds, only run 500 miles	£46 10
6 h.p. **BAT,** 1913, chain drive, like new	£58 10
3½ h.p. **N.S.U.,** free engine, splendid order	£19 10
3½ h.p. **QUADRANT,** 1908, magneto	£15 10
3½ h.p. **REX,** 1908, spring forks, magneto	£16 10
2 h.p. **MOTOSACOCHE,** 1910, magneto	£15 0
3½ h.p. **REX,** 1910 model	£17 10
SCOTT, 1909, 2 speeds, nice condition	£23 10
MORGAN Runabout, 1912, screen, hood, side tool boxes, new 3in. tyre	69 Gns.
3 h.p. **N.S.U.,** magneto, splendid order	£12 10
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3½ h.p. **REX**	£4 15

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We are Special Agents for these High-class Engines, and keep a large stock. We are prepared to take your present engine in exchange, and give prompt delivery. We are also in the position to supply THE TRADE.

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Let us take your carburetter in exchange for a Binks and increase your power, run more miles to the gallon, and enable your engine to run slower in traffic.

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3½ h.p. Minerva, with magneto, M.O.V.	£5 0 0
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3 h.p. Triumph, M.O.V.	£4 10 0
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New Bosch Twin D A V Magneto	£2 19 6
N.S.U. Forecar, cane body	£1 2 6
New Sidecar Body	19/6
New ditto, side door	29/6
Nearly new Pillion Car	£2 5 0
Nearly new B. and B. Carburetter	15/6
26 × 2½ Front Wheel, with Dunlop tyre	17/6
Mills-Fulford Castor Wheel Sidecar	£3 15 0
Mills-Fulford Rigid Sidecar, side door	£4 5 0
Mills-Fulford Rigid Sidecar, cane body	£3 5 0
Good Standard Sidecar	£3 0 0
26 × 2¼ New Clincher Rubber-studded Cover	23/6
New 28 × 2 Wired Cover, best make	9/6
New 1913 Armstrong Mark VI. 3-speed Gears. Delivery from stock. Trade supplied.	
Nearly new Mark VI. 3-speed Gear	£5 15 0
New Coachbuilt Sidecar Body, side door	£4 15 0
New Mirror Lens Lamp and Generator	13/9
Good Powell and Hanmer 27/6 Lamp	17/9
Massive Horns, ebony finish	9/6
New Lamp, with generator and bracket	18/9

Booth's Motories,

Keighley Mills, Bedford Street North,
HALIFAX.

Telephone 1062.

VERY HOT!

We have made special arrangements to supply brand New 1913 **REX** Combinations, 6 h.p., with PORTLAND Lounge Body Sidecars, at the ridiculous price of

£70-0-0

All brand new and fully guaranteed. Complete combination. Send for full specifications. It will pay you.

Easy Payment Terms, **£17 10s.** with order, and twelve equal monthly payments of **£4 7s. 6d.** No extra charge. Call and inspect.

SECOND-HAND BARGAINS.

1913 **REX** de Luxe, 6 h.p., Portland £13 13s. Sidecar. London-Edinburgh Gold Medal Winner **£62**

1913 **HAZLEWOOD,** 3½ h.p., twin, 3 speeds, not ridden above 300 miles, and like new **£39**

1912 **ZENITH,** 6 h.p., combination, with Canoelet Sidecar, equal to new, lamp, horn, etc. **£50**

1912 **DOUGLAS,** 2¾ h.p., Model K, 2 speeds, kick starter, excellent order **£40**

1912 **CLYNO,** 6 h.p., 2 speeds, kick starter, complete combination **£53**

1912 **REX,** 6 h.p., combination, Portland £11 11s. Sidecar, spring forks, 2 speeds, head lamp, Cowey, and horn. Special value **£56**

1912 **RUDGE,** 3½ h.p., multi, good tyres, enamelling & plating as new, with Sidecar **£49**

1912 **PIERCE,** 5-6 h.p., 4-cylinder, mechanical lubrication, shaft drive, M.O.V., only done 500 miles **£55**

1912 **BRADBURY,** 3½ h.p., chain drive, 2 speeds, free engine, kick starter, suit sidecar **£37**

1912 **BRADBURY,** 3½ h.p., 2-speed, belt drive, Cowey, complete with Sidecar..... **£55**

1912 **BAT,** 6 h.p., spring frame, Bosch magneto, J.A.P. engine, very fast..... **£36**

1911 **INDIAN,** 7 h.p., 2 speeds, Millford £16 16s. Sidecar, speedometer, horn, lamp, etc., complete outfit **£48**

1911 **V.S.,** 7-9 h.p., 2 speeds, condition as new, brand new £11 11s. Hopper Sidecar, fine combination **£40**

1911 **F.N.,** 2¼ h.p., 2 speeds, spring forks, very fine lightweight, speedometer, and lamp **£28**

1910 **V.S.,** 5 h.p., 2 speeds, Truffault forks, pedal start, good tyres, French grey finish, suit sidecar **£27**

1910 **ENFIELD,** 2¼ h.p., twin, lightweight, finished khaki, magneto **£20**

1906 **REX,** 6 h.p., twin, spring forks, cantilever seat, good tyres, take sidecar **£16**

MOTO-REVE, 2 h.p., twin, magneto, Druid forks, free engine **£15**

ALCYON, 5 h.p., twin, spring forks, suit sidecar, very fast **£13**

KELECOM, 4 h.p., single, M.O.V., good tyres, low built **£10**

Deferred Payments 5% extra.

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136, Great Portland Street, LONDON, W.

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MOTOR BICYCLES FOR SALE.

NEW Hudson, 3½h.p., 1912 Colonial model; cost £63; run 700 miles only; £40.—Sagar, Elmfield Terrace, Halifax. [X5513

B.S.A., 1912, clutch, just purchased new, ridden 400 miles only; any examination; £36.—Openshaw, Brooklands, Bury. [X5686

3h.p. Rex, h.b.c., perfect working order, £8; 1¾h.p. Minerva, h.b.c., ditto, £6; room wanted.—117, Caunce St., Blackpool. [X5216

1911 F.E. Triumph, good tyres, and splendid running order, £29; 1913 Millford sidecar, as new, £6. —13, Bradford St. West, Bolton. [X5798

1912-13 Motosacoche, Whittle belt, F.E., only done 1,000 miles; £27, or near offer.—J., 53, Birchfields Rd., Rusholme, Manchester. [X5718

F.N. Lightweight, undergeared pulley, Bosch, new belt, lamp, horn, spares, guaranteed; £11.—Beesley, Charlestown, Blackley, Manchester. [X5669

SLAUGHTER, 1913 3¾h.p. Ivy-Precision, Armstrong 3-speed, Sensyray, heavy Kempshall, decompressor. —Griffin, Gordon Villa, St. Helens. [9849

PHELON and Moore, Millford sidecar, all accessories and spares, perfect, new order, 1912 fitted; £42.—Rawlinsons, Ltd., Kirkstall Rd., Leeds. [X5235

DOUGLAS, K, 1912, clutch, kick start, 2 speeds, good condition, and fast; £33/10; send for full particulars.—Raymond Read, tailor, Malton. [9889

1912½ Humber, 3½h.p., 2-speed, free engine, Whittle, lamp, spares, hand starting, new condition, and faultless; £33.—11, Rhodes St., Halifax. [X5645

SCOTT, 1913, perfectly new, never ridden; unable to accept delivery; would sacrifice deposit of 10% for quick sale.—Grifton, 52, Barnsley St., Wigan. [X5714

SCOTT, late 1912, 1913 improvements, absolutely unscratched, complete with all spares, etc.; £46; only wants seeing.—Sixsmith, Rossmore, Wigan. [9980

DOUGLAS, T.T., 1913 competition model, as new, very fast, has won hill-climbs; accept £40, a bargain.—Park, The Hawthorns, Swinley Rd., Wigan. [X5715

1913 Scott, done 500 miles only, like new; property of doctor, bought car; £54; Yorkshire district.—Box 3,868, *The Motor Cycle* Offices, Coventry. [X5752

MAY We Suggest that if your local agent has not the motor cycle or cycle car that you are wanting, you ask him to write to Hitchens', Ltd., Morecambe, for same. [0331

TO Scott Agents, and to agents in districts where not represented.—We can deliver Scott machines from stock on good trade terms. Write for our list at once. —Hitchens, Ltd., Morecambe. [0333

PREMIER, 1913, 3-speed, 3½h.p., sidecar machine, used for show, slightly shop-soiled; list £56, accept £50 quick disposal.—Cooke's, Longsight, Manchester. [9977

1912 Calthorpe-Precision, 4½h.p., 2 speeds, free engine, chain and belt drive, under 2,000 miles, perfect condition; £38.—51, The Avenue, Middlesbrough. [X5784

1911 Triumph, faultless condition, new Kempshall tyre, new Dunlop belt, accessories, and spares; nearest £27/10.—Haigh, 52, King St., Huddersfield. [X5737

T.T. Triumph, late 1911, Lucas, whistle, horn, spares, new belt, very fast, just overhauled; £27/10; perfect throughout.—W. S. Life, Cumberland Rd., Southport. [X5570

TRIUMPH, free engine, 1911; Rover, free engine, 1912; Triumph, standard, 1910; Triumph, free engine, 1909; all in excellent running order.—Stockdale, Lytham. [X8797

BRADBURY, late 1912, and £12 sidecar, chain drive, 2 speeds; cost £70, bargain, £42; perfect condition.—Holding, Scarisbrick Rd., Levenshulme, Manchester. [X5238

SIX Only, brand new 5-6h.p. twin Fafnirs, latest 1914 air-sprung forks and saddle, Sturmey-Archer 3-speed; £56 cash.—Reynolds, 32, Downing St., Manchester. [X5719

3½h.p. Kelecom, 1912 Brown and Barlow carburetter, h.b.c., Watawta belt, low saddle position, long footboards; given away at £7/9/11. — H. Arthur, Jeweller, Rochdale. [X5720

PREMIER, 3½h.p., 1913 model, 2-speed, free engine, and countershaft, new last May, only ridden 700 miles, all perfect; cost £62, accept £38/10.—Dawes, 62, Park St., Farnworth Bolton. [X5581

T.T. Triumph, 1913, special model, speedometer, spares, 4 tyres, 4 tubes, 2 belts, 2 lamps, wheel, valves, plugs, etc., does 1,500; £50 lot, dirt cheap.—Robinson, Royal Mills, Halifax. [9979

ABSURD Prices.—New unridden 1912 Bradbury, £34; 2-speed ditto, £40; James, Armstrong 3-speed, £42; 6h.p. Matchless, £42; Douglas, £32; 3½h.p. Zenith, £41.—5, Cheltenham Parade, Harrogate. [X5659

1912 7h.p. Indian, speedometer, whistle, lamp, full accessories, new condition; giving up riding; ride 100 miles to prospective buyer; first reasonable cash offer accepted.—14, Watson Rd., Sheffield. [X5450

GREAT Bargains, must be sold.—1911 Douglas, like new, £22; 1912 B.S.A., 3½h.p., free engine, £32; 1909 Rex twin, free engine, 5-6h.p., new condition, £20; 1911 Enfield, £17; 1912 Zenith, £32, Gradua gear.—J. Guttenberg, The Moor, Sheffield. [0288

SPECIALS.

1913 **SCOTT,** 3¾ h.p. twin, complete with Portland lounge body cane sidecar.
Special price, **72 guineas.**

1913 **RUDGE,** 5 h.p. multi, 750 c.c., with Portland £13 13s. sidecar.
Special price, **75 guineas.**

1913 **B.S.A.,** 3½ h.p. two-speed, chain drive, kick start, with Portland Dutch clog sidecar.
Special price, **£65.**

1913 **ZENITH,** 6 h.p. kick start, Gradua gear, with Portland coach-built sidecar.
Special price, **85 guineas.**

1913 **PREMIER,** 3½ h.p. countershaft two-speed, complete with Portland Dutch clog sidecar.
Special price, **£65.**

1913 **REX,** 3½ h.p. de luxe, two speeds, handle start, complete with Portland de luxe sidecar
Special price, **£60.**

1913 **REX,** 6 h.p. two-speed de luxe, all latest improvements, with £13 13s. Portland sidecar.
Special price, **£70.**

DO THESE SUIT?

Please compare these prices with those of the SO-CALLED cheap store prices.

DEFERRED PAYMENTS arranged at

MAUDES'
MOTOR MART
136, GREAT PORTLAND ST. LONDON, W.

'Phone—552 Mayfair.
'Grams—"Abdicate, Wesdo, London."

HOW'S THIS?

Brand New 1912 6 h.p. 2-sp. REX de Luxe	£62	10	0
15% cash discount	9	7	6
	£53	2	6
Allowance for your 1912 2-sp. Douglas or similar type of machine	£38	2	6
Cash required	£15	0	0

NEW 1913's

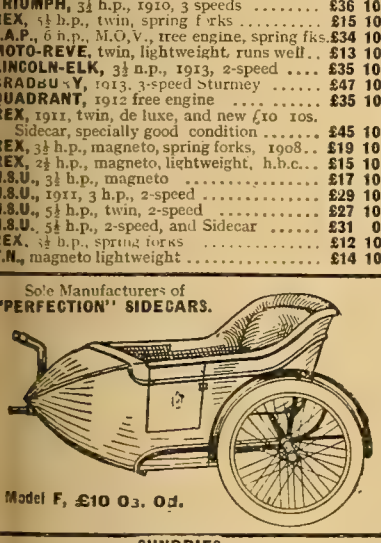
TRIUMPH, 3½ h.p., 3-speed Sturmey	£59	15
REX, 6 h.p., 2-speed, de luxe	£62	10
REX, 6 h.p., 2-speed, de luxe, chain drive ..	£67	15
REX, 4 h.p., 2-speed, de luxe	£56	0
DOUGLAS, 2¾ h.p., 2-speed	£48	0
BRADBURY, 3-speed	£60	0
BRADBURY, 2-speed, kick starter	£60	0
REX-J.A.P., 6 h.p., 2-speed	£71	8
REX-J.A.P., 8 h.p., 2-speed	£73	10
B.S.A., 2-speed, free engine	£60	0
WILLIAMSON, 8 h.p., L75, water-cooled ..	£82	10
WILLIAMSON, 8 h.p., w.c., and sidecar	£97	10

Easy Payments from £10 deposit.

MISCELLANEOUS MACHINES.
Cash, Exchange, or Easy Payments.

B.S.A., 1913, 2-speed, 2½in. tyres, 750 miles .	£49	10
TRIUMPH, 1912, 3½ h.p., plate clutch	£44	10
RUDGE Multi, 1912, and sidecar	£47	10
REX, 4 h.p., 1912, the Big Single (NEW) ..	£39	0
REX, 8 h.p., 1911-12, 2-speed, NEW	47	Gns
GRANDEX-PRECISION, 1912, 3½ h.p., Sturmey-Archer 3-speed gear	£35	10
REX, 1913, 6 h.p., 2-speed, twin	£54	10
ROVER, 1911, clutch model; cost £55	Offers.	
JAMES, 1910, 3½ h.p. magneto	£19	10
REX, 5 h.p., 1909, 2-speed, de luxe	£29	10
P. & M., 3½ h.p., 2-speed, and Sidecar	£25	10
ZENITH, 1911, 3½ h.p., and Sidecar	£39	10
CLYNO, 1912, and special cone Sidecar	£49	10
PEUGEOT, 3½ h.p., magneto, 2 speeds	£19	10
REX, 1913, 4 h.p., 2-speed, de Luxe, chain drive, nearly new	£49	10
REX, 1911, 2-speed, twin, de luxe	£38	10
TRIUMPH, 3½ h.p., 1910, 3 speeds	£36	10
REX, 5½ h.p., twin, spring forks	£15	10
J.A.P., 6 h.p., M.O.V., tree engine, spring fks.	£34	10
MOTO-REVE, twin, lightweight, runs well ..	£13	10
LINCOLN-ELK, 3½ h.p., 1913, 2-speed	£35	10
BRADBURY, 1913, 3-speed Sturmey	£47	10
QUADRANT, 1912 free engine	£35	10
REX, 1911, twin, de luxe, and new £10 10s. Sidecar, specially good condition	£45	10
REX, 3½ h.p., magneto, spring forks, 1908..	£19	10
REX, 2¾ h.p., magneto, lightweight, h.b.c...	£15	10
N.S.U., 3½ h.p., magneto	£17	10
N.S.U., 1911, 3 h.p., 2-speed	£29	10
N.S.U., 5½ h.p., twin, 2-speed	£27	10
N.S.U. 5½ h.p., 2-speed, and Sidecar	£31	0
REX, 3½ h.p., spring forks	£12	10
F.N., magneto lightweight	£14	10

Sole Manufacturers of
"PERFECTION" SIDECARS.



Model F, £10 0s. 0d.

SUNDRIES.

Armstrong 3-speed Gear and Free Engine, with belt rim and controls, brand new, Mark II., £5 10.; Mark III.	£6	2	6
1913 Mark VI., Armstrong Gear. Trade supplied.			
New F.R.S. Standard 8oolt. Lamp, with grid generator; usual price, 53/6; clearance price		35	0
Miller's Lamp Set, 29H		37	6
New Avon (Druid) 26 x 2 Non-skid Covers		13	6
Myer's Motor Cycle Stand.....		3	3
New 26 x 2 and 26 x 2¼ Avon Tubes.....		5	9
Enderick Decompressor latest type ..		8	6
New Car Speedometer.....	£2	12	6
New Triumph Pattern Horns.....3/- and		3	9

The Halifax Motor Exchange

Largest Rex Dealers,
6, WESTGATE, HALIFAX.
'Phone 266. Telegrams: "Perfection."

MOTOR BICYCLES FOR SALE.

LATE 1912 6h.p. Rex-Jap, 2-speed gear, handle starting, speedometer, lamp and generator, horn, and all tools and spare parts, ridden 1,800 miles; inspection invited; price £50.—Storey, Brook House, Freshfield, near Liverpool. [9821

FOR Sale, cheap.—1912 3½h.p. 3-speed Premier, £32/10; 1912 3½h.p. 2-speed Premier, £34; 1912 2¾h.p. 2-speed lady's Enfield, £35; all above had very little use; 1912 single-geared Rudge, £30, in fine condition; in stock, 1913 Douglas, 2-speed, £48; and 1913 3-speed Triumph, £59/15; cash offers wanted.—Pickles, Motor Agent, Keighley. [X5800

6h.p. Bat-Jap, Whitsuntide, T.T. touring model, mileage 1,600, all accessories, including Lucas lighting set, Cowey speedometer, tools, spares, etc., fitted with decompressors and automatic lubrication, new 2½in. extra heavy covers both wheels, new Dunlop belt, very comfortable, and choice of any speed: to 70 m.p.h.; cost complete over £70, accept £50; deposit system.—Box 3,846, *The Motor Cycle* Offices, Coventry. [X8233

NORTHERN Depot, Ltd., Everything Motorish, Leece St., Liverpool.—Rex-Jap celebrated machines in stock. Big selection sidecars, including Millford Heralds, Corvettes, Premier, etc., also bodies. A.C. Sociables, Wall Tricarriages; shop-soiled 1913 Alldays Midget car, what offers for this? Exchange depot D.A. cylinders, Lukin carburetters, biggest exhibition accessories in the north at popular prices. N.D.L. motor cycle suit, 21/6. Call and examine our stock, no obligation to purchase. [X5739

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

1911 3½h.p. Triumph; £30.

1911¾ 3½h.p. F.E. Triumph; £33.—Hussey, Vine St., Stafford. [X5702

1912 (October) 5h.p. A.J.S., 2-speed box, always concert pitch, 650×65 voiturette tyre, rim, and spokes; £50; any trial; also sidecar.—Hussey, Vine St., Stafford. [X5703

4½h.p. Minerva, twin; £12/10.—Bennett, 39, Cross St., Macclesfield. [X5761

QUADRANT, 3h.p., only £6, engine as new.—Brown, Gloucester Rd., Chesterfield. [0591

B.S.A., 1912, 2-speed, as new; accept £42. — Kenworthy, King St., Alfreton. [X5722

MOTOSACOCHE, 1½h.p., Whittle, mag., spring forks, perfect; £10.—Fourdrinier, Tixall, Stafford. [X5184

ENFIELD Lightweight, only done 1,000 miles, faultless; £20.—Spence, Little Eaton, Derby. [9828

2¾h.p. 1910 Twin N.S.U., Bosch, everything perfect; £15.—Woodville, Baxter Rd., Sale. [9937

1912½ 2¾h.p. 3-speed New Hudson, like new; real bargain, £30.—H. S. Purcell, Audlem, Ches. [9938

TRIUMPH Roadster, 1912, accessories; bargain, £33, worth £38.—Siddle, Gt. Underbank, Stockport. [9841

DOUGLAS, T.T. model, new April, money urgently needed; accept best offer.—T. Owen, Ironbridge, Salop. [9836

SEVERAL Second-hand Motor Cycles for sale, cheap; write for particulars.—Evans Garage, Newport, Salop. [X5705

REX De Luxe, 1911, 7-9h.p., sidecar, little used, perfect; £35; accept solo part.—75, Newton St., Macclesfield. [X5771

MINERVA, 3½h.p., 1910, B. and B., Bosch, spring forks, torpedo tank, overhauled; £10.—Hall, Dale Rd., Matlock. [X5189

CALTHORPE, 4½h.p., 2-speed, kick starter, free engine combination, nearly new; £49.—Slack's Garage, Stockport. [9861

1907-8 Minerva, cylinder 85×85, sound, valves immaterial; approval, deposit.—A. Fielder, Byrkley, Burton-on-Trent. [X5232

INDIAN, 7h.p., free engine, Sept., 1912, perfect condition; £42.—Details, Stanton, Finchfield Rd., Wolverhampton. [9840

2h.p. 1911 Motosacoche, adjustable pulley, good condition; nearest £14/10 for quick sale.—59, St. Helen's St. Chesterfield. [X5626

1912½ Bradbury, chain drive, 2-speed, kick starter, carefully used perfect condition; £38.—Swindell, Buxton Rd., Tideswell, Buxton. [X5642

RUDGE Multi, 3½h.p., late 1912, new Kempshall back, horn, tools, etc., splendid condition, ideal sidecar machine; £39.—Edge, Wilmslow. [X5587

RUDGE, 1912, free engine, new tyres, belt, lamp, whistle, splendid condition; £30.—Mosantus, Fair View, Cross St., Bridgtown, Cannock. [9852

P. and M., 1912½, little used, absolutely as new, Lucas horn, Cowey, valve, piston rings, etc.; cost nearly £70.—Massey, Whitehouse, Alderley Edge. [0613

REX Free Engine Twin, very good condition throughout, sound tyres, Pulley belt, with accessories complete; £10.—35, Riches St., Wolverhampton. [X5668

3½h.p. Triumph, new tyres, Dunlop belt, makers just overhauled, cost £5; sacrifice, £22, exchange lightweight.—Watson, Ryecroft, Ripley, Derby. [X5728

REY

The noted firm. Established in the Motor Trade since **1900** and known throughout the country for quickest delivery of any Motor Cycle or Cycle Car.

5, Heath St., Hampstead, N.W.; and 173, Gt. Portland St., W.

Telephones: 2678, P.O., Hampstead; and 1970, Regent

Clearance Sale of shop-soiled Machines new and second-hand.

EXCEPTIONAL BARGAINS MAY NOW BE SECURED.

FOR HIRE.

Motor Cycles and Sidecars.

TERMS ON APPLICATION.

Sole London Agents for—

Canoelet Sidecars from.. ..	**£12 12**
Swan Sidecars from	**£13 13**

Also Folding Sidecars for Immediate Delivery.

TRADE SUPPLIED.

EASY PAYMTS. FROM 2% EXTRA. ON BALANCE.

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Telephones: 2678, P.O., Hampstead; and 1970, Regent.

REY

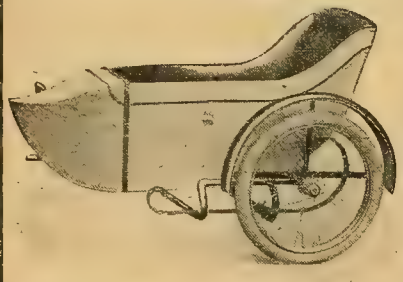
Mr. Sidecar Man!!

Has it ever struck you that with the advent of the

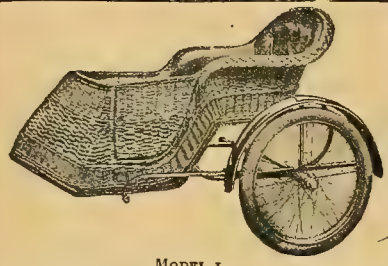
FARLOW

a good, round, and elegant sidecar can be purchased at a most moderate figure?
Send for our price list and be convinced.

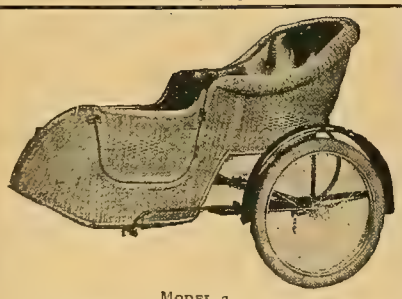
WE CAN DELIVER ANY MODEL FROM STOCK.



MODEL 4.
Underslung chassis (patent 5070), light coachbuilt body, spring cushion, two tool boxes fitted.
10 guineas.



MODEL 1.
Wicker body, canoe front, side door, upholstered and lined inside right down to the toe.
£6 5s. 0d.



MODEL 3.
Reed cane body with roll top, thickly upholstered and lined right down to the toe.
£8 10s. 0d.

Models Nos. 1 and 3 can be fitted with our underslung chassis (patent 5070/12) for **10s.** extra.

All Carriage Paid, and complete with mat, stand, quick detachable joints, and Michelin **Motor Cycle** Tyres. Trade supplied.

MOTOR CYCLE FRAMES.

We have a quantity of frames by well-known maker. Two styles to choose from.
PRICE 32/6 EACH.
Rigid forks, **7/6** extra. Druid forks, **45/-** extra.
Enamelled and plated in first-class style.

ODD BARGAINS.

Cowey Speedometer, done 3,000	£3 0
Sidecar Aprons	7/6
Cowey Speedometer, done 100, perfect	£3 10
New Rubber-studded Covers, 26 x 2¼, beaded	17/6
Triumph Pattern Handle-bar, new	6/6
New Brested Trembler Coil	15/-

Farrar's Motor Exchange

19, 21, 23, 25, Hopwood Lane.

Telephone 919. **HALIFAX** (Two minutes from G.P.O.)

MOTOR BICYCLES FOR SALE.

RUDGE, T.T., late 1912, in excellent condition, very fast, just overhauled; £37, no reasonable offer refused.—Full particulars, Gardner, Lletty, Mostyn. [9984

GENUINE Bargain.—Scott, late 1910, new condition, 2-speed, kick starter, just overhauled Scott Works; 25 gns. cash.—Hallam, Rosedale, Dove Holes, Buxton. [X5758

NEVER Again.—5h.p. Dot-Peugeot, 2-speed, free engine, kick starter, Bosch mag., take sidecar anywhere; first cheque for £17 secures.—Millard's, drapers, Chesterfield. [X5740

TRIUMPH, F.E., new November, 1912, perfect condition, not done 2,500, eight feed lubrication, complete with tools and spares; £40.—Barlow, Bankfield, Winsford. [X5634

2½h.p. N.S.U., Twin-cyl. Lightweight, 1911 model, in perfect condition, complete lamp, horn, and tools; £15, or near; any trial; must sell this week.—Greenhous, Bishop's Castle. [X5768

1912 Humber, 2h.p., good running order and condition, £19/10, lowest; 1912 Douglas, 2¾h.p., free engine, and kick starter, in excellent condition, £38/10—322, Shobnall St., Burton-on-Trent. [X5689

TRIUMPH, 1910, Mabon free engine, clutch, with sidecar, only used week-ends in dry weather, lovely condition; expert examination; £35; write for particulars.—Wynne, 124, Richmond Rd., Crewe. [X5654

ZENITH-GRADUA, 3½h.p., 1912¾ model, a beautiful machine, with lamp and generator, P. and H., brand new Dunlop belt, 2 spare rubber belts, 1 Whittle belt done 150 miles, 1 leather done 200, 4 spare jets; the lot for quick cash sale £33.—Rhosville, Rhos-on-Sea, Colwyn Bay. [9932

IMMEDIATE Delivery, Phelon and Moore, Triumphs, B.S.A., Rudge Multi, Enfield 6h.p. Douglas, sidecars; torpedo, side door, £6/17/6; best value yet offered; also £5/5 models; Auto-Wheels; several second-hand machines; largest stock spare parts, tyres, belts, lamps, etc.—William Jones, Anglesey Motor Mart, Llanfairpwllgwyngyll. [9884

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

B

COLMORE Depots, 31, Colmore Row, Birmingham; 49, John Bright St., Birmingham; and 62, High St., Leicester.

NEW and 2nd-hand at the leading depots for the Midlands; agents for Douglas, Scott, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, Birmingham and Leicester. [X6047

COLMORE.—1910 Zenith-Gradua, 3½h.p. J.A.P., sturdy and economical, sidecar machine; £24.

COLMORE.—1913 2¼h.p. Levis, valveless, very nearly new machine; £30.

COLMORE.—1912 3½h.p. Ariel and sidecar, a real good passenger combination; £38.

COLMORE.—1913 3½h.p. Premier, 3-speed, has been very little used; £49.

COLMORE.—1913 twin-cyl. Matchless, 3½h.p., 3 speed, only run 200 miles; £53. [X1366

SECOND-HAND Motor Cycle Bargains:

1912 Macbeth, 3½h.p., 3-speed, competition winner; £34.

1912 Rex Sidette; £43.

1912 Free Engine Rudge, 3½h.p.; £38

1912 Singer and Sidecar; £44.

1912 T.T. Douglas; £34.

1911 B.S.A., 3½h.p.; £32.

1913 Model R Douglas, demonstration model; £45.

1913 Cartwright-Precision, 3½h.p., £32; 3-speed Sturmey-Archer.

1911 Standard Douglas; £23.

COLMORE Depot, 62, High St., Leicester. [9770

3½h.p. Triumph, 3-speed, £59/15.

3½h.p. Triumph, 1912-13, free engine; £48.

3½h.p. Triumph, 1912, free engine, perfect; £37/10.—Stamford Garage, Stamford. [X5697

N.S.U., 1¼h.p., Bosch, B. and B., Druids; £10/10.—Grocock, 48, High St., Boston. [X5775

PREMIER, late 1912, 3¼h.p., 2-speed, not done 300; £40.—Arnatt, 14, Jordan Well, Coventry. [X5692

PREMIER, 2¼h.p., new Easter, lamp, horn, absolutely perfect; bargain, £28/10.—English, Newark. [X5514

SPECIAL.

A CYCLE CAR FOR £40.

We have a 4-wheeled Cycle Car, new, 7-9 h.p. Blumfield engine, Bosch magneto, Amac carburetter, chain drive, 2 speeds, free engine, handle starting, 2-seater body, given away £40 given away.

The following are complete with sidecars:—

1913 8 h.p. **ZENITH** and 15 guineas Sidecar	£65 0
1909 3½ h.p. **P. & M.,** 2 speeds and Sidecar	£29 0
1912 6 h.p. **CLYNO** and Sidecar	£45 0
1912 6 h.p. **REX** and Sidette Sidecar	£45 0
1911 8 h.p. **MATCHLESS** 2 speeds, and Sc.	£50 0
7 h.p. **ROC,** 2 speeds, and Sidecar	£29 0
1911 4 h.p. 2-sp. **QUADRANT** and Sidecar	£33 0
1909 5 h.p. **REX** de Luxe and Sidecar	£30 0
1908 5 h.p. **REX** de Luxe and Sidecar	£28 0
1908 5 h.p. **REX,** Roc, 2 speeds, and S'car	£25 0
1910 5 h.p. 2-speed **VINDEC** and Sidecar	£30 0
1910 3½ h.p. 2-speed **SCOTT** and Sidecar	£30 0
1908 5 h.p. **REX,** clutch model, and Sidecar	£23 0

All have variable gears except the last-named.
We will sell any machine without sidecar.

We have the following New 1913 Machines in Stock:

6 h.p. **A.J.S.,** 3 speeds, kick starter	69 Gns
3½ h.p. **PHELON & MOORE,** kick starter	£65 0
1913 3½ h.p. 3-speed **HUMBER**	£53 0
1913 3½ h.p. **RUDGE,** standard model	£45 0
1913 2¾ h.p. **SUNBEAM,** 2 speeds	£63 0
1913 4½ h.p. **SINGER,** 2 speeds	60 Gns
1913 3½ h.p. **NEW HUDSON,** 3 speeds	58 Gns

Easy terms quoted. Discount for Cash.

MORGAN CYCLE CARS.

8 h.p. J.A.P. engine, best of everything.
85 guineas.
—— Delivery from stock. ——

THIS WEEK'S BARGAINS.

3½ h.p. **ENFIELD REX,** M.O.V.	£10 0
2½ h.p. **J.A.P.,** Druid forks	£7 0
1911 3½ h.p. **ARIEL SWIFT,** free engine	£24 0
1912 6 h.p. **CLYNO,** 2 speeds, kick starter	£42 0
1912 6 h.p **REX** Sidette, 2 speeds	£45 0
1910 5-6 h.p. **VINDEC,** 2 speeds	£27 0
1909 5-6 h.p. **REX** de Luxe	£28 0
5-6 h.p. **REX** de Luxe, 2 speeds, etc.	£27 0
3½ h.p. 1907 **TRIUMPH,** magneto, spring fks.	£23 0
One Ditto, very good	£24 0
4 h.p. 1911 **QUADRANT** Roc 2 speeds	£30 0
5-6 h.p. Twin **REX,** magneto and clutch	£19 0
3½ h.p. 1909 **REX** Tourist, good	£21 0
3½ h.p. 1908 **REX** Tourist, 1909 engine	£19 0
3½ h.p. 1910 **REX,** fine goer	£23 0
5-6 h.p. **REX** de Luxe, 1908, 2-speed model	£25 0

We have a few Brand New Clearance Clincher Rubber-studded **26 x 2¼** Covers to fit **26 x 2¼** Rims.
Usual price **45/6** each.
Our price 25/- each.
Approval willingly.

£7 DOWN SECURES ANY OF THESE. BALANCE 30/- MONTH.

3½ h.p. 1908 **REX £19**	5 h.p. **REX,** magneto £19
3½ h.p. 1909 **REX £21**	3½ h.p. 1910 **REX** .. £23

MISCELLANEOUS BARGAINS.

Bosch Twin Magneto, D.A.I.V., any angle for rotation, new and guaranteed	£2 19 6
New Bosch magneto, suit V. twin engine	59/6
New Bosch magneto, suit single-cyl. engine	£3 0
A1 Mudscreen good	7/6
Farlow Sidecar, good	£3 10
Wicker Sidecar Body	7/6
26 x 2¼ Rub-stud Continental Cover, new	30/-
Rex Pattern Foot Brake, new	7/6
New Motor Cycle Frame	32/6

Farrar's Motor Exchange

19, 21, 23, 25, Hopwood Lane.

Telephone 919. **HALIFAX** (Two minutes from G.P.O.)

SCOTT'S

VICTORIA MOTOR HOUSE,
Powell Street, Halifax.

Telephone: 433.
Telegrams: SCOTT'S, Powell St., Halifax.

WE CAN SUPPLY ANY MAKE OF NEW MACHINE FROM STOCK.

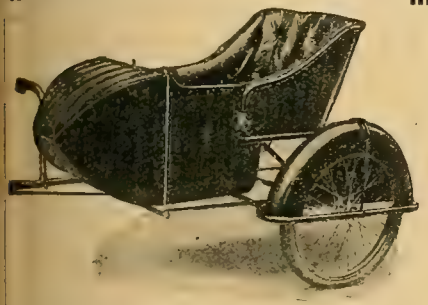
SOLE AGENTS FOR
Hupmobile and N.S.U. Runabouts.

P. & M., 1913 model, new, in stock	£65 0
P. & M., 1912 model, had very little use, like new	£50 0
RUDGE Multi, like new, 1912, not done 1,000 miles	£46 0
RUDGE Multi, very good order	£42 0
ZENITH, 6 h.p., 1912	£55 0
RUDGE, standard, 1912	£34 0
N.S.U., 6 h.p., 2 speeds, free engine, and Sidecar	£30 0
TRIUMPH, 1911, clutch model	£31 0
REX, 3½ h.p., 1911, clutch model	£30 0
P. & M., 1909. A beauty	£27 10
N.S.U., 4 h.p., 1910, 2 speeds, free engine, and Sidecar	£32 10
REX de Luxe, 5 h.p., 1910, 2 speeds, M.O.I.V.	£30 0
REX Speed King, 1911, M.O.I.V.S., very good order	£27 0
N.S.U., 3½ h.p., very good condition, 2 speeds, Sidecar	£27 10
N.S.U., 4½ h.p., 1909 model, 2 speeds, etc.	£27 10

£5 down and 5/- weekly

secures any of the following:

MOTO-REVE, 1910	£18 0
BRADBURY, 3 h.p., Bosch magneto, B. and B., h.b.c.	£16 0
TORPEDO-FAFNIR, 3½ h.p., Mabon, Bosch, B. and B.	£20 0
QUADRANT, 3½ h.p., Bosch, B. and B. A beauty	£18 0
ANTOINE, 5 h.p., B. and B., magneto ignition	£15 0
F.N., 4-cylinder, take sidecar	£15 0
REX, 3½ h.p., B. and B., fitted with Sidecar	£13 0
MINERVA, 2¾ h.p., splendid hill-climber	£10 0
AUTO MOTOR, 3 h.p., good hill-climber	£8 0
REX, 3½ h.p., Mabon clutch, fitted with Forecar	£12 0
DE DION, 2 h.p. A beauty	£7 10
CLEMENT-GARRARD	£6 10
Second-hand £8 8s. Sidecar for	£3 10



Sidecars from £5 to £14. Value unequalled.
Boat-shaped Sidecar, as illustrated.
Luxuriously Upholstered,
£10 10s.
WRITE FOR CATALOGUES. TRADE SUPPLIED.

N.S.U. **GEARS,** suitable for any make of motor cycle.
Delivery from stock.
Write for Booklet and let us quote you.
(Trade supplied.)

MOTOR BICYCLES FOR SALE.

ABARGAINS.

NEW Machines at Second-hand Prices:

TRIUMPH, 1913, 3½h.p., 3-speed, soiled; £54.

TRIUMPH, 1913, 3½h.p., T.T., free engine, soiled; £49.

ZENITH-GRADUA, 6h.p., twin-cyl.; £56.

N.S.U., 3½h.p., 2-speed, single-cyl.; £40.

REX-J.A.P., 1912, 8h.p. de Luxe; list £73/10, £60.

REX-J.A.P., 1912, 8h.p. de Luxe; list £78/10, £62.

M.V. 2½h.p. Lightweight; list £35. £24.

SCOTT, latest model, slightly soiled; £62.

SECOND-HAND Bargains:

TRIUMPH, 1912, 3½h.p., free engine; £38.

TRIUMPH, 1911, 3½h.p., free engine; £30.

TRIUMPH, 1913, 3½h.p., 3-speed, and Supreme sidecar; £55.

BRADBURY, 1912, 3½h.p., 2-speed, and torpedo coachbuilt sidecar; £36.

HUMBER, 1911, 3½h.p., 2-speed, and torpedo sidecar; £32.

P.M.C., 2-stroke, 1910, 3½h.p., single-cyl.; £17.

MATCHLESS, 1910, 4h.p., 2-speed, single-cyl.; £18.

ANY of the Above Machines sent on approval; full detailed list of over 50 new and second-hand machines free on application.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0316

QUORN Garage (Leicester), Ltd., 178, Belgrave Gate, Leicester.

1912 Martin-Jap, 3½h.p.; £40.—Above.

1912 Forward, 2¾h.p., twin, demonstration model; £33.—Above.

1912 Humber, 3½h.p., 2-speed; £35.—Above.

1913 Ariel, 3½h.p., 3-speed, demonstration model; £55.—Above.

1912 Indian, 7h.p., free engine; £45.—Above.

1912 Rudge, 3½h.p., free engine, and sidecar; £42.—Above.

TRADESMAN'S Box Sidecar, suit 3½h.p. machine, new condition; £6/10.—Above. [0592

3½h.p. Chater-Lea, Bosch, B. and B., Kempshall, Dunlop, perfect order; £13.—Gray, Leadenham, Lincoln. [X5237

4-CYL. F.N., as new, a bargain; immediate delivery of 4-cyl. models. Heath, Salford Priors, Warwickshire. [X4149

OFFERS for new 3½h.p. 2-speed B.S.A., never been on road.—Box 3,830, *The Motor Cycle* Offices, Coventry. [X4896

EVANS.—Scott, 1913, 3¾h.p., 2 speeds, kick starter, nearly new; £58.—P. J. Evans, John Bright St., Birmingham.

EVANS.—Enfield, 1913, 6h.p., coach combination, done 20 miles only; £72.—Below.

EVANS.—Humber, 1913, 3½h.p., 3-speed, kick starter, and canoelet sidecar; £60.—Below.

EVANS.—Bradbury, 1913, 3½h.p., 3 speeds, used few miles only; £50.—Below.

EVANS.—Enfield, 3h.p., 1913, 2 speeds, kick starter, just overhauled; £42.—Below.

EVANS.—B.S.A., 3½h.p., 2-speed, chain drive, kick starter, condition as new; £48.—Below.

EVANS.—Lea-Francis, 1913, 3½h.p., 2 speeds, kick starter, excellent order; £55.—Below.

EVANS.—Zenith, 1913, 3½h.p., free engine, Gradua gear, Mills-Fulford sidecar; £55.—Below.

EVANS.—Humber, 1913, 2h.p., owner bought sidecar mount, had very careful use; £24.—Below.

EVANS.—Rudge Multi, 1912, with 1913 engine, belt and tyres good; £38.—Below.

EVANS.—Williamson, 1912, 8h.p., 1913 improvements, just overhauled by makers; £58.—Below.

EVANS.—Enfield, 1912, 6h.p. combination, coach sidecar, hood, screen; £55.—Below.

EVANS.—Bat, 1913, 3½h.p., 3 speeds, run few miles; only £45—P. J. Evans, John Bright St., Birmingham. [0622

THE BIG SINGLE

£46 FOR £35.

To make a final clearance of this model, we offer a Brand New 1912 4 h.p. Tourist **REX**, 84 × 89, with Bosch magneto, B. and B. carburetter push pump and feed lubrication, spring forks, Cantilever seat, 26 × 2¼ non-skid tyres, stand, carrier, toolbag, number-plates, pump, and tools, at **£35.** Makers' price of this model is £46.

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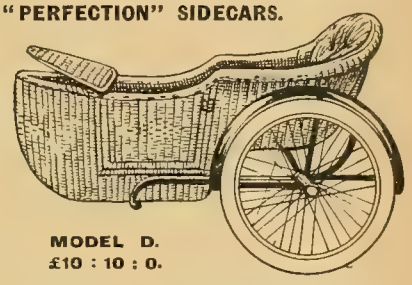


MODEL D.
£10 : 10 : 0.

We are **Sole Wholesale Agents for PERFECTION Sidecars** (6 models). Trade supplied on liberal terms.

SINGLES.

1913 2 or 3-speed **BRADBURY,** new	£60 0
1913 3½ h.p. 2-speed **LINCOLN-ELK**	£35 10
1912 F.E. **TRIUMPH**	£44 10
1912 **RUDGE** Multi	£44 10
1911 late model 3½ h.p. **NEW HUDSON**	£37 10
1912 F.E. **QUADRANT,** 3½ h.p.	£35 10
1912 3-speed **BRADBURY**	£47 10
1911 3½ h.p. **ARIEL,** spring seat	£25 0
1911 2 h.p. **SINGER** Lightweight	£19 19
1911 2 h.p. M.O.V. **MOTOSACOCHE**	£19 10
1910 3-speed 3½h.p. **TRIUMPH**	£36 10
1912 3½ h.p. 3-speed **PRECISION**	£35 10
1912 4 h.p. Tourist **REX,** soiled	£31 10
1911 3½ h.p. F.E. **ROVER**	£32 10
1910 Magneto **MOTOSACOCHE**	£15 0
1909 3½ h.p. 2-speed **HUMBER**	£25 0
1908 3½ h.p. Magneto **REX**	£17 10
1908 3½ h.p. Magneto **QUADRANT**	£17 10

NEW 1913 REX OR REX-J.A.P.

1913 6 h.p. 2-speed **REX**	£62 10
1913 6 h.p. 2-speed **REX,** chain drive	£67 15
1913 6 h.p. 2-speed **REX-J.A.P.**	£71 8
1913 8 h.p. 2-speed **REX-J.A.P.**	£73 10
1911-12 Twin 2-speed **REX** de Luxe, NEW	£46 10

Callers receive special Exchange quotations.

PASSENGER COMBINATIONS.

1913 2-speed **B.S.A.,** as new, and Sidecar	£58 10
1913 8 h.p. W.-C. **WILLIAMSON** and "Williamson" Sidecar, NEW	£97 10
New Twin **REX** de Luxe and New 10-guinea Sidecar, spot cash, Bargain	£52 10
1912 3-speed **BRADBURY** and Sidecar	£50 0
1912 **RUDGE** Multi and Sidecar	£47 10
1912 Twin **CLYNO** and Sidecar	£49 10
1909 5 h.p. 2-speed Twin **REX** de Luxe and new rigid Sidecar	£34 10
1911 Twin **REX** 2-speed Sidette, chain drive	£47 10
1913 6 h.p. **REX** de Luxe and £12 12s. Montgomery Sidecar, only done 600 miles	£59 10
1912 2-speed **WALL** Tri-carriage	£49 10

TWINS.

1909 Magneto **MOTO-REVE** Lightweight	£13 10
1912 New 2-speed Free engine 6 h.p. **REX**	Offers
6 h.p. M.O.V. **J.A.P.,** free engine	£34 10
5½ h.p. 2-speed **N.S.U.**	£27 10
1911 Twin **REX,** 2-sp'd, M.O.V., chain drive	£39 10
5½ h.p. 2-speed Twin **REX** de Luxe	£22 10
1913 6 h.p. **REX** de Luxe, specially good	£49 10
1909 5 h.p. Twin **REX** de Luxe, 2 speeds	£29 10
1913 **WILLIAMSON** (NEW), water-cooled	£82 10

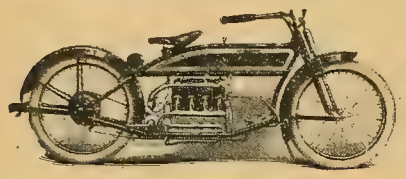
Collier's Motories,
Westgate, Halifax, England.

ROBERTSONS

SPECIFICATION

OF

THE WONDERFUL 8 H.P. 4-CYL.



HENDERSON

ENGINE	4-cylinder, 8 h.p., 2⅝ × 3in. bore and stroke, M.O.V., overhead inlet valves, adjustable tappets, white metal big ends, folding starting handle.
CARBURETTER	Schebler, automatic, with bye-pass. Operated by SINGLE steel wire from handle-bar.
IGNITION	Bosch D.U.4 (car size).
SILENCER	Sealed-up joints, no back pressure, and practically noiseless.
LUBRICATION	Sight feed drip.
TRANSMISSION	⅝ × ½in. chain through "Eclipse" clutch.
TANK	Petrol capacity, 3 gallons; oil capacity, ½ gallon.
FRAME	1¼in. × 13G, top tube sloped away at rear, triple-stem type head, and very efficient spring fork.
WHEELBASE	65in.
WHEELS	28 × 3in., 40 heavy gauge spokes.
GUARDS	With valances all round, front and rear
BRAKES	Foot-operated (twin pedals for R. or L. foot) external band brake; hand-operated powerful Bowden front rim brake.
FOOTBOARDS	Aluminium, with heel rests and rubber pads.
STAND	Strong kick-up type.
SADDLE	Comfortable padded-top Middlemore.
TOOLBAG	Large leather top tube type, with complete set of tools.
CARRIER	Very strong tubular, with rear number-plate attached.
FINISH	Dark Royal blue, aluminium, and white
SPEED	4 to 70 m.p.h. without declutching.
PRICE	70 guineas complete.

IMMEDIATE DELIVERY.

COME AND HAVE A TRIAL RUN.

WE STILL HAVE A GOOD SELECTION OF SECOND-HAND MOTOR CYCLES AND ALSO FOUR GRAND NEW SHOP-SOILED MOTOR CYCLES, AND 20 BRAND NEW SHOP-SOILED SIDE-CARS.

'PHONE: MAYFAIR 5767

157, GREAT PORTLAND STREET, W

MOTOR BICYCLES FOR SALE.

2h.p. 1910 Motosacoche, mag., Druids, jockey pulley, Whittle; £11; guaranteed perfect.—Toms, Catherine St., Leicester. [X5690

1908 Triumph, 1910 piston and cylinder, good tyres and belt; bargain, £20.—Wing, 33, West St., Stratford-on-Avon. [X5571

LATEST Demonstration Models, equal to new; 3¾h.p. Scott and 6h.p. Enfield combination; special prices for cash.—West's Garage, Lincoln. [X5760

£7, bargain.—3h.p. motor cycle, new mag., h.b.c., good tyres, overhauled, enamelled, new belt, fast, low.—Roland Chappell, Sketchley, Hinckley. [X5579

KERRY-ABINGDON, 1911, 3½h.p., free engine, horn, lamp, speedometer, perfect condition; £30.—190, Hamstead Rd., Handsworth, Birmingham. [X5656

3½h.p. Rudge Multi, 1913, standard, tools, splendid condition; £49, or nearest; new coach-built side-car, £8.—R.M.O., Bagthorpe Infirmary, Nottingham. [X4626

LATE 1911 6h.p. Rex, 2-speed, free engine, with side-car, scarcely used; £45; will exchange with 1913 T.T.—R. Pulford, Brinkley, Southwell, Nottingham. [X5701

1912 Triumph, F.E., complete with accessories, engine recently overhauled, perfect condition; £38.—Stockley, 27, Regent Grove, Leamington. [X5839

B.S.A., 3½h.p., 1912, free engine, with Armstrong 3-speed gear, fitted 1913, and accessories, not much used; £45.—Apply, Shaw, 209, Sherlock St., Birmingham. [X5663

TRIUMPH, clutch model, 1911½, £34, new tyres and belt, excellent condition, all accessories; Premier sidecar, fit above, £2/12/6.—Roberteon, Oadby, Leicestershire. [X5598

DOUGLAS, 1912½, model K, 2-speed, clutch, kick starter, etc., good condition, cheap; also two good 2-cyl. magneto cars, 2 and 4-seater, to clear cheap.—Long, Crowle. [X5655

DOUGLAS, New Hudson, Clyno, Matchless, Zenith, Levis motor cycles and Morgan runabouts; all models in stock; quick deliveries.—Colmore Depot, 62, High St., Leicester. [9769

MARTIN-J.A.P., 2¾h.p., racer, overhead valves, A.S.L. fork, Armstrong gear, perfect throughout, won many awards; giving up racing; bargain, £40.—F. Halford, Edwalton, Notts. [9859

1913 3-speed Triumphs, Douglas, Kynoch, Scott, Matchless, Martin, Bradburys, Rudge, Humberettes, G.W.K., Ford cars; immediate delivery.—Clifford, Motories, Eastwood, Notts. [9564

1912 Singer, 3½h.p., Sturmey-Archer 3-speed gear, in fine condition throughout; worth £45, take £32/10 for quick sale, absolute bargain; approval.—Geo. Smith, 67, Albany Rd., Coventry. [X5772

1913 Triumph Motor Cycle, 3 speeds, free engine, perfectly new, still in crate, unable to use, going abroad; £55, or nearest offer; must be sold at once.—Wilkes, Hill Crest, Great Barr, Birmingham. [X5225

NEALL-PRECISION, new, model A.S.A., 2¼h.p., Sturmey-Archer 3-speed gear, free engine, Amac, Hutchinsons, Saxon fork, Lyso belt, handiest machine, climbs anything; £35.—Neall Brothers, Ltd., Daventry. [9744

1913 Bradbury, 3-speed gear, £49; 1913 Humber, 3½h.p., 3-speed gear, £47/10; 1913 Premier, 3½h.p., 2-speed, and countershaft, £46; 1912 Multi Rudge, run 2,000 miles, £37/10; 1911 Indian, 7h.p., new 1913 clutch, new tyres, £38/10; 1911 Humber lightweight, good condition, £17; 1910 twin Enfield, belt drive, good order, £16.—Jas. Plastow, Osborne St., Grimsby. [0619

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

2½h.p. Singer, low, Amac, Lyso, torpedo; first £6/10.—Walpole Rectory, Wisbech. [X5801

TRIUMPH, 1910½, standard, very little used; £28.—Musgrove, 3, Aylestone Rd., Cambridge. [9809

1913 B.S.A., 2-speed, chain drive, soiled; £53/10.—Egbert Spearman, Bishop's Stortford. [9743

MOTOSACOCHE, 2½h.p., brand new, never ridden, F.E.; £25, bargain.—38, Gatacre Rd., Ipswich. [9931

1913 3½h.p. Standard Bradbury, absolutely brand new, but slightly shop-soiled; £40.—Parker and Son, St. Ives, Hunts. [9816

1912 3½h.p. Free Engine Quadrant, not ridden more than 600 miles, Dunlop tyres, usual accessories; any examination; absolute bargain, £32.—Parker and Son, St. Ives, Hunts. [9817

1912 3½h.p. 2-speed Humber, excellent condition throughout, new back tyres, horn, pump, tools, etc.; any examination or reasonable trial allowed; £32.—Parker and Son, St. Ives, Hunts. [9818

1913 T.T. Roadster Triumph, Lucas horn, only ridden 250 miles; £38; bought Scott; approval, deposit.—Mitson, Mabille House, Newmarket. [0503

HUMBER, 3½h.p., 2-speed, 1912, engine and gears perfect, Dunlop belt, Clair silencer, watch and other extras; £35.—60, St. John's, Bedford. [X5693

DOUGLAS, Douglas, Douglas.—All 1913 models in stock for immediate delivery. Let me book your order at once.—Flanders' Motor Cycle Depots, Norwich and Yarmouth. [0308

SOMETHING TO CROW ABOUT

THE Watawata Belt

WELL TRIED AND WELL SPOKEN OF.

A few opinions taken haphazard from a sheaf of testimonials—

"The belt has now done 1,700 miles. Since I used it I have not had a single stop on the road for transmission troubles."

"My experience is, the Watawata belt NEVER SLIPS."

"A remarkably efficient belt."

"At Matlock Bridge I rode up the famous Bank and down again, and being told there was another hill that no motor cyclist had ever succeeded in getting to the top of, I at once rode up that also. I have used most belts on the market, but yours is streets ahead of the lot."

YOU CAN DO WONDERS WITH **A WATAWATA.**

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MOTOR BICYCLES FOR SALE.

TRIUMPH, 3½h.p., free engine, late 1910, splendid condition, little used, Palmers, lamp, horn; bargain, £29.—Vale, 18, Railway Rd., King's Lynn. [9941

LOTOSACOCHE Lightweight, free engine, 1913, only done 500 miles, £20, guaranteed faultless; also brand new 1913 Motosacoche, clear at £24.—P. Smith, Berstead Rd., Ipswich. [X5790

SINGER, 1913, 2¾h.p., special Tourist Trophy model, new, delivered last week; owner not allowed to ride through illness; £34.—Box L2,371, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0625

3½h.p. Bradbury, 1911, Armstrong 3-speed, just overhauled and enamelled, new Kempshall tyre, spare belt and tube in case; £26·10.—Atkinson, Woburn Experimental Farm, Aspley Guise, Beds. [9815

RIDERS wanted for shop-soiled 1913 Matchless, 6 h.p., 2-speed; 1913 Rover, 3½h.p. T.T., free engine; 1913 Bradbury, 3½h.p., 3-speed; 1913 N.S.U., 5h.p., 2-speed; 1913 torpedo, 2½h.p., free engine.—Talbot Bros., Norwich. [0329

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

1912 3½h.p. Bradbury, 3 speeds, free engine, perfect condition; nearest offer to £44.

1911 3½h.p. Bradbury, 2 speeds, free engine, good machine; nearest to £33.

1911 6h.p. Zenith, Binks carburetter, Rom cover; nearest to £45.

1910 3½h.p. Bradbury, standard; nearest to £26; all above are guaranteed.

TURRELLI, Ltd., 2, Albany Rd., Cardiff. [9880

TRIUMPH, 3h.p., first-class condition, new tyres; any trial; £18.—Harris, Astwood Bank, Redditch. [X5449

TRIUMPH, 1911, free engine, new cylinder and piston, excellent condition; what offers?—Morris, 48, High Kington. [9885

1913 3½h.p. Zenith Green, water-cooled, splendid order, wonderful puller; £54.—181, Mackintosh Place, Cardiff. [9879

TEX, 3½h.p., 1911, tyres practically new, machine excellent condition; any trial; £24/10.—Davies, Esper House, Aberystwyth. [9839

3½h.p. Bradbury, 2-speed, free engine, new November, 1912, splendid condition, lamp, accessories.—Murray, Treberth, Saundersfoot. [X5725

SCOTT, 1910-11, new engine, new mag., new carburetter, tyres, frame, and wiring excellent; a bargain, £7.—181, Mackintosh Place, Cardiff. [X5562

WATER-LEA, 1913, special water-cooled chassis, quite new; list price £120, what offers? owner bought car.—Harvey Loynes, Kidderminster. [X5454

SINGER, 2¾h.p., 1912½, new condition, run about 500, splendid machine, very fast; bargain, £8/10.—J. E. Hiles, 39, Eign St., Hereford. [X1074

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

SCOTT, 1913, brand new, shop-soiled; only £58, bargain.—Ginger, Motors, Banbury. [X5076

3-SPEED 3½h.p. Brown, 1912, done 500; £30.—Lyndhurst, Ridgway Hill Rd., Farnham. [9865

B.S.A., 1912 (Nov.), 2-speed, 1913 fittings, condition as new; £42.—83, Southmoor Rd., Oxford. [X5744

TEX, 2¾h.p., Bosch, B. and B., thoroughly overhauled; £12.—Rogers, 20, Fatherson Rd., Reading. [9908

DOUGLAS, 1911, excellent condition, all accessories; £22.—Jones, Midland Bank Chambers, Gloucester. [X5633

EYLES and Eyles, Garage, Oxford.—Bat, 5-6h.p., and sidecar, 2-speed, 1912, only run 200 miles; £65. [X5590

EYLES and Eyles, Oxford.—7-8h.p. Indian, 1912, 2-speed, with best cane sidecar, 50/- Lucas lamp, horn, spare tyre and tubes; 50 gns. [X5591

EYLES and Eyles, Oxford.—5-6h.p. Zenith, sidecar, Jones, lamp, kick starter; 50 gns. [X5592

EYLES and Eyles, Oxford.—1910 Douglas, £15; 1911 Douglas, £22; Kerry-Abingdon, 3½h.p., £24. [X5588

EYLES and Eyles, Oxford.—5-6h.p. T.T. Bat, £30; all these are bargains, and good; allowance given for machine taken in exchange; 1913 models in stock, limited prices. [X5589

MATCHLESS, 1913 models for immediate delivery.—Sole Oxfordshire agents, The Morris Garages, Oxford. [0313

NEW, 4-cyl., 5-6h.p., 1911 model, 2-speed gear, good condition and running order; £25.—Strick, Newton, Nottingham. [X5671

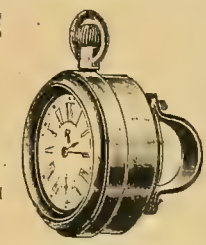
WHELON and Moore, 1913 models for immediate delivery.—Sole district agent, The Morris Garages, Oxford. [0203

Reliance

BARGAINS FOR THE MOTOR CYCLIST.

TYRES.	SPARKING PLUGS.
FRAMES.	WASHERS.
TANKS.	REPAIR OUTFITS.
PISTON RINGS.	MAGNETO SPARES.
HANDLE-BARS.	MUDGUARDS.
VALVES.	CARBURETTERS.

SWISS-MADE WATCH.



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Or with superior watch, made specially for us, with prominent and reversed dial, **4/9.**

Holder only, **1/9.**

Our "SPECIAL" SPARKING PLUG.

Fully guaranteed. Won't soot

2/9 each or 3 for **8/-**

Equal to any plug at double the price.

Most reliable plug made.

MOTOR CLOTHING.

Double Texture, single-breasted, complete with Overalls ..... **23/6** suit

"RELIO," Double Texture, heavy quality, D.B. Coat, Trouser Overalls, **27/6** suit.

"RELIANCE" Rainproof Suit, free from rubber, D.B. Coat with wind cuffs, Trouser Overalls, **29/6** suit.

"RELIANCE," best quality, with Belt, **42/-** suit.

Waist Belts, 1/11 each.

Trade List on Application.

RUBBER GOGGLES, 10½d. pair.

LARGEST STOCK. LOWEST PRICES.

Reliance Great Motor Stores, 29/33, Manchester Street, LIVERPOOL.

Wires "Mascot, Liverpool." 'Phone 6822 Centr

MOTOR BICYCLES FOR SALE.

HUMBER, 1910 3½h.p., 2-speed, handle starting, good order; £20 cash.—Doswell, Blackfield, Basingstoke. [X5657

F.E. Triumph, Dec., 1911, beautifully kept; sell or exchange lightweight and cash.—Seamark, New Milton, Hants. [X5247

4h.p. N.S.U., mag., spring forks, Whittle, adjustable pulley, good tyres; £16, bargain.—134, Oxford Rd., Reading. [0570

3½h.p. Rex, 1911¾, handle starting, good condition, accessories; £30.—Lane, Honeystreet, near Pewsey, Wilts. [0564

RUDGE Multi.—Deliveries from stock; trial runs given; exchanges entertained; trade supplied. Official agent, Barnes, Slough. [9159

1911 3½h.p. Trump-Jap, all accessories, good running order; trial Brockenhurst any time; £18.—Tillyer, Marston Gate, Brockenhurst. [9813

1912 New Hudson, 3-speed, and sidecar, 2 lamps, excellent condition, spares; £45, or reasonable offer.—W., 2, Faulkner Rd., Newport. [X5781

LAYTONS'.—Scott, 1913 brand new, soiled only; list price £68/5, offers wanted; easy payments, exchanges.—Laytons', Bicester, Oxon. [0516

LAYTONS'.—1913 3-speed Triumph, used once and as new; £52.—Laytons', Bicester, Oxon. [0517

LAYTONS'.—1912 Scott, complete with lamp, horn, speed indicator, spare chains, etc., used 800 miles only, almost as new, perfect throughout; £52.—Laytons', Bicester, Oxon. [0518

LAYTONS'.—Sunbeam, 1913, 2¾h.p., kick starter, 2-speed; catalogue price £63, offers wanted.—Laytons', Bicester, Oxon. [0519

LAYTONS'.—Douglas, model O, 2-speed, just arrived; £48; exchanges, easy payments. — Laytons', Bicester, Oxon. [0520

LAYTONS'.—Triumph, 1913, 3-speed model, just delivered; £59/15; exchanges, easy payments.—Laytons', Bicester, Oxon. [0521

LAYTONS'.—B.S.A. 1913 T.T. Roadster, L.O.M. engine and fittings, quite new; £45; exchanges.—Laytons', Bicester, Oxon. [0522

HARTWELLS' Garage, Chipping Norton. — Triumph and Douglas agents; also agents for Swift cycle car for Banbury, Burford, and Chipping Norton.

TRIUMPH, 3-speed, 3½h.p., free engine, clutch; in stock; £59/15.—Hartwells'.

DOUGLAS model O, £48; in stock model R. £52. —Hartwells'.

ENFIELD Autolette in stock, £138.—Oxfordshire agents, Hartwells'.

TRIUMPH, 1912, free engine, in fine order throughout, new 1in. Dunlop belt, lamp, horn, and tools; £39.—Hartwells'.

TRIUMPH, 3½h.p., 3-speed, delivered end of July, with Mills-Fulford torpedo sidecar, wind screen, hood, horn, lamps, mirror, and every accessory, beautiful order, and all of the best, as new; cost £83, no reasonable offer refused.—Hartwells'. [1786

1913 4½h.p. Lincoln-Elk, 2-speed, kick starter, Stewart speedometer, T.T. and touring bars, lamp and horn, splendid condition; offers.—G., 44, West St., Maidenhead. [9948

1912¾ F.E. Triumph, May, 1913, only ridden 800 miles, guarantee perfect throughout, like new; £39/10, an exceptionally genuine bargain. — Viggers, Warwick Rd., Banbury. [X5658

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

1913 Premier, 3½h.p., Armstrong, new, £48; 1912 Premier, clutch model, £40, new; 1911 (October) A.C., in splendid order, hood, carrier, and lamps, £50; 6h.p. Rover, hood, screen, lamps, pump, and jack, £30; special bargains.—Grimes, Bracknell, Berks. [X5453

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

F.N., 2h.p., perfect order, new covers; £6/5.—87, New Park Rd., Brixton. [9992

ENFIELD, 3h.p., in stock, no waiting. The Agents, 118, Hampstead Rd. [0599

NEW Hudson, 1912, shop-soiled only; £33. 118, Hampstead Rd. [0601

BRADBURY, 3½h.p., T.T. model, 1912, in good order; £27/10.—118, Hampstead Rd. [0603

CONNAUGHT, 2-stroke; £33/10; in stock.—118, Hampstead Rd. [0604

MOTOR Cycle for sale, cheap, in good going order.—13, Worldige St., Hammersmith. [X5561

ZENITH, May, 1913, 3½h.p., perfect, hardly soiled; cash £44.—Thorn, Marden, Kent. [9856

ZEDEL, 1912, 7-9h.p., twin, mag., 2 speeds, as new; £29/15.—7, Trewint St., Earlsfield. [X5688

RUDGE Multi, 1912¾, in fine condition throughout; best offer.—Rose's Garage, Uxbridge. [0505

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BARTLETT'S Have Arno Motor Cycles in stock.

BARTLETT'S Have Humber Motor Cycles in stock.

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BARTLETT'S.—1912 3½h.p. shop-soiled Arno; £36, list £47/10.

BARTLETT'S.—1912 Grandex-Precision, 2½h.p., 2-speed; £25.

BARTLETT'S.—1911 Triumph, F.E.; £35.

BARTLETT'S.—1911 Kerry-Abingdon, 3½h.p.; £26.

BARTLETT'S.—1911 F.N., 2¼h.p., 2-speed; £22/10.

BARTLETT'S.—1912 Fafnir-Chater-Lea, perfect; £24/10.

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BARTLETT'S.—3½h.p. Humber, free engine, and sidecar; £11/10.

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BARTLETT'S.—1911 Bat and sidecar, 6h.p.; £45.

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PALMER'S Garage, Tooting.—2¼h.p. Royal Enfield, late type lightweight, magneto; £16.

PALMER'S Garage, Tooting.—3¾h.p. Precision, 1912, single, mag., T.T. bars, h.b.c., as new; £35.

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PALMER'S Garage, Tooting.—3½h.p. Midget Bicar, hand, comfortable machine; bargain, £25.

PALMER'S Garage, Tooting.—3¾h.p. Scott, water-cooled, 2 speeds, kick starter, splendid lot; £35.

PALMER'S Garage, Tooting.—4¼h.p. Precision, 1912, with Roc 2-speed; wonderful value, £22/10.

PALMER'S Garage, Tooting.—2¾h.p. Clyde, £12; 2¼h.p. F.N. lightweight, £10.

PALMER'S Garage, Tooting.—2¾h.p. Minerva, nice low machine; clearance price £10.

PALMER'S Garage, Tooting.—5-6h.p. F.N., 4-cyl., 2 speeds, F.E., with sidecar; £27/10.

PALMER'S Garage, Tooting.—All above and many others in stock. — Sole address, L. N. Palmer's Garage, Merton Tram Terminus, Tooting (20 mins. Victoria, 10 mins. Wimbledon). 'Phone: 208 Streatham. Motor 'buses, 48, 49, 66. [X5835

TRIUMPH, 1910, perfect condition, new belt; bargain, £26/10.—129, High St., Croydon. [X5731

TRIUMPH, 1912½, F.E., perfect; £36, offers, bargain.—Moulton, 50, Oakington Rd., W. [9963

TRIUMPH, 1911, clutch, excellent condition; nearest offer £30.—188, Queen's Rd., Peckham. [9928

1913 3-speed Triumph, hardly soiled; offers wanted. —Bryan, 24, Aldgate, London. [0585

3½h.p., guaranteed perfect; ride away; nearest £15.—46, Clock House Rd., Beckenham. [0579

3½h.p. Ariel, h.b.c., B. and B., good going order; £7/15.—34, Vicarage Lane, Stratford. [0589

2¾h.p. Kerry, low, reliable, overhauled; £5/10, offer —H. Almond, Shepperton, Middlesex. [0574

2¾h.p. Peugeot, B. and B. carburetter, in running order; £8/10.—Knight, Church St., Reigate. [9862

REX, 3½h.p., mag., B. and B., Mabon clutch, good order; £20.—Leverrier, Hendon, Aerodrome. [X5558

DOUGLAS, 1911, 2-speed, and clutch, lamp, horn, spares; £29.—M., 45, Stanbury Rd., Peckham. [9808

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EAGLES.—Bradbury, 1912, N.S.U. 2-speed gear, f engine, had little use; £35.

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EAGLES.—Rover, late 1912, free engine model, n condition; £35.

EAGLES.—Zenith-Gradua, 3½h.p. J.A.P. engine, f condition, all accessories; £29/10.

EAGLES.—N.S.U. 3½h.p. Popular, new last year, proved spring forks, 1in. belt, adjustable pull £23.

EAGLES.—N.S.U. 3½h.p. Popular, mag., adjusta pulley, 1in. belt; £16.

EAGLES.—L.M.C., 3½h.p., 1910, Bosch mag., spri forks, variable pulley, rubber studded tyres; £

EAGLES.—N.S.U. 3h.p. Popular, new 1911, magne spring forks, h.b.c., fine condition; £

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EAGLES and Co., High St., Acton.—N.S.U. W London District Agency. Tel.: 556 Chiswick. [X57

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MORGAN and Maxwell.—F.N., 2¼h.p., 1910, Bos £14.

MORGAN and Maxwell.—Humber, late 1911, Ro speeds; £30.

MORGAN and Maxwell.—Indian, latest 1913, 5l and sidecar; £75.

MORGAN and Maxwell.—Ivy-Precision, late 19 free engine, 3¾h.p.; £28.

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MORGAN and Maxwell.—L.M.C., 1913, Armstron speeds; £45.

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MORGAN and Maxwell.—N.S.U., 1908, mag., 3l £9.

MORGAN and Maxwell.—Peugeot, 7-9h.p., Bo Amac; £20.

MORGAN and Maxwell.—Rudge, 1911; £30.

MORGAN and Maxwell.—Singers (2), one 1912, 1913, 2½h.p., free engines; £30 and £32.

MORGAN and Maxwell.—Triumph, T.T. model, 1 semi-racing, special fittings; £34.

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1910 2¼h.p. F.N., tyres in good condition; bar £17.—Manning, 85, South End Rd., Hampst

2½h.p. A.J.S., 1911, excellent condition; £18/10 offers.—111, Canterbury St., Gillingham, K.

TRIUMPH, 1911, clutch, bought new 1912, spl condition; £32/10.—38a, Gunnersbury Lane, A

1911 Triumph, free engine, splendid condition, used week-ends; £32.—36, Rye Lane, Pe

UGUST 21ST, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND FORTY-THIRD CONSECUTIVE ISSUE.

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tor Cyclists and National Defence.

FTER turning an indifferent ear to the value of the motor cycle as an adjunct to troops to be used as a rapid means of communication and for scouting purposes, the War Office have now gone to the other extreme and are actively uraging motor cyclists to enlist in a special motor sts' corps under the various Territorial divisions. decision of the authorities has been arrived at ie result of experiments carried out some time back ttaching motor cyclists to the Royal Engineers as atch bearers and scouts. The experiments were iently satisfactory, and a definite scheme has now evolved by the War Office for the enrolment and meration of riders.

hile we are naturally gratified at the recognition ie authorities of the merits and usefulness of the or cycle, we cannot but think that the terms offered none too alluring. They will probably attract s, but, what is even more important than obtaining nen, will they retain them? It is obvious that for smooth working of the scheme it is essential that ame men—or at least a large proportion of them—ld be available year after year. Otherwise, with very limited period of yearly training allowed for r the scheme, a mere eight days minimum or n days maximum, it will be most difficult to keep constant stream of well instructed and properly plined men.

cannot be said that the terms offered err on the of generosity. The machines must come up to a high standard of efficiency and equipment, and allowances, all told, amount to a mere 8s. a day over the cost of petrol and oil and depreciation. ain small messing allowances are also given, but n it is remembered that on training and manœuvres ines must necessarily suffer far greater depreciation than even under the hardest private use, we nit the sums mentioned are insufficient. We think War Office should allow 10s. a day for depreciation also provide petrol and oil. A certain amount of ism has been levelled at the decision of the orities to insist on the use of a change-speed e, but here we are sure they are perfectly correct, he T.T. machine is not the type likely to be the suitable for the purpose required. The War e also reserve to themselves the right to purchase machines in the event of war, a certain fixed rate epreciation being deducted from the original price. Some otherwise would-be volunteers think the prices offered insufficient, but after all it must be borne in mind that a man who volunteers to serve his country must be prepared to make sacrifices, and we welcome the scheme as put forward by the War Office.

A Popular Error.

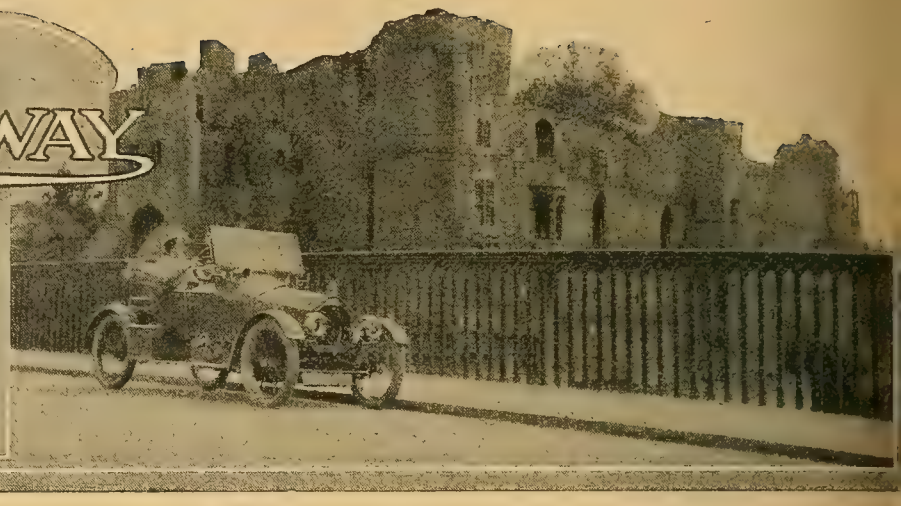
A LEADERETTE writer in a daily paper published last week drew attention to the delights of pedal cycling, and in his enthusiasm for his favourite pastime bewailed the fact that the popularity of motoring in general and motor cycling in particular had robbed the pedal cycle ranks of many old adherents. We have no quarrel with him concerning the pleasures derived from the use of a bicycle, as we have experienced the utility, economy, and general handiness of a pedal cycle for many purposes where a motor cycle or car would not be so convenient. However, in one of his comparisons between the push cycle and the motor cycle the writer of the article in question is a trifle misleading, and appears to labour under the delusion that a motor-propelled vehicle is not so reliable as it might be. For instance, he says, "The motor cycle is the imperious master of man, the push cycle is his ever-ready servant." How many motor cyclists in these days will agree with this dictum? Very few indeed, we think, because a motor cyclist is never satisfied until he has mastered every detail of his machine and knows what every part is doing when it is at work, and why it does it. The reliability of the pedal cycle and motor cycle cannot now be compared to the detriment of the latter.

The same writer falls into the usual error of imagining that speed and distance are the aim and goal of every motorist. It is true a big proportion worship at the feet of Mercury, but a still larger number take up the pastime for the reason that they can reach beauty spots far from home in so short a time as compared with pedalling; once on their favourite touring ground they are content to dawdle about and enjoy the sights, and because they ride a motor cycle are not ever on scorching bent. A large number also make use of a motor cycle for business purposes solely. In a few years something else will attract the public eye to a greater extent, and then motoring will become like pedal cycling, almost entirely utilitarian, and writers in the dailies will not imagine that all who ride motor cycles are speed maniacs.

The FOSSEWAY

UP TO DATE

RE-OPENING OF ROMAN HIGHWAY BETWEEN LEICESTER AND LINCOLN



The ruins of the old castle at Newark which is just off the Fosseway.

SOME few months ago there was considerable discussion as to the advisability of bringing up to date that fine Roman road, the Fosseway. The R.A.C. took an interest in the matter, and eventually the work was proceeded with by the Road Board, who are finding the whole of the money, though the Notts County Council is doing the work. The most important roads of the Roman system were the "Royal Roads," or, as they are generally called in mediæval records, the "Four Ways," which in the laws of Edward the Confessor are given as Watling Street, the Fosse, Ermine Street, and Icknield Street, and of which it is said that two ran lengthways and two across the Kingdom. The Fosseway, according to Geoffrey of Monmouth, extended from Totnes to Caithness. Though, until the advent of the Road Board, it had lost considerably in importance, the Warwickshire portion being mostly a grass grown track, it could still be followed for many miles, but the improvement made of late applies to the section extending from Six Hills to the junction of the main Nottingham-Grantham Road, the continuation of the Fosse leading to Newark and Lincoln. We sampl this new road last week, and observed with pleasu that several steam rollers belonging to the Oxfo Steam Ploughing Company were busily engag putting finishing touches to a beautifully smooth grani and Tarmac road which has given place to the gra grown track. Further, the road is being signpost with up-to-date posts, the fingers of which do n obscure one another. The milestones are at prese fixed in the hedgerows, the hedges not having be cleared away, but in spreading the directions over t complete semi-circle the designer of the stones h erred, as it is impossible to read the mileage on o side from the roadway.

The new stretch of road, which measures twelve a and half miles, is entirely in the County of Nottingha and when it is considered that three years ago t stretch was a mere cart track exactly like the prese sides of the road, one can realise the progress mad Many portions of the "way" were found to be in very soft condition and were almost boglike. T method of construction of the new road has been excavate to the required dep to receive the new materi and the base cambered to ½ in 1ft. with side drai wherever possible to drain t surface water from the ro bed. Tarmac is being us throughout. Where the ro is metalled, it is proposed put only a strip, 9ft. in widt up the centre, but where t road has not previously be metalled, it is proposed make the road the full widt of 15ft. in Tarmac. The to cost when completed estimated to be £21,428, a it is anticipated by Mr. Purnell Hooley, the cou surveyor, who kindly furnish us with most of the foregoi details, that the work will completed at Christmas or t

THE OLD ROAD AND THE NEW.

An example of the manner in which the new road has been specially cut near Six Hills.

The Fosseway Up-to-date.—

e ; spring. The rate of progress at present is about
1 yards per day.

Roman Road-builders' Directness.

The main characteristic of Roman roads is their straightness, and this feature is very obvious to the r of the Fosseway. It has been said that no part its entire length is more than six miles from an olutely straight line. Roman engineers, we read "Highways and Byways of England," avoided ves, and instead of going round a hill, morass, or er obstacle with a half-circle, swerved gradually one side or other and picked up their line again n the difficult spot was passed. Not only is the miles stretch of road from Lincoln to Leicester Newark absolutely straight, but there is a remark- e absence of villages along the route; consequently s an exceedingly fast road, and when the sections ch are at present somewhat loose have been ded to, and the widening process been completed, road is bound to become a popular one.

t has been the habit of motorists travelling from cester to Newark (on the Great North Road) and coln to journey *via* Mountsorrel, Loughborough, Nottingham, but the Fosseway provides a much ttier alternative through route, devoid of towns and ages as we have already mentioned. Moral—don't out of petrol! There are one or two cross-roads ere special caution is necessary, but if motorists drive sensibly the danger signs which undoubtedly have been over-done on other roads, and which are so far non-existent on the Fosseway, will still be conspicuous by their absence. One cannot but admire the Roman system of making roads, for when travelling on the Fosseway one can see a white ribbon of road extending far ahead.

A Deserted Highway.

Travelling from Lincoln to Leicester there are but three hills which call for a change of gear, and users cannot fail to be impressed by the road being deserted. During our trip we met only three cars and two motor cycles, so that evidently the route, which has only recently been passable with comfort, is not yet generally known. In modernising the road we were sorry to note that the Nottinghamshire County Council had arranged a rather steep and narrow bridge over the canal, as it is impossible to see ahead, and the accidents which have occurred at such points are proof that the danger would be best wiped out altogether. We can imagine that the new Fosseway is likely to prove exceedingly popular among Midland motorists. From Leicester to Saxondale (where the road crosses the main Nottingham-Grantham road), the distance is 23¾ miles, and the mileages from this point to the following places are: Radcliffe-on-Trent 2¾ miles, East Bridgford 3 miles, Bottesford 8¼ miles, Nottingham 8¾ miles, Newark 11¼ miles, Grantham 15¼ miles, and Lincoln 27¼ miles.

(a) The point near Bingham at which the Fosseway crosses the main Nottingham-Grantham Road. (b) A fine straight stretch on the new Fosseway. (c) Another new cutting on the modernised Fosseway. (d) Near Leicester, showing one of the few houses on the road. (e) Good work by the Road Board. An old bridge between Narborough and Hinckley on the Coventry-Leicester Road which was rendered dangerous by its narrowness; the road has now been considerably widened. The Humberette and stones show the original width.

Occasional Comments by "Ixion"

An Unusual Noise.

A novice brought his machine to me last week with the complaint that the engine ran poorly, especially on hills, and that he was conscious of a constant grinding noise, which formed an under-current of sound below the clack of the valves and the bark of the exhaust. Several local experts had tackled the problem unsuccessfuly, and a hasty call at the factory had proved equally futile. More by luck than judgment I hit on the origin of his trouble in a quarter of a mile spin. The magneto chain was adjusted excessively taut. As soon as it was given the proper amount of slack the engine accelerated well, climbed like a Trojan, and lost the obscure grinding sound.

Another Record.

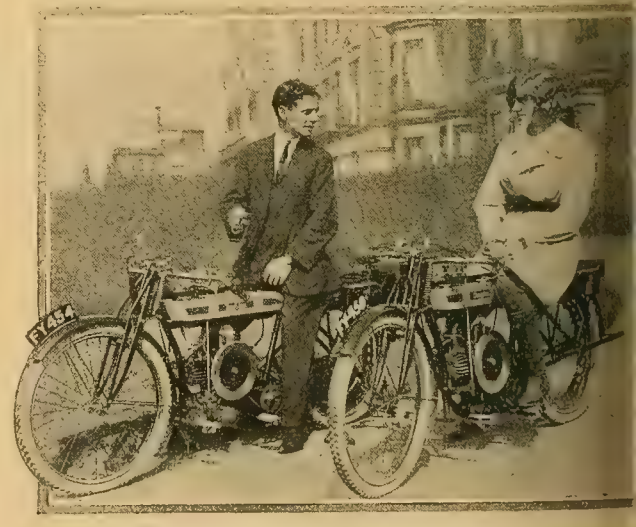
Straws show which way the wind is blowing. Last year I was in the habit of feverishly verifying the adjustment of my three-speed hub controls after very long rides, and it was not an unknown occurrence for me to dismount and reset the adjusters on the road, because the gears did not engage readily, or would not engage at all. This year is already more than half past, and my hub is innocent of any tool, unless the oilcan must rank as a tool, and the adjustment is still perfect. Incidentally I must pay a tribute to the larger tyres. My machine is fitted with the 2⅜in. size roadster pattern, and the rear cover has shown itself capable of an infinitely greater mileage than the 2¼in. size has favoured me with for many a long year. In the early spring I questioned whether the increase in tyre sizes had gone far enough, but I must admit that I have been very pleasantly surprised, though I grant there is a lot of luck in such matters.

The New Triumph Engine.

The Triumph vertical twin has been whispered about ever since a Bercley engine was seen fitted in a Triumph frame many years ago, and I take a special interest in it because a similar 4 h.p. engine, built by Werner Frères, was one of the finest little power units I ever owned. It suffered from the disabilities common to its day, for its carburetter was a terror, its ignition was as flimsy as a paper chrysanthemum, and the spares, which were so frequently required, were seldom found to fit. Do I not remember watching a man who is now a leading light, trying to reduce an exhaust valve for one of these engines to its proper bevel angle by the roadside with no other tool than a small hand file. Howbeit, that 4 h.p. Werner was a terrific power producer on the rare occasions when it was in tune, and accomplished feats in the way of speed and hill-climbing which would not disgrace any single-geared machine of to-day. O. C. Godfrey first came to the front on such a machine. So we shall expect great things of the Triumph twin, the more so as we know it to be the product of years of experiment, and to have received the preference over another type of engine which is greatly fancied by the cognoscenti.

Caps for Motor Cyclists.

I find myself in hearty accord with the grumble who can find no cap which is really suited to a moto cyclist. The heather tweed pudding basin hats are ver nice while they are new and quite wearable on a sti day after use has made their brim more pliable; bu they flap into one's eyes at speed or in windy weathe The fashionable cap of the day looks ghastly after hundred miles, for it is cut with a very full bulg immediately above the peak, and this bulge is secure to the peak by a single point stitching or press butto consequently the bulge soon assumes a kind of Trilb dent, which looks abominable. Some riders solve th problem by reversing the cap for riding purposes, bu many of us like the shelter of a peak over our eye especially in sun or rain. Ten years ago fashio were different, and I owned an ordinary 3s. 6d. twee cap, which was literally ideal for motor cycling. had a very long stiff jockey peak, and the cap prop was cut as tight as a skullcap, being entirely devoi of bulge. It looked a trifle horsey—maybe. I wo it until its neat black and white chequers were staine to a dirty greeny-grey, and, failing to obtain a dupl cate, I had it cleaned several times, until a real soaki at length caused its brim to melt. I should sugge that the ideal motor cycling cap should be cut ve tight, with something of a streamline run from peak crown, and no sign of a bulge; that the peak shoul be excessively long and stiff, perhaps built up on a aluminium base, and that the peak base, no matt what it be made of, should be curved across from e to ear to prevent its turning over backwards at spee as I have known a leather peak do before now. Th pudding basin or modified sombrero hats—I do n know their trade designation—require stiffer brims.



MORE MARRIED COUPLES WHO MOTOR CYCLE.
Mr. and Mrs. Eric Longden and their 2¾ h.p. Douglases. Mr. Longden is manager of the Pier Pavilion, Southport. His wife, being a horsewoman, prefers riding breeches with gaiters and a white dust-coat.

asional Comments.—

An American Handle-bar Security Device.

There have been many instances of failure on the t of the ordinary handle-bar locking device, more ecially in sidecar work. Neither the expander g system nor the more conventional locking clip invariably proof against the wrench of rounding a rpin bend at speed, and an American designer has ught out an interesting alternative. His handle- has two tubes protruding downwards from it, and y fit into the twin girder trusses of the front forks, that shifting is impossible. I presume that l.p.a. ely so-called—has become a thing of the past, and t nobody is any longer in danger of pulling his dle-bar upwards out of its stem? This plan should very suitable for sidecar machines, but it is to be recated on solo machines, for it would effectually vent the bar slipping round when the rider had a l, and the unfortunate wight might have to ride ne with half a crumpled bar, which is no fun at *crêpe to crede.*

Fly-away Tank Stoppers.

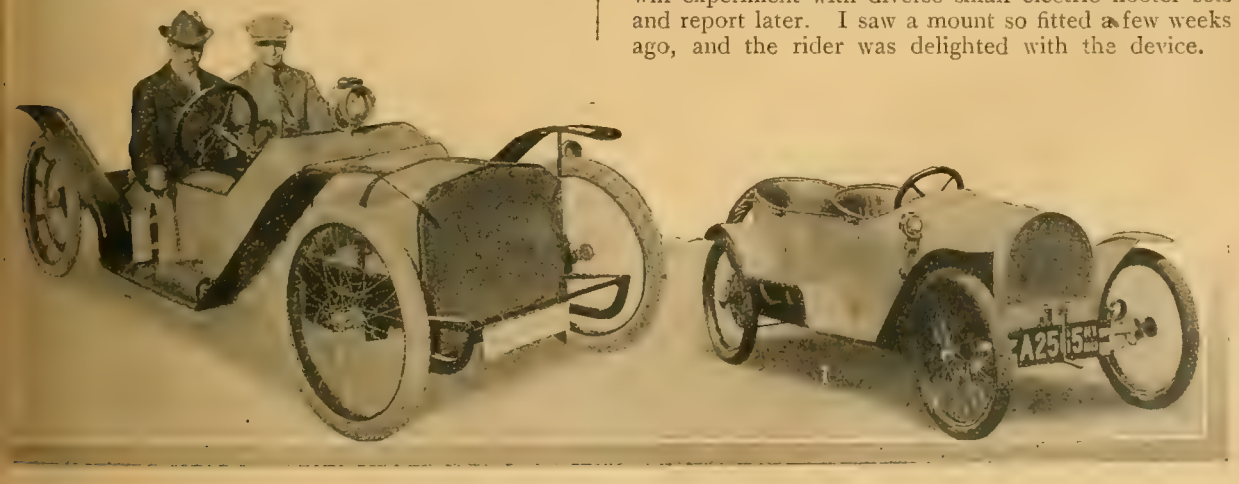
A correspondent endorses my suggestion that the r caps of some 1913 machines are designed to vide a frequent source of income to the stores artment of the factory. His machine is fitted with ing stoppers, listed at 1s. 3d. each, and one or both them flies off whenever he rides over a particularly bump. He was loath to face any substantial erial alterations, such as sweating a hinged type of r cap into his tank, and he has escaped from his ndary in a fairly simple and efficient manner, which hall imitate for my own economy. He took two es of rounded wood, half an inch in diameter, and he greatest length which it was possible to insinuate the tank. Each piece was nicked amidships, and iece of twine tied round the nick at one end and ened to the spring cap at the other end. The ng is too short to permit the stick to get endways the tank filler hole, but there is plenty of string the cap to be removed and hung out sideways ing replenishment. He states that the bits of stick it on the oil and petrol respectively and make no se, while they anchor the caps quite successfully. It is surely obvious that all filler caps should be hinged or otherwise permanently attached to the machine.

Truing a Crept Tube.

In a recent trial I saw two trade riders restore a creeping tube to its proper register in rather a novel fashion. The valve had ceased to be in true radial register by at least 30° and time was pressing. The two men were riding in concert, and noticing the threat of calamity at a check, they put the front wheel stand down, and one man got in the saddle and applied the well-adjusted front brake with all his might. The other knelt in front of the machine and pulled the cover round easily, after letting out a breath or so of air from the tube. When the valve was true again, its owner exclaimed defiantly, "Bumps or no bumps," and inflated the tyre board hard. The whole affair did not occupy a couple of minutes. With an unobservant and unresourceful duffer in the saddle, this machine might have needed a new tube before the day was over. That is an illustration of the difference in quality between the trade rider and the raw amateur. But what price standardised rims?

Penetrating Alarms.

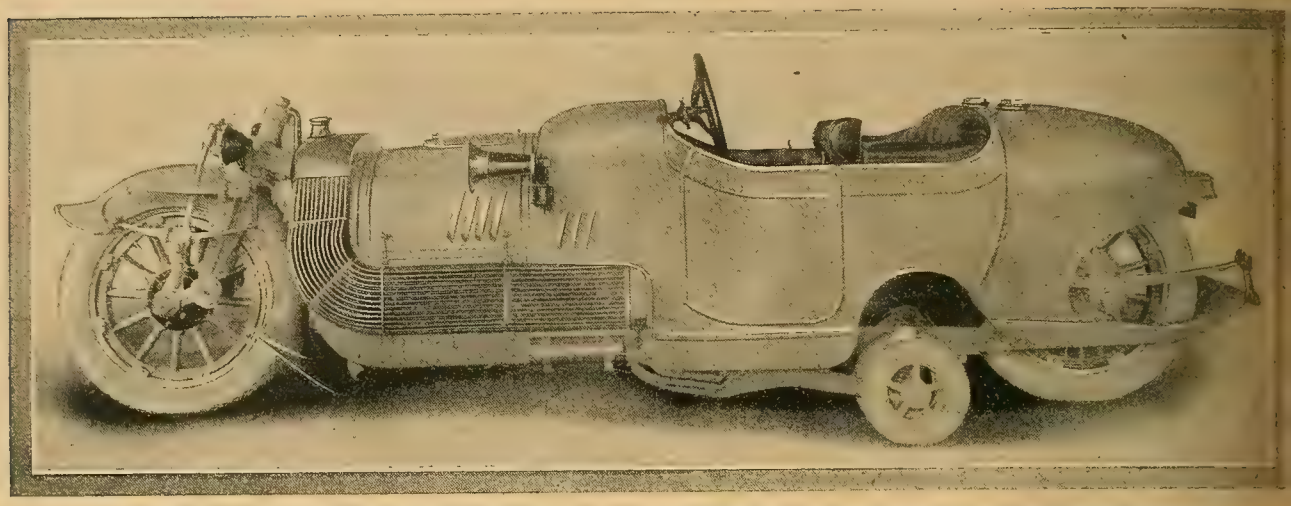
I cannot help thinking that the long distance alarm of the future is likely to be operated by electricity. From my experience—large, if incomplete—of exhaust whistles, I am inclined to think they require a very sturdy return spring, which renders them unsuitable for hand-control, and foot control is already becoming a trifle impossible now that most of us have brakes and clutch pedals to operate, and most men are limited to two legs. The motor cycle Klaxon should be easily operated, and may fill the bill: but the hands are wanted already for the steering, the throttle, and the valve lifter, which seems to make an additional *lever* somewhat of an incubus on many machines. The ideal is a small electric push-button, which could be mounted near the valve lifter, and depressed by one finger of the hand which lifts the valve. Moreover, the empty space on top of the front mudguard and in front of the fork is simply gaping for an electric horn, and there is usually plenty of room for a dry battery somewhere in the region of the saddle-pillar tube. I will experiment with diverse small electric hooter sets and report later. I saw a mount so fitted a few weeks ago, and the rider was delighted with the device.



TWO EXAMPLES OF AMERICAN CYCLE CARS.

(1) The Twombly tandem-seater, which is fitted with an air-cooled engine, chain drive and three-speed gear. These, however, will shortly be replaced by 15 h.p. four-cylinder water-cooled engine and cardan shaft drive. (2) The 10 h.p. California sociable four-wheeler, which is said to turn the scale at four cwt.

A Wonderful Two-wheeler.

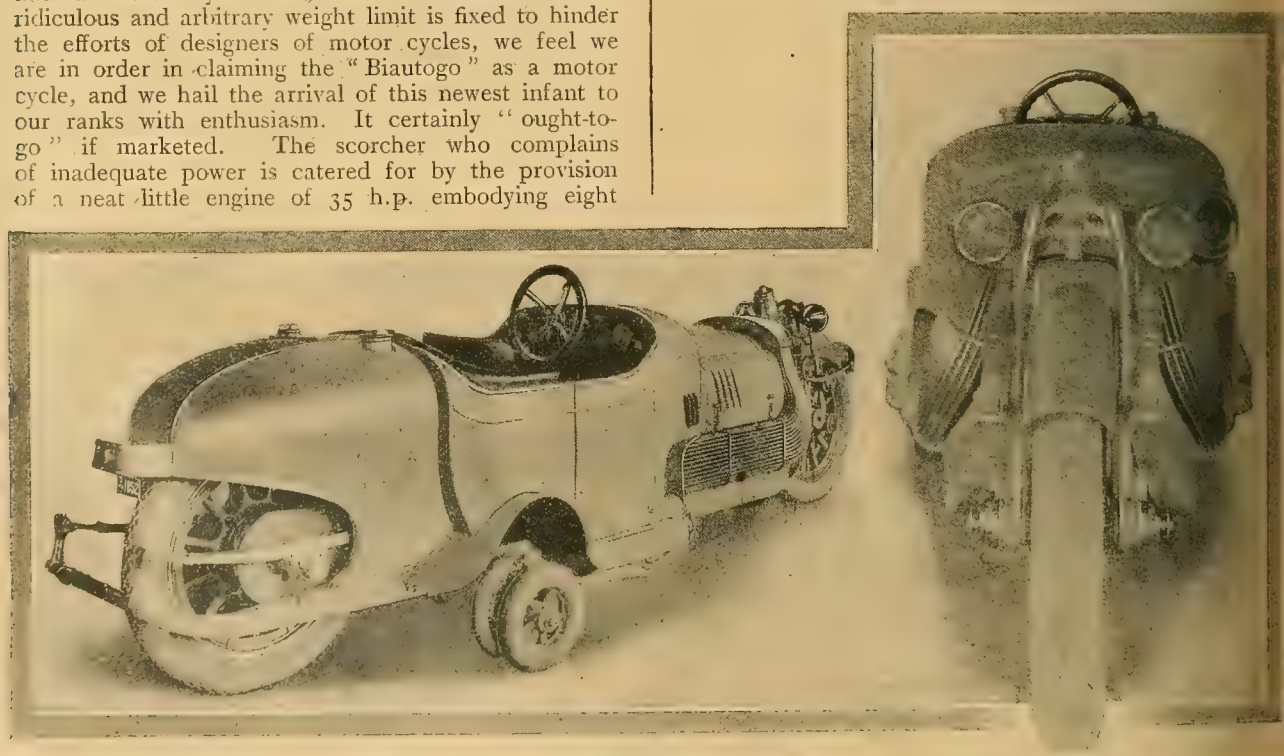


Side view of the eight-cylinder 35 h.p. Biautogo showing front and rear springing, radiators, three-seated body, and general appearance.

MR. JAMES S. BOOTH, a journalist of Detroit, U.S.A., is clearly dissatisfied with the many automobile products of the American Coventry. And as befits one who writes for the edification and instruction of the public in the columns of the press, he does not let his talents lie smouldering under a bushel, but has brought them into the light of day, and evolved an entirely new bi-car—we nearly wrote cycle car, but fear the A.C.U. would hardly pass the "Biautogo," as it is named, into the cycle car category.

But on the principle of a car having four wheels, and a motor cycle two, and furthermore as no ridiculous and arbitrary weight limit is fixed to hinder the efforts of designers of motor cycles, we feel we are in order in claiming the "Biautogo" as a motor cycle, and we hail the arrival of this newest infant to our ranks with enthusiasm. It certainly "ought-to-go" if marketed. The scorcher who complains of inadequate power is catered for by the provision of a neat little engine of 35 h.p. embodying eight cylinders set V-shape. The nervous rider in traffic or round hairpins should be reassured by the presence of a four-speed gear box, by means of which even such hills as Porlock or Amulree should lose their terrors, and clean ascents of Applecross might become a matter of no great moment on this smart little mount. Careful provision has been made by Mr. Booth against annoying tyre troubles by the fitting of 935 × 135 mm. tyres. Doubtless, the designer recognises that the removal of the wheels for tyre repair is scarcely a wayside job for an expert, let alone a novice.

Recognising that a running start might prove a



TWO ASPECTS OF THE BIAUTOGO
(1) Three quarter rear view showing underslung frame and supporting side wheels. (2) Front view showing radiators and overall width.

A Wonderful Two-wheeler.—

little fatiguing to all but the most robust, for the "Biautogo" weighs a trifle of 28 cwt., the designer has thoughtfully provided balance wheels which are let down from the driver's seat, by means of which the machine is kept on an even keel, what time the engine is started. The driver then takes his seat in front of his passengers, for the machine is considered up to the task of taking three persons in all, and lets in his clutch and sails away. On attaining a speed of 20 m.p.h. the side anchors are hauled up and the craft left to balance itself.

The sensation of a skid we leave to the imagination of our readers, but we feel rather unhappy at the thought of the control. On a four-cylinder motor cycle well-known in England it was found advisable to substitute handle-bars for wheel steering, and if this course were pursued on the "Biautogo" we think the maker would produce a very racy and powerful little mount.

To the *diletante* in engineering the study of this machine repays attention. The details are beautifully carried out, and the whole construction reflects credit on the designer and maker. But whether the vehicle can be taken seriously as a roadworthy machine remains to be proved.

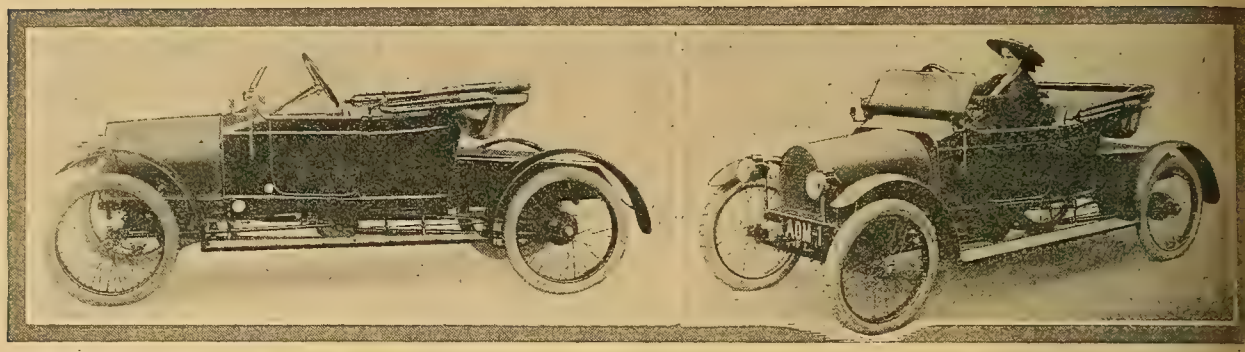
"SPARKS."

ILLUSTRATING THE GROWING USE OF THE MOTOR CYCLE IN THE ARMY.

(1) A group of despatch riders of the Artists Rifles at Abergavenny. (2) A despatch rider, C. Cecil Gates, who has covered 20,265 miles since 1911 on his Matchless in connection with the Army. (3) Members of the Lincolnshire Yeomanry at their Annual Camp at Grimsthorpe Park. The machines are a Matchless, Ivy-Precision, Campion-Jap, and Zenith. (4) The motor cycle section of the "East Lancashire Divisional Signalling Corps Royal Engineers" at their annual training at Ilkley, Yorkshire. (5) Capt. Coates (O.C.) and Lt. Swithenbank of the Hull unit of the Legion of Frontiersmen, receiving despatches from a scout who has just returned to camp.

THE CUMBRIA CYCLE CAR.

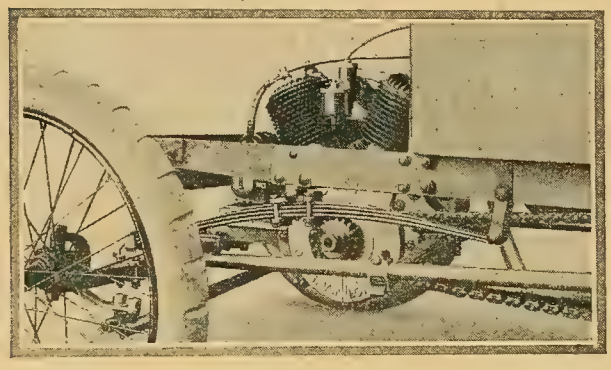
Features: Air-cooled engine, Central chain drive, Ash frame.



Side view of the chain-driven model showing hood, etc.

Three-quarter front view.

A CYCLE car of quite new and taking design has been produced by Cumbria Motors, Ltd., Cockermouth, the sale of which is handled from 13, London Road, Coventry.



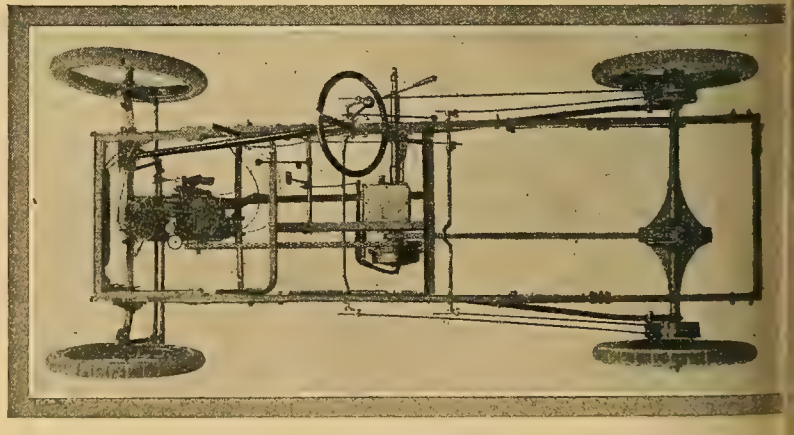
Patent suspension for the 8 h.p. engine of the Cumbria cycle car. Observe the transverse leaf spring.

It is made in two types. One is a simple machine fitted with final drive by Whittle belt to a novel design of back axle. There is no differential, but two plates in the back axle take the drive and are allowed to slip slightly when turning corners. The power is taken from the engine by a chain to a Sturmey three-speed gear, situated midway in the chassis. The power unit is a Coventry made twin air-cooled 6 h.p. engine.

The larger machine is more ambitious. The power is obtained from an 8 h.p. J.A.P. air-cooled twin motor, and thence to a three-speed and reverse gear box on car lines, on to which is bolted the large Ferodo-lined clutch, which is connected to the primary shaft and operated by a pedal. Thence the drive is taken by chain to the rear axle, which is supplied with a differential gear. The chains used are Coventry Silent chains. A cushioning device is used to soften the shock of the drive, the engine being allowed nearly or full revolution before it actually commences its wor of driving the car. The frame is of ash, supporte with steel plates, and should prove light, strong, ar supple. Inverted grasshopper springs are employe and the general details of the steering gear are we carried out. A very neatly finished celluloid-covere steering wheel is fitted.

A curious feature of this cycle car is the method mounting the engine. The fore part is attache rigidly to the front axle, and the rear end is sprun to allow it to move up and down with the axle. Th method is simple, but it obviously relies on the radi rods to the axle standing up to their work.

All mechanism is thoroughly protected by an amp underscreen, and the whole machine, fitted with a ne two-seated body, two side lamps, tail lamp, generato horn, jack, and tool kit, is priced at 122 guineas. is stated that this car has been tested over Fangs Bro in the Lake District, close to Loweswater. This h has a gradient of approximately 1 in 6. On th level it has attained a speed of close on fifty mil per hour. We are assured that the car has had severe testing in Lakeland, and has emerged mo satisfactorily.

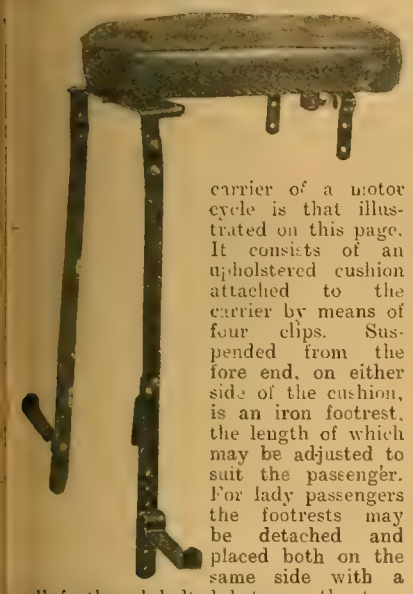


Plan view of chassis of the 8 h.p. Cumbria, showing chain drive, countershaft gear, and general arrangement.

AMONG THE ACCESSORIES.

A Pillion Seat.

Pillion riding seems to be gaining in favour. A neat seat for fitting to the



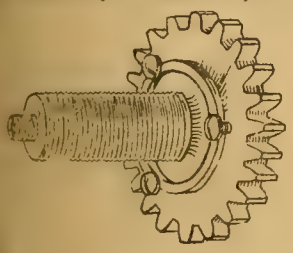
carrier of a motor cycle is that illustrated on this page. It consists of an upholstered cushion attached to the carrier by means of four clips. Suspended from the fore end, on either side of the cushion, is an iron footrest, the length of which may be adjusted to suit the passenger. For lady passengers the footrests may be detached and placed both on the same side with a small footboard bolted between the two. It is made by Frank Ashby and Co., Etna Works, Princip Street, Birmingham.

Speedometer Improvements.

Several improvements have recently been made to the Isochronous speedometer and distance recorder by its inventor, Mr. Bonniksen, Norfolk Street, Coventry. The driving gear has been doubled in strength as compared with the first model, and the flexible tube containing the driving cable is now all metal; the earlier ones had a rubber lining, but this caused the tube to shrink and placed a buckling strain on the cable.

The friction method of connecting the cable to the drive and the indicator has been superseded by a key and keyway device which is a positive form of transmission and a great advance over the older type.

To exclude water and dirt from the bearing of the driving gear a neat cup-shaped leather washer is attached to the driven wheel by a metal ring and three



screws. The cupping of the washer is specially provided to enable the hole to close as the bearing wears and the washer flattens. It will readily be seen that flattening a cup-shaped washer has a tendency to close the washer on to any part which the hole fits over.

Very shortly a trip mechanism will be introduced for this speedometer, which will consist of two extra dial openings, one to register ten miles in a circle and the other 100 miles in a circle. A button at the side of the instrument will enable both trip hands to be turned back to zero like the hands of a keyless watch.

Luggage and Tool Cases.

A handy week-end luggage-case is that made by Lomax, Ltd., William Street, Birmingham. This case is collapsible, and made of special trunk material covering three-ply boards. The size is 16in. long by 10in. wide, and when closed 6in. deep; it will, however, extend to 12in. deep. The straps are so arranged that the case can be removed bodily from the carrier without disturbing the fastenings which secure the top and bottom halves.

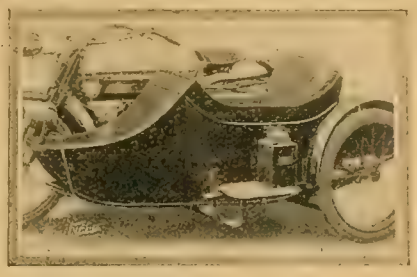
The Lomax Extensible Valise.

The case is very light, and it can be supplied in any colour to match the frame of the machine. The same firm makes a large number of articles in leather for motor cyclists' use, among them a flexible waist belt which can be shortened or lengthened by removing or replacing sections of the leather used in its construction, a waist belt to be worn by motor cyclists when carrying a passenger on the carrier, sparking plug cases, spare belt cases, and tool cases.

One of the New York motor cyclist police officers with his 7 h.p. Indian. He is stationed at the entrance to one of the famous East River bridges.

A Novel Sidecar.

The Oakleigh Motor Co., 65a, Rosendale Road, West Dulwich, S.E., has just produced a very striking looking sidecar, which we illustrate. A wind

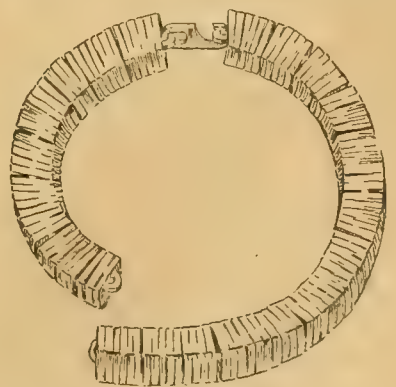


The Oakleigh wind cutter sidecar.

cutting front with a high dash, together with a novel method of suspension, are the features of this production. They are exceptionally light, being made throughout of ¼in. three ply wood, for which lightness, combined with strength, is claimed. The upholstery is padded with a patent composition, rendering coil springs unnecessary. It is claimed that the concave dash renders a wind screen unnecessary. To ensure great rigidity no door is provided to the standard sidecar, but one can be fitted if required at an extra charge of fifteen shillings. The price of the complete sidecar and tyre is £9, and it can be painted any colour to order.

A Novel Belt.

The Zilla Patent Belt Co., 82, Gt. Western Street, Moss Side, Manchester, has produced an ingenious belt that should be particularly applicable to high-powered machines or for sidecar use. The centre of the belt is composed of an endless steel chain, with the ends of each link formed as a hook, so that sections of the chain may be attached



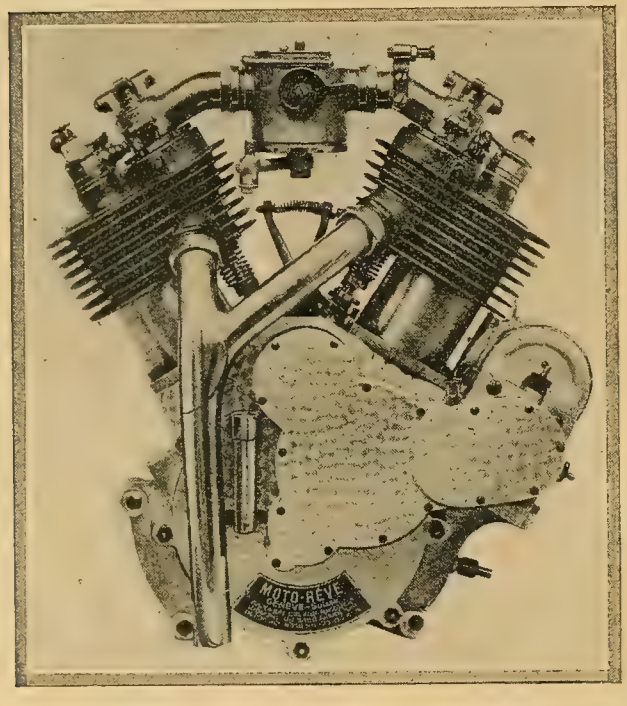
A combination chain belt.

or removed if it is desired to lengthen or shorten the belt. On this chain are forced leather pieces like thick washers cut at an angle of 28° and placed close together, but at the same time are made a sufficiently slack fit to allow flexibility. When it is desired to shorten the belt one merely pulls off a few of these leather washers and takes out a link and the job is done. The belt appears to possess great strength.

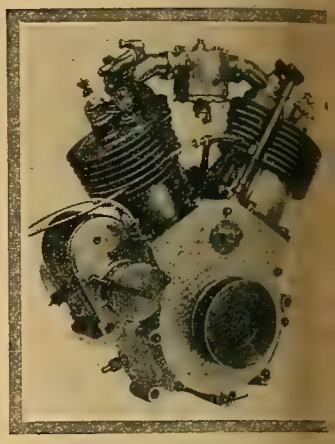
A New Model 4 h.p. Twin Moto-Reve Engine.

WE are able to illustrate an entirely new model from the well-known Swiss factory. This is a 4 h.p. twin of 63 mm. bore by 85 mm. stroke, giving a capacity of 530 c.c. The general appearance of the engine is extremely attractive, and it is characterised by high-class finish and remarkable lightness, being, in fact, almost exactly 50 lbs. in weight, complete with magneto and carburetter.

The crankshaft is carried on phosphor bronze bearings of good length, and the pistons are flat topped with three rings. The gudgeon pins are secured in a somewhat unusual manner, the pin being carried trunnions close up to the under side of the piston hea and the securing bolts passing through the piston and being secured on the top side by locking nuts.



Timing gear side of the latest 530 c.c. twin Moto-Reve.



Pulley side of the 4 h.p. twin M.-R. engin showing valve springs, adjustable tappets and overhead valve operating mechanism

A new departure in Moto-Rêve practice is the use of mechanically-operated overhead inlet valves. These are very neatly carried out, and have quick detachable operating rods on adjustable tappets, return springs being employed to prevent noise through bouncing. The plugs are placed in the cylinder hea

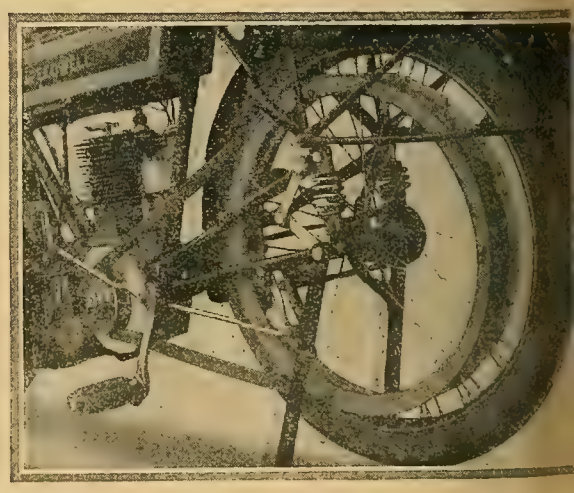
The magneto fitted is of the Moto-Rêve Co.'s ov manufacture, and is gear driven. It is carried on platform cast integral with the crank case, and t advance and retard movement is governed by a Bowd wire working against an enclosed spring. A ne feature of the Moto-Rêve magneto is the carrying the contact breaker cover on two balls to ensure ea movement and prevent binding.

Another feature is the neat way in which the exha pipes are attached to the engine. Instead of t casting being threaded externally to take the exha pipe union, it is threaded internally and a small ca iron union is threaded into the cylinder, and on to th union is attached the union on the exhaust pipe.

Altogether, the engine is a notable addition to t products of the Geneva factory.

A Rear-springing Device.

THE illustrations depict an invention in connection with the spring suspension of the rear portions of the frames of all motor cycles. The device can be fitted to existing machines with little alteration and at a low cost. It has been thoroughly tested and found to be comfortable, strong, and reliable. The tension of the belt remains the same in all positions, by reason of the fact that the radius of the spring back fork is large, and that the centres of the engine pulley, spring fork pin, and rear wheel are all in line. Lateral movement is prevented by the wide and rigid hinge at the engine, by the heavy gauge tubing of spring forks, and the three joint shackles at rear extremities of forks. The central joints of the shackles are made of large diameter, and may be tightened or slackened to adjust the flexibility of springs as required to suit the road conditions. The designer is Mr. W. B. Burnet, works manager for Messrs. Bennett and Wood, Ltd., Speedwell Cycle and Motor Manufacturers and Importers, Pitt and Bathurst Streets, Sydney.

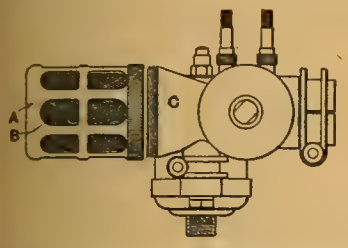


A novel method of rear springing.

PATENTS by Eric W. Walford F.C.I.P.A.

The Senspray Air Intake.

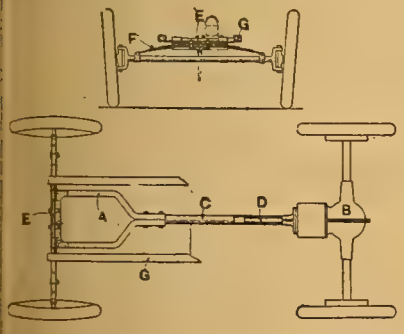
No carburetter can be considered perfect which does not effectively filter the air before its passage to the engine. Ordinary gauze discs soon become choked with dust, but the construction illustrated affords a large area for the



passage of air, so that this difficulty is overcome. The intake comprises a barrel A of skeleton form which is of sufficient length and lined internally with gauze as shown at B. The barrel screws upon the carburetter body C, and the air passing to the engine is most effectively filtered.—C. H. Pugh, Ltd., and E. W. Starkey, No. 13,064, 1912.

P.D.A. Cycle Car Suspension.

With the object of providing a simple and efficient construction, the engine



frame A is connected to the back axle B by telescopic members C D, which act as a torque tube. The engine frame is provided with a wide bearing at the front on a shaft E, below which is arranged the single transverse front spring F. The main frame members G are also mounted upon the shaft E, and it will be clear that, as the back axle rises and falls, the engine frame A will oscillate freely on its shaft.—F. W. Hulse, and Pickering, Darby, and Allday, Ltd., No. 16,217, 1912.

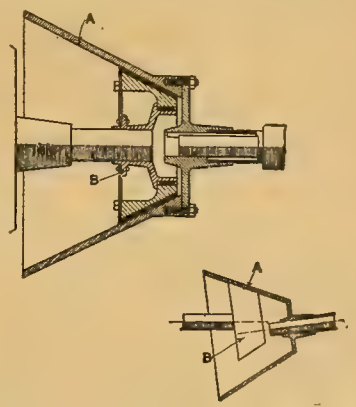
Belt Fasteners.

The illustrations show two forms of belt fastener, both of which are designed to provide great flexibility and to give a central pull on the belt. The first construction comprises merely two strips of tempered steel A B, one of which passes through an aperture in the other to give a central pull. In the second construction the plates screwed to the belt are connected by crossed pivoted bars C, and a flexible extension piece D is employed

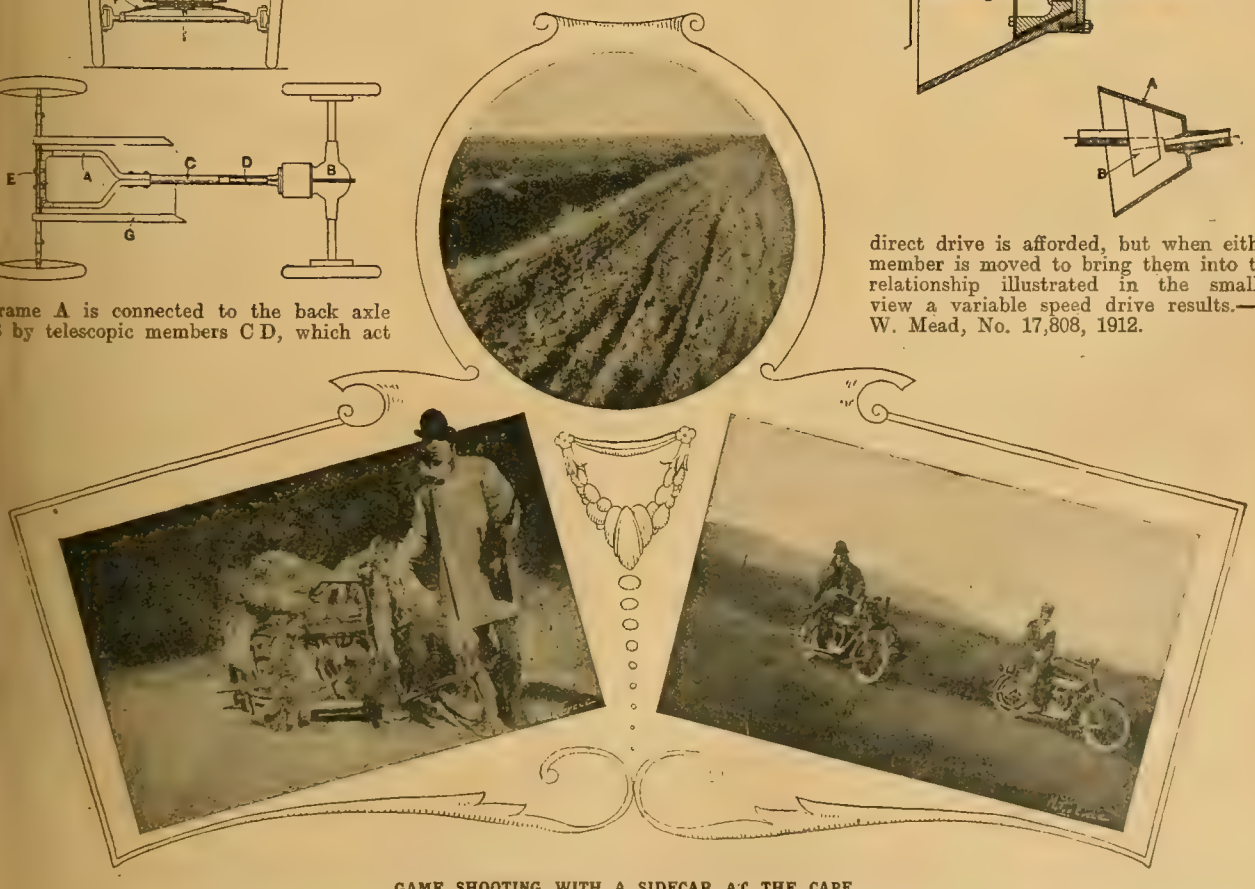
which straightens out as the belt passes round the pulley and takes some of the strain.—C. H. Gray, No. 19,860.

Friction Gearing.

In this frictional gear a large internal cone A provides one frictional surface, the other comprising a smaller external cone B. When the two cones are in the position illustrated in the larger view a



direct drive is afforded, but when either member is moved to bring them into the relationship illustrated in the smaller view a variable speed drive results.—F. W. Mead, No. 17,808, 1912.



GAME SHOOTING WITH A SIDECAR AT THE CAPE.

(1) Sample of the road with which the riders met. (2) One of the 6 h.p. Enfield sidecars loaded with some of the spoil of a day's shooting. Mr. H. Dreyer is the rider. (3) H. Dreyer and D. Garlick, of Cape Town, on the way out. The sidecar passenger took the photograph. The second sidecar carried the baggage, guns, etc. The start was made after three days heavy rain, and part of the road traversed after dusk consisted of ploughed fields which the Enfields took with all aboard.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Garage Charges.

Sir,—Knowing that you are always ready to take up the cudgels, when excessive charges are made to motor cyclists, I beg to bring to your notice the tariff obtaining for garage at the Great Western Hotel at Fishguard.

The charges, printed on their tariff, read thus: "Motor Cars and Motor Cycles, 2s. per day, 10s. per week."

That no distinction should be made between a 60 h.p. car and a lightweight motor cycle is preposterous, and even for my bicycle and sidecar I considered the charge excessive, and refused to pay more than a shilling for one day's garage.

The garage in question is not artificially lighted in any way, and is merely a galvanised iron erection.

P. R. HOOPER.

A Warning.

Sir,—May I through your hospitable columns issue a timely warning to motor cyclists who may during the holiday season have occasion to pass through the lethargic city of Hereford?

Of late there has been experienced a burst of phenomenal activity on the part of the police, and sympathetic magistrates have joined in the general conspiracy of persecution against the motorist. Recent cases at court have been supported by the most entertaining evidence, which would be indeed humorous were it not so effectual in securing convictions. One witness, quite recently uniquely gauged the speed of a motorist by saying that his pony could go at ten miles per hour, and the defendant, he declared, was travelling four times as fast. One marvels not so much at the hypothetical arithmetic as at the magistrates, who seriously regarded such testimony. A first offender was, a week or two ago, mulcted of £3 on such evidence as this.

C. J. HUGHES.

Fair Treatment.

Sir,—It makes me smile to see the letters on this subject sometimes published in your paper. My experience has been just the reverse. One of the firms mentioned has kept me waiting six weeks to replace a faulty bearing on a new machine. I am still without my machine, and am likely to be, as letters only bring me insulting replies. Most of my friends also agree that these "fair treatment" stories are the exception.

HAD SOME.

Sir,—There has been recently some correspondence in your valuable journal from readers, some discontented and some otherwise, concerning the treatment accorded them at the hands of manufacturers in the matter of spare parts and repairs. I should be glad if you would extend me the hospitality of your columns to mention my experience with Messrs. Singer and Co., Ltd. Recently, while travelling to Wolverhampton, the inside flange of my pulley broke away from the centre. I effected a temporary repair by having the two pieces riveted together, and wrote for a new pulley to be sent me, c/o post office, Wolverhampton. This I received by return of post. Within fifty miles this went exactly the same way. I therefore got the machine to the works, where it was found that the frame had been pulled out of line. They relined the frame and fitted another pulley, and I was able to proceed after a wait of about three hours. More recently my cylinder blew off, smashing the piston, bending the connecting rod, and driving the sparking plug through the tank. Here was a pretty wreck. I sent the machine off to Coventry on Tuesday, prepared to possess my soul in patience for some time without it, but, to my surprise and delight, I received it back on Thursday night fitted with new tank, cylinder, piston, connecting rod, and plug. All these repairs were done entirely free of expense to me. While writing, I should like to express my appreciation of their 4½ h.p. model for sidecar work. The usual disclaimer, of course, applies.

W. F. DOWSETT (AD 3171).

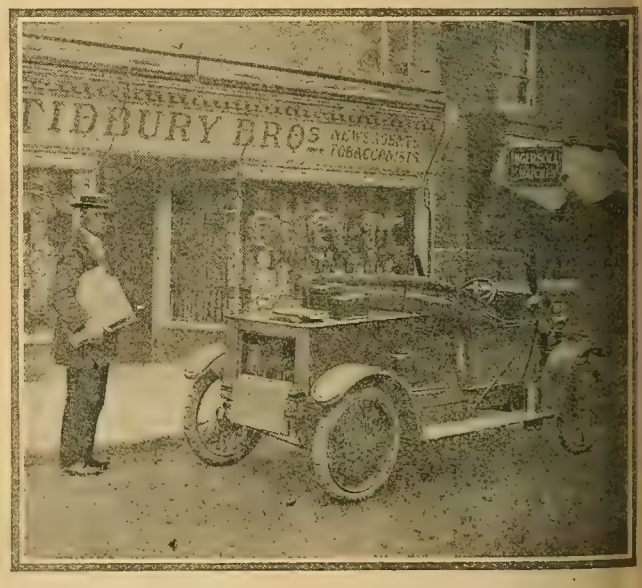
Sir,—Having often read letters in *The Motor Cycle* from correspondents complaining of the treatment they have received at the hands of some manufacturers in the matter of repairs and obtaining spare parts, I should like to give you the following instances of the way Messrs. Phelon and Moore treat their customers. A few weeks ago it became necessary to rebuild my back wheel, and I wrote to Messrs. P. and M. telling them that it was necessary for me to use my machine every day, and asking how long they would be doing the repairs. They replied two days. I sent the wheel off on Sunday evening and received it back on the following Wednesday. In rebuilding the wheel they found that the brake drum was faulty and this they replaced free of charge, although my machine is two years old. Last week I had to send my two-speed gear to be overhauled, it having done upwards of 10,000 miles. I sent this off on a Monday and it was thoroughly overhauled and returned to me on the Wednesday evening following; so that whatever the experience of others may be, for myself I cannot speak too highly of the treatment I have received from this firm. The usual disclaimer.

A. BEGBIE.

A Cycle Car with a Business Body.

Sir,—I am enclosing a photograph of my G.W.K. showing special back box for business purposes. This is the second G.W.K. I have used in this manner. On my last I did 23,000 miles in twelve months, which speaks for itself.

KT 117.



A G.W.K. provided with a box at the rear for carrying goods. (See letter from KT 117.)

Genuine Accessories.

Sir,—There is one real grievance, which has never been properly ventilated in your journal, namely, the tendency of substituting accessories, etc., for the sake of an extra profit. The most bare-faced imposition was practiced on me a few days ago when I stopped my cycle in front of a prosperous, well-stocked cycle store in a town of 150,000 inhabitants. I asked for a tin of Robbialac of a standard colour for the purpose of retouching my sidecar on the culmination of my holiday. I was obstinate in insisting on Robbialac, my sidecar having originally been painted with this enamel. This commercial pirate pledged me his family's honour that the enamel he was forcing upon me at a saving of 6d. was made by the same firm for them, and was actually the same stuff. Since then he and I know better. It would be a great boon to all motorists if manufacturers of repute would take the trouble to convince such catchpenny brigands that it does not pay to substitute nondescript quality for well-known accessories, and I trust my fellow sufferers will co-operate with me in gently and firmly refusing to be a party to such a most reprehensible practice, which, to my sorrow, is getting more and more prevalent amongst accessory dealers. MARTIN HUMBERT.

Military Motor Cyclists.

Sir,—As a Territorial and a keen motor cyclist, I should like to draw attention to several obvious flaws in the War Office scheme for Territorial motor cyclists.

In the first case, in their great anxiety to get men, the authorities are making the training of the motor cyclist a mere farce. It is quite impossible to teach a motor cyclist one-fiftieth part of his work during twenty recruit drills and only one drill per year afterwards, with the exception of the annual training. In addition, arming a man with a revolver only, and giving him twelve rounds to fire every year with it—six with each hand—is absolutely ridiculous. Personally, I believe that the motor cyclist is of very much less use than he might be if he does not carry a rifle; but if the authorities are to pin their faith to the revolver, then at least the motor cyclist should have a considerable amount of practice with his weapon, as it is admittedly a most difficult job to become proficient in revolver shooting.

The motor cyclist should have a knowledge of signalling, a thorough knowledge of scouting, and many other interesting military duties. Twenty drills the first year and none afterwards will not make him proficient, or even give him the faintest smattering of these necessary parts of his duty.

To my mind, it is obviously unfair that the Territorial motor cyclist should have to provide his own machine during training, and then when war breaks out and there is a chance of earning a little money, take his machine from him at an admittedly low valuation, and pay him only 1s. 9d. per day. Everyone who has been on military duties, on manœuvres and such like work, will agree that 8s. per day does not begin to cover out-of-pocket expenses. Wear on tyres, belts, expensive spills, and so forth, to say nothing of the machine standing out in all weathers quite unprotected from the elements, makes it quite impossible to do anything but lose heavily over each annual training. Why, on the outbreak of war, the motor cyclist should not be allowed to earn a decent rate of pay for the comparatively short time he would give to draw it only the authorities know.

Turning now to the question of the type of motor cycle which will be officially approved. The class of man that is likely to be interested in military motor cycling usually rides a T.T. machine. He may strongly object to having to fit a change speed gear to please the War Office. If the authorities are going to insist on variably geared machines surely they should also insist on the rear wheel being accessible. I have known motor cycles to be used on military work which were not fitted with either a front or rear stand, the rear wheel of which weighed over 90 lbs., and which would take three men at least three hours on the road to fit a fresh tyre to the rear wheel and refit. This is not as it should be.

I am glad to notice that the old accumulator 'bus will no longer be eligible to draw more than its actual value for a fortnight's messing about within a two miles radius of camp. This will, at any rate, remove a great grievance among keen men, who have in the past found that out-of-date worthless machines, which never did an honest day's work during the training, drew from the authorities as much as their own up-to-date machines, which, in many cases, would be working night and day.

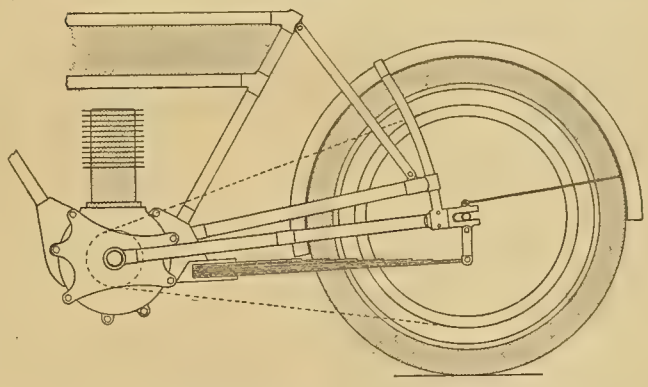
To sum up, I think—

1. That the training of the men is absolutely inadequate.
2. That the machine, in case of war, should remain the property of the owner, and that he should draw from the Government the 8s. a day which he would get on annual training, and be supplied with tyres, belts and petrol free.
3. The regulations should insist on accessibility of all parts, which is at least as necessary as the fitting of many types of change speed gears, which certainly could never survive a campaign. MOTOR CYCLE SERGT. T.F.

Rear Springing.

Sir,—I am sending herewith a drawing of a provisionally protected system of rear springing for motor cycles.

The disadvantage of all existing forms of rear springing, to my mind, is that the distance between the centres of the engine pulley and the rear wheel respectively is always varying. In those systems where the rear wheel oscillates at the end of a link, the radius of the link motion is not equal to that between the engine pulley and the rear wheel, but generally shorter, some systems, in fact, employing a very short link. When travelling over an uneven surface, therefore, the oscillating motion of the back wheel must be alternately loosening and tightening the driving belt or chain. The same effect obtains in those systems where the wheel moves in vertical guides at the end of the forks.



The rear spring frame referred to by E. W. Chalkley

This action, I think, occurring perhaps hundreds of times per minute, must have a detrimental effect on the transmission.

In this improved system, the disadvantage referred to has been done away with, owing to the fact that the radius of the motion of the link carrying the back wheel is exactly equal to that between the centre of the engine pulley and the centre of the back wheel.

For those machines having counter-shaft speed gears, the frame or link would be fitted between the centres of the final drive. The system is adaptable to springing by either leaf or spiral springs placed above or below the hub of the rear wheel. E. W. CHALKLEY.

The Twin-cylinder Triumph.

Sir,—With reference to the description which has appeared in *The Motor Cycle* relative to the twin-cylinder Triumph, the Triumph Co. wish it to be understood that this particular engine is as yet in the experimental stage. The results of these experiments do not warrant the company publishing a definite statement as regards their policy for next season.

It is well-known that the policy of this company is such that any new idea has to undergo prolonged and strenuous testing before general adoption, and the rider can rest assured that all possible safeguards are embraced before any departure from their present manufacturing policy is adopted.

The Triumph Co. have placed their faith, up to the present, in the single-cylinder machine, which type has proved itself to be one of the most efficient, and which they have successfully brought to the pitch of perfection. However, not being satisfied to rest on their laurels, experiments are continuous and diverging in all directions, in order to present eventually to the public the most perfect type of machine. TRIUMPH CYCLE CO., LTD.

Hub and Counter-shaft Gears.

Sir,—In your issue of August 14th a letter appears from Mr. Harold Bowden, of the Sturmey-Archer Gears, Ltd., in which the writer states (after criticising the counter-shaft gear as opposed to the hub gear) that it would be interesting to hear the opinions of others who have had experience of both.

Among other objections to the counter-shaft gear the writer states that the small chain from engine to counter-shaft "wears out after 1,500 miles or less, even when constantly lubricated." Now, on my own machine (a 2¾ h.p. Enfield), I have ridden well over 4,000 miles without having ever removed the small chains or even cleaned them. A half-pump of oil every 250 miles keeps both chains and gear well lubricated, and during the whole 4,000 miles it has only been necessary to adjust the chains once (not a two minutes' job).

The 4,000 miles that I have already done (and I hope to double this figure without new chains) compares more than favourably with the 1,500 or less which Mr. Bowden gives as the life of the small chain, and it would be interesting to know how he arrived at this figure.

I may add that I have not the slightest interest in the gear of which I have given my experience, and there must be thousands of riders of machines with counter-shaft gear who will laugh at the idea of 1,500 miles being the life of the small chain. A. W. EVANS.

Sir,—As a rider who has had some thousands of miles experience of both types of gear, I should like space to answer the letter from Mr. Harold Bowden in your last issue. Of course, Mr. Bowden writes as an interested party, and thus is naturally anxious to put his own case forward to the best advantage. But does Mr. Bowden ride a motor cycle himself, and, if so, has he ridden any considerable distance on gears other than his own manufacture?

Let us take his arguments *seriatim*.

I will allow him the benefit of silence, until the lower speeds get worn, when the noise of the Balkan States is eclipsed.

The small chain from the engine to the counter-shaft is much more likely to last anything from 5,000 to 10,000 miles if reasonable attention is paid to it. I should like to hear Messrs. Hans Renolds' comments on Mr. Bowden's statement that it wears out in 1,500 miles or less. I have obtained over 3,000 miles from the practically exposed chain on a Douglas, and it was good for a long way further when sold. I was a competitor in the Scottish Trials, and only saw one case of chain trouble, and that was caused by the rider running the high speed chain ridiculously slack. Messrs. Phelon and Moore have used this drive for over twelve years, and apparently are still satisfied with it, and so it would seem are the public, for the P. and M. is much sought after, with a high value new and second-hand. Chain-driven counter-shaft gears are also used with perfect success on the Indian, Enfield, Lea Francis, James, A.J.S., Sunbeam, and Scott, to mention but a few, and the transmission on these machines is as reliable as any belt-driven, hub-geared machine to be found.

The drive is only fiercer if a proper clutch is unprovided.

There is no more vibration. The Scott and Indian are both notably smooth in their drive. Has Mr. Bowden ridden either?

The fact of the matter is that the hub gear was brought into prominence solely because of the necessity of providing a change speed gear for belt drive. So long as belt drive is the fashion there will be a market for hub gears. Given careful use and constant but slight attention and frequent lubrication, they will do their work fairly well, but under severe use they are apt to complain. I have had sorry experience of them when real hard work has been required, but for an occasional help up a bad hill they are quite admirable.

Curiously enough, Mr. Bowden neglects to state the real value and strong point of the hub gear, in that it allows a high belt speed to be maintained. For this reason this type of gear is better in the hub than when put in the bottom bracket.

I should like, sir, to see the views expressed by any riders who have used hub gears and belt drive and chain-driven counter-shaft geared machines, and to hear which type they prefer.

In conclusion, let me state that I have absolutely no financial interest in either type. I have tried both types extensively with an open mind, and I know, from what I have seen and experienced, that the all chain drive counter-shaft gear has it every time. THROUGH THE MILL.

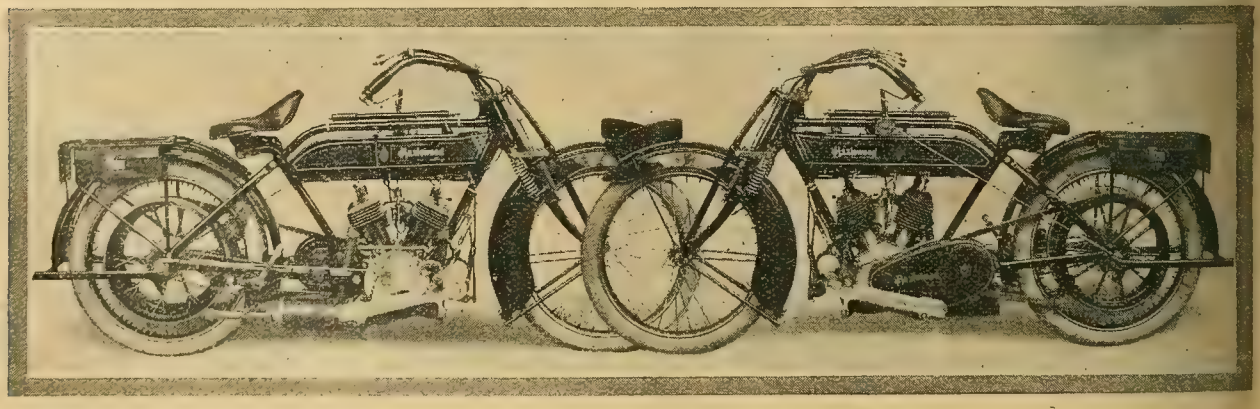
Flexibility.

Sir,—The concluding sentence of your leader on "Flexibility" strikes the keynote of what has long been the great outstanding desire of the vast majority of motor cyclists. Freak hill climbs and the desire to travel at double or treble the legal limit, with a selfish disregard of other road users, only interests a small proportion of the fraternity, chiefly the genus "K-nut."

I have been a motor cyclist from the beginning, and have ever been at a loss to understand the consummate longing for the vain glory of beating someone else by the fraction of a second, or conquering a freak hill through an unholy exercise of gymnastics.

Surely motor cycles were not built for these things, and I firmly believe if manufacturers had paid more attention to the wants of the great touring class, their best clientele, we should have had long ago the perfected lightweight, variably geared, thoroughly reliable silent motor cycle—such a machine to go fast or dead slow, as occasion arises.

I am perfectly sensible of the good that has been achieved through racing, but surely now we have sufficient data to turn to good account. W. H. STIRLING.



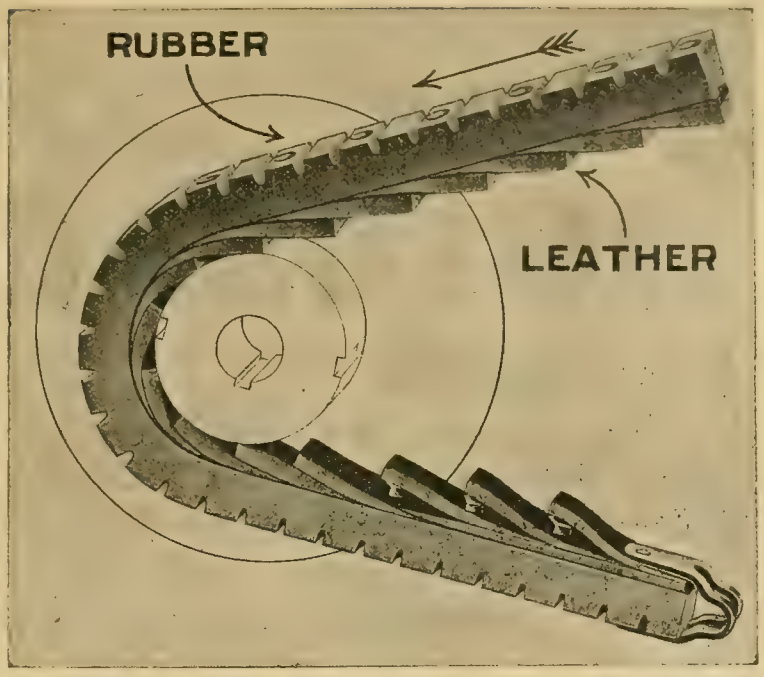
A NEW MODEL HAZLEWOOD WITH HUB GEAR IN THE SIX DAYS' TRIALS.

This machine is being ridden by T. D. Drysdale in the six days' trials. It has a new J.A.P. engine of 70 × 85 mm. bore and stroke, and is rated at 5-6 h.p. An Armstrong mark VI. gear is placed in the rear wheel and a chain driven countershaft is employed.

Lycett's

are again to the front—with a NEW improved BELT—one that, by its originality in design and exclusive practical features, completely eclipses anything else ever placed on the market.

—This Belt is built of RUBBER and LEATHER and has been expressly designed to afford greater grip, flexibility, strength, speed, long life, absolute RELIABILITY under all conditions, and particularly for use on SIDECAR and high-powered machines—The new



"RELIABLE" BELT (Rubber and Leather)

has already proved that it well merits the name of "RELIABLE"—for although it has so far been used by only a few riders—its behaviour has created quite a sensation!

—Here are some notable achievements already established, marking the *EXTREME RELIABILITY* of Lycett's Reliable Belt—proof of possession of that quality which its name implies.

SCOTTISH 6 DAYS' TRIALS: Mrs. Baxter, E. F. Baxter, J. A. Hoult, and J. F. Morrison, gained GOLD MEDALS—and each used ONLY one "RELIABLE" Belt throughout the race, which *gave no trouble whatever.*

M.C.C. STANDARD RELIABILITY and HILL-CLIMBING TRIAL, AUG. 2nd. A. T. Stanton on 3½ h.p. Bradbury, finished to SCHEDULE TIME—used "RELIABLE" Belt *untouched* throughout the run.

ENGLISH-DUTCH RELIABILITY TRIAL, AUG. 4th: S. Holloway, R. G. Charlesworth, and F. W. Barnes, gained GOLD MEDALS. P. Newbold, riding in the reserve team gained SILVER MEDAL. ALL used "RELIABLE" Belts, which *gave no trouble whatever.*

B'HAM to EDINBURGH and BACK RUN, AUG. 2-4th: H. Hopkins on 3½ h.p. Abingdon, gained GOLD MEDAL—using "RELIABLE" Belt *untouched* throughout the journey, —and this is what one of the above competitors says of the "RELIABLE":—"*You will no doubt be interested to hear how your belts behaved on my wife's and my own machines in the Scottish Trials in which we each gained Gold Medals. Well, I put both belts on absolutely new for the Trials and had not time to run them even a few miles, so naturally on the second day, I took about an inch cut of each, and thereafter during the whole trial the belts did not give a second's trouble, did not slip or pull through. We were both delighted with their behaviour and both belts are good for at least another 1,000 miles, which considering the power of the machines I consider to be excellent. I do not think it possible to obtain a stronger or more flexible belt than yours.*" *E. F. Baxter, 5, Blantyre Road, Sefton Park, Liverpool, 31st, July, 1913.*

—NOTE:—The "RELIABLE" Belt is guaranteed for 2,000 miles minimum—on our belt-testing machine it has *run four times the distance of any other rubber belt* on the market!

Try Lycett's "RELIABLE"—the guaranteed Belt!

—This Belt may cost more, but on account of its wonderful wear-resisting qualities it will outlast several of the ordinary kind of belts! Write for our new folder "A Better Belt way" which gives full particulars of this remarkable Belt.

LYCETT'S, "The Saddlery,"
BIRMINGHAM.

R.H.S.

The **MOTOR PAPERS** say that the **TWIN IS COMING**—some of them are—but the **500 c.c. 3½ h.p.**

MOTOSACOCHE

IS HERE and to those who have not had the good fortune to see and try this production—it has been since last November, and it is **UNDOUBTEDLY** the finest motor cycle that has yet been made. It has the **WONDERFUL M.A.G.** engine—the vanquisher of all makes—the winner of the **GRAND PRIX** of France. The product of a factory which has made over 30,000 engines.

THINK OF IT—and have one.

MOTOSACOCHE Ltd., Kenmont Works, College Park, Willesden Junction.

Telephone—1092 Willesden. Telegrams—"Motosacoche, London."

For the convenience of tourists the size of the book has been made suitable for the pocket or valise.

Know your road before you start.

It will save much time and discomfort.

"The Motor Cycle" Route Book contains carefully selected routes for the whole of the British Isles, with distances clearly shown; 45 Sectional Maps and Index Map (by Bartholomew), Speed Limits, and a copious index.

In every case the BEST route—and not necessarily the shortest—has been chosen. Large towns, congested districts, and bad roads are avoided.

Before commencing a tour every motor cyclist should study this book carefully. He will be well repaid by the added enjoyment which comes of freedom from worry.

Price 1/6 net. **By Post 1/9.**

Obtainable from ILIFFE & SONS LTD., 20, Tudor Street, LONDON, E.C.

And from all Booksellers and Bookstalls. *(Remittance should accompany orders sent by post.)*

A Grumble.

Sir,—I have noticed in your paper lately letters regarding generous treatment received from motor cycle manufacturers, by motor cyclists; my experience is just the reverse. I have had my motor cycle laid up for over three weeks at the motor cycle depot of one of the best known firms in the trade, and all that it wants is a new pair of handle-bars. Also, a friend of mine has forwarded plates from free engine clutch to another well-known firm for repairs, but is unable to obtain any acknowledgment of their receipt by the firm. Such treatment is in direct contrast to that cited by your other correspondents, and is calculated to do the trade great harm.

J. H. ROWE.

The Carburetter for Scotts.

Sir,—The continual enquiry in your columns for experience of the Binks carburetter fitted to the two-stroke Scott, and the great amount of satisfaction I am deriving from such a fitting, prompts me to write you on the subject, and by publishing my letter you will receive the thanks of more than one rider of this fascinating machine—of that I feel sure.

I have owned and ridden 1911, 1912, and (now) 1913 Scotts, and can, therefore, lay claim to at least an ordinary knowledge without presuming to be an expert. It is not my intention to "air" what I consider are the "shortcomings" of the Scott carburetter. Scott riders are fully alive to what they can and cannot do, and will gather from the following details whether the Binks effects any improvement.

Starting is infinitely easier, usually the third kick when cold—always the first and lightest of digs when warm.

The note of the exhaust is crisper, though quieter.

In free position, on the pilot jet (No. 3), the engine can be throttled down to a mere "tick over," equal to any four-cylinder car; counting the explosions is a simple matter.

Traffic can be negotiated at a walking pace without the slightest sign of a misfire and the consequent explosion in the silencer; in fact, one can ride so slowly that balancing becomes a difficult matter.

With an empty sidecar attached I can circle continuously with the steering fully locked inside a 10ft. circle—this with the sidecar inside and the engine firing perfectly evenly. On opening to the main jet (No. 4) the engine instantly accelerates and answers to every minute movement of the throttle—there is, however, no racing away on the level for no apparent reason—the speed remains constant.

There is no loss of power, petrol consumption 50-60 m.p.g. solo, engine runs cooler, and much more under control.

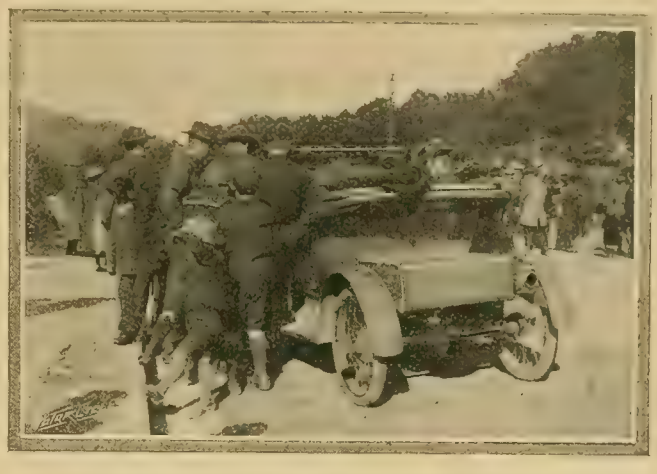
Since fitting the Binks I have enjoyed my Scott considerably more than before, and have ridden solo more during the past three months than the last three years put together, simply because I now drive the machine instead of the machine driving me. I have no interest in the firm of C. Binks, Ltd., but have always found them most attentive and obliging.

R. F. G. KELLY.

On Friday last His Highness the Kabaka of Buganda, who is on a holiday in this country, visited the works of the Triumph Cycle Co., accompanied by his tutor and three members of his suite. His Highness mentioned that he knew the Triumph machines very well, as a large number of them are in use in his country. Our photograph is of His Highness and suite and Messrs. M. J. Schulte and C. W. Hathaway, taken on arrival at the works.

Cycle Cars in New Zealand.

Sir,—Having been a regular reader of *The Motor Cycle* for some long time past, I should like to mention that the hints and tips which *The Motor Cycle* always contains are very helpful to the motorists in New Zealand.



An 8 h.p. Humberette in Wellington (New Zealand) where it is attracting considerable attention. See letter from H. W. Abbott.

The enclosed photograph, which was taken recently in Wellington, gives you some idea how interested the general public are in the Humberette cycle car, which seems to be getting a good hearing in New Zealand.

Wellington, New Zealand. H. W. ABBOTT.

Benzole and Plug Points.

Sir,—I have recently taken to using benzole. I found that after about 600 miles the knife edges of the electrodes of my Bosch plug were quite burnt away. The same plug had previously given long and excellent service on petrol, with no sign of burning, and a previous plug of the same make was only twice out of the cylinder in 2,500 miles, also on petrol. Further, two of my friends, one on a Douglas and the other on a B.S.A., have had exactly the same trouble with the same knife-edged plug, running on the same benzole. Perhaps some of your readers could suggest from their experience whether the fault lies in the plug or the benzole. I ride a Rudge, with 1913 Senspray, and have not been bothered with overheating since trying the benzole.

C.R.J.

Tyres and Tyres.

Sir,—I was much interested in a letter appearing in a recent issue from a correspondent who appears to have been most unfortunate in his tyre luck, the more so as his experience is the exact opposite of mine. With a friend riding pillion I have recently covered about 2,050 miles, mostly in Scotland, and a good bit on the West Coast. Our total weight with luggage (affixed behind the pillion seat) was 604 lbs., which put a pretty good strain on the back tyre (a heavy Dunlop non-skid). We only changed covers from precautionary motives about 150 miles from London on our return, as we were rather pressed for time. The tyre had previous to this ride run about 1,000 miles, nearly all with a pillion passenger. I must say I feel very satisfied, as the condition of the West of Scotland roads has to be seen to be believed, and, moreover, we managed to strike the Pass of Glencoe a few days after a very severe storm.

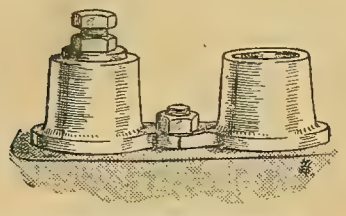
A word in praise of our mount, a 1913 3½ h.p. James, belt drive with Sturmey hub, which never faltered over the whole 2,000 miles, although taken over some pretty stiff hills, including Berriedale (in Caithness), Glen Affaric to Glen Urquhart (on the borders of Ross and Inverness, a most lovely district, that deserves to be better known), and Red Bank between Grasmere and Langdale in the Lake District; this last the worst hill we had.

By-the-by, I used benzole in the Lake District, originating, I believe, from Maryport, and found it delightful to drive on, it being impossible to make the engine knock. The engine would not, however, take as much air as with petrol.

WELL CONTENT.

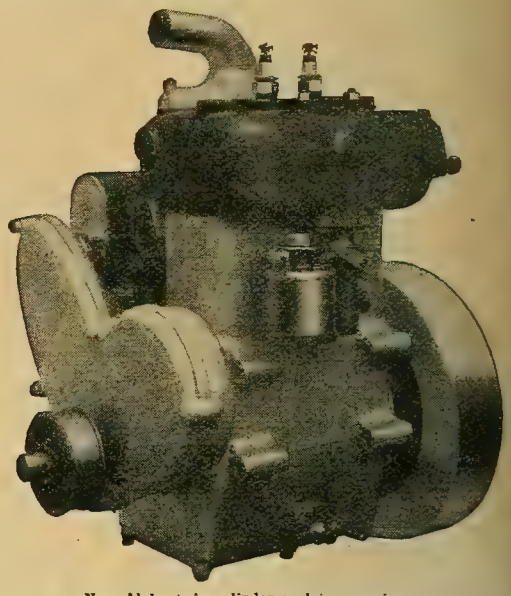
A New Water-cooled Cycle Car Engine.

MESSRS. Johnson, Hurley, and Martin, of Gosford Street, Coventry, whose name is already well-known as engine manufacturers, have recently designed and built a very simple and well-constructed cycle car engine. It has two vertical cylinders cast together having a bore and stroke of just under 86 mm. × 95 mm. respectively, giving a capacity of 1,099. The casting is a very neat one, and comprises, beside the water jacketing, both inlet and exhaust pipes. The valves are disposed all on one side, and are carefully enclosed in an aluminium cover plate, the tappets are adjustable and operated through rollers. On the opposite side to the valves is mounted a Bosch high tension magneto driven by an enclosed silent chain. Lubrication is by splash, the oil being fed in through the timing gear, and inclined baffle plates cast below the cylinders carry away the surplus oil. One of the most noticeable features of the engine is the simple and workmanlike design from a constructional point of view. The two-throw crankshaft is inserted through the rear end of the case and carried in die-cast white metal bearings.



Method of securing valve guides on the Alpha engine.

A flanged fitting is employed for the flywheel, and to enable this feature to be retained with the peculiar crank case design the rear end-plate of the case is made in two parts. A Solex carburetter is supplied, and the unit complete without flywheel weighs 105 lbs., the standard flywheel weighing 41 lbs.



New Alpha twin-cylinder cycle car engine.

Leaders' Times in the Six Days' Trials.

THE times at which the leaders may be expected at various points on the last two days, Thursday and Friday, will doubtless be of interest to our Northern readers who may be on the look-out for the men at the various points of vantage.

To-day the leader leaves the Drill Hall, Carlisle, at 8 a.m., and is due at the lunch stop at Durham at 12.10. The first man should pass Carlatton at 8.30 and be at the top of Hartside between 9 and 9.15, Alston 9.30, St. John's Chapel 10.15, Stanhope 10.40, and Lanchester 11.40, will see the leaders on their way to Durham. After lunch, the first man will leave at 1.40, and after passing Wolsingham at 2.25 should arrive at Stanhope 2.40, where a thirteen mile non-stop section is entered upon, terminating at Middleton-in-Teesdale at 3.19. Alston should be reached at 4.25, and at 5.13 the leaders run into a non-stop section commencing at Hallbank gate and extending to the finish at Carlisle, where the first man should check in at 6 o'clock, followed by the others at half-minute intervals.

To-morrow (Friday) is the last day of actual riding in the Trials, and as it is the longest as regards mileage of the whole week an early start will be made, the first man being sent off at 7 from Carlisle. At 7.50 he should be at Penrith and at 8.20 on Shap, and 9.10 should see the commencement of the run through Kendal. Underley Hall, where the speed trials are to be held, ought to be reached at 10.0, and at 11.10 a non-stop run is begun from Sampool Bridge to the summit of Gummer's How Top, 11.40. The leader is due on Kirkstone Pass just before four o'clock. After climbing Dacre Bank (4.45) Carlisle should be reached at 5.50. It must be remembered that the times given are for the first man, and the whole procession may take nearly an hour and a half to pass any given point.

NON-STOP RELIABILITY TRIAL IN HOLLAND.

The above event, organised by the Dutch A.C. for cycle cars and small cars, started on Tuesday, August 12th from Amsterdam, the first stop being Hertogenbosch for lunch. This part of the journey was over very bumpy and rough roads. Thence the route lay to Maastricht, the riders having to cross canals and rivers in ferry boats. The last twenty miles of the day's run was on a very good and absolutely straight and flat road, making a total distance for the day of 150 miles.

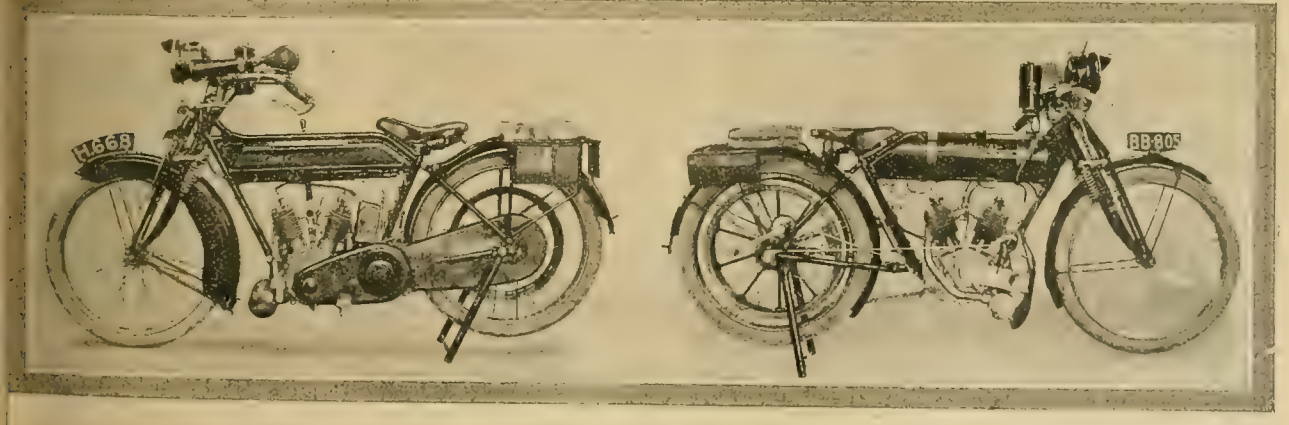
The second day's run consisted of a hill-climbing tour through Limberg and up to the highest point in Holland. The hills were of moderate gradients, but long, and did not cause much trouble. The journey was 100 miles.

The third day's run was from Maastricht to Scheveningen, *via* Venlo, Nizmegen, Arnheim, Apeldoorn, Utrecht, Leiden, and Den Hague. The distance was 208 miles; rather much for one day with roads for about 160 miles all setts and very rough. This was a very severe trial for chassis and springs. The best performances were put up by the following: Humberette, Morris Oxford, Singer, Baby Peugeot, and Eijsink.

THE EXAMINATION AND SEALING AT THE SKATING RINK.

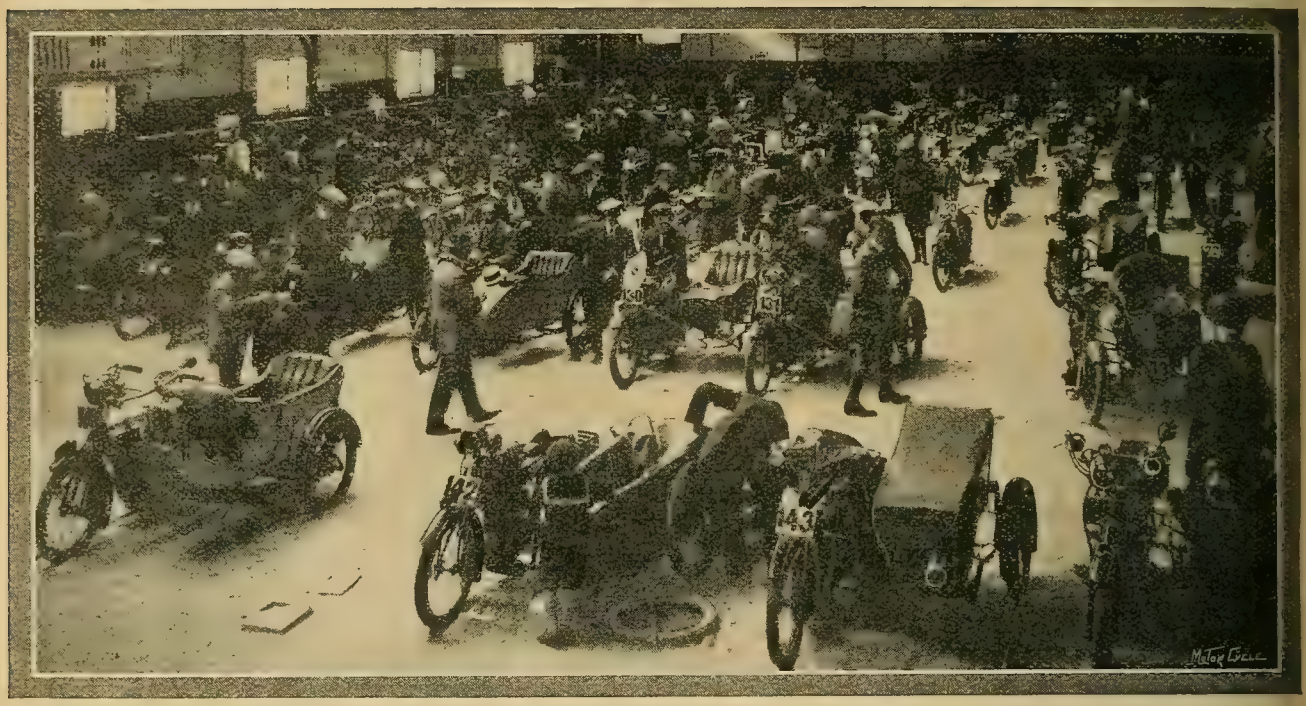
Work began at 9 a.m. on the morning f the 17th inst., when the skating rink as opened. The building makes a apital garage. It is well lighted and ..my, the only drawback being the valuble maplé floor, which is some cause of nxiety to the A.C.U. officials, as they re responsible for any damage which may happen to it. To obviate this heaps of sawdust are placed under each machine together with two trays to catch any drops of oil which may fall. Every machine had its allotted place, so that there was no confusion. Outside there is a large open space, and as the building lies just off the main road the position is altogether ideal. As the machines arrived they were wheeled into a shed open at both ends where petrol was served out to the drivers. The men then proceeded to the weighbridge hard by where they lined up and were weighed one at a time, machine first and driver afterwards. The arduous duties of weighing marshal

(Contd. on page 1095.)



(1) The new twin cylinder James with chain drive and three-speed countershaft gear.

(2) One of the Nut-Japs with side by side valve engine.



The scene in the Skating Rink, Carlisle, on Sunday, during the examination and sealing of machines.

COMPLETE LIST OF STARTERS.

Below we give a complete list of starters. It will be noticed that the numbers do not in all cases run consecutively. This is because some of the competitors have made alterations in the specifications of their mounts or are not riding the machines originally entered, and these changes have put them in a fresh category, whilst retaining their original allotted number. No. 28 did not start.

DIVISION 1.—MOTOR BICYCLES.

Class B.—350 c.c.

1. C. Percival (2¾ Douglas).
2. Jas. B. Sproston (2¾ Sunbeam).
3. A. G. Cocks (2½ Connaught).
4. P. Phillips (2¾ Douglas).
5. F. G. Edmond (2¾ Humber).
6. E. Gutgemann (2¾ Veloce).
7. T. C. de la Hay (2¾ Sunbeam).
8. W. R. Steel (2¾ Sunbeam).
9. F. G. Ball (2¾ Douglas).
10. Tom Knowles (2¾ Humber).
11. F. L. Bassett (2¾ Sun-Villiers).
12. Albert Milner (2¾ Levis).
13. Howard Newey (2¾ Levis).
14. P. W. Moffat (2¾ Douglas).
15. W. B. Gibb (2¾ Douglas).
16. M. Guilloreau (2¾ Clément).
17. A. I. Sproston (2¾ Clément).
79. C. E. Murphy (2¾ Douglas).

Class C.—500 c.c.

18. W. J. M. Sproulle (3½ P. & M.)
19. G. D Hardee (3½ Triumph).
20. T. J. Ross (3½ Triumph).
21. Fred Dover (3½ Premier).
22. J. H. Kerr (3½ N.S.U.)
23. Albert E. Catt (3½ Triumph).
24. S. Sawer (3½ Premier).
25. F. W. Applebee (2½ B.S.A.)
26. W. C. Drake (3½ P. & M.)
27. P. Shaw (3½ P. & M.)
29. Maurice C. Breese (3½ B.S.A.)
30. F.E.G. Bartlett (4-5 Endurance)
31. C. B. Moss-Blundell (3½ Green-Precision).
32. H. V. Colver (3 Enfield).
33. E. Keyte (3 Enfield).
34. H. Graham Dixon (3½ James).
35. J. Ingham (3½ Veloce).
36. S. Tubb (3½ Humber).
37. T. B. G. Vale (3½ Rover).
38. G. E. Cuffe (3½ Premier).
39. W. E. Cooke (3½ A.S.L.)
40. S. Browne (3½ James).
42. F. C. North (3½ Ariel).
43. J. M. Ritchie (3½ Rudge).
44. Herbert Bar (3½ Triumph).
45. J. Oughtred (3½ Premier).
46. I. S. Holroyd (3½ Rosacoche).
47. W. B. Little (3½ Premier).
48. C. O. Roberts (3½ Blackburn).
49. W. H. Longton (3½ Alldays).
50. H. F. Edwards (3½ B.S.A.)
51. L. Newey (3½ Ariel).
52. K. A. Macdonald (3½ Singer).
53. W. Maurice Greenwood (3½ New Imperial).
54. H. Taylor, jun. (3½ B.S.A.)
55. A. C. F. Andrews (3½ Ariel).
56. Vernon Busby (3½ Ariel).
57. R. S. Scoon (3 N.U.T.)
58. G. E. Keel (3 N.U.T.)
59. James Robinson (3 N.U.T.)
60. J. Hoult (3½ Matchless).
61. H. Berwick (3½ Hampton).
62. T. B. Westmorland (3½ Premier).
63. H. C. Mills (3½ Zenith-Green).
64. Sydney J. Hine (3½ Humber).
65. D. M. Brown (3½ Rover).
66. G. J. Francis (3½ Lea-Francis).
67. Norman Lea (3½ Lea-Francis).
68. L. Sealey (3½ B.S.A.)
69. A. G. Fenn (3½ B.S.A.)
70. D. H. Noble (3½ Rover).
71. G. Featherstonhaugh (3½ Rover)
72. C. T. Newsome (3½ Rover).
73. T. Pollock (3½ James).
74. C. Lester (3½ P. & M.)
75. M. Gabriel (3½ Clément).
76. Rex G. Mundy (3½ Triumph).
77. G. J. Shemans (3½ Triumph).
78. W. Westwood (3½ Triumph).
80. A. W. Walden (3½ Premier).

Class D.—750 c.c.

41. Ellison Hawkes (5-6 Rudge).
81. J. A. Neumann (5-6 Rudge).
82. Ian P. Macdonald (4½ Norton).
83. G. T. Gray (5-6 Rudge).
84. H. W. Teeton (3½ James).
85. H. E. Ashley (4 L.M.C.)
86. Dan Bradbury (4 Norton).
87. Ray. Drinkall (4½ Quadrant).
88. J. J. Day (3½ Bradbury).
89. Gordon Castognoli (4 L.M.C.)
90. L. A. Bees (4 L.M.C.)
91. Fred W. Roberts (5-6 Rudge).
92. H. Blamire (5-6 Hazlewood).
93. F. H. May (5 A.J.S.)
94. A. W. Brittain (3½ Bradbury).
95. G. W. Braithwaite (5-6 Rudge).
96. P. Platt (3½ Bradbury).
97. H. E. Haswell (3½ Bradbury).
98. George Hunt (5-6 Campion).
99. H. J. Beal (4 L.M.C.)
100. J. Richard (4½ Sun-Precision).
101. J. D. Drysdale (5-6 Hazlewood).
102. A. T. Stanton (3½ Bradbury).
120. Jesse Baker (3¾ Scott).
124. F. A. Applebee (3¾ Scott).
125. J. Norman Longfield (3¾ Scott)

Class E.—1,000c.c.

103. J. Douglas Morrison (5-6 Bat).
104. H. H. Hutchinson (6 Trump).
105. E. A. Colliver (7 Indian).
106. B. Alan Hill (7 Indian).
107. S. T. Tessier (5-6 Bat).
108. J. R. Alexander, jun. (7 Indian).
109. G. A. Gregson (6 Bat).
110. J. V. Edge (6 Brough).
111. A. Sumner (8 Zenith).
112. J. Haslam (6 Zenith).
113. H. Jepson (8 Zenith).
114. C. W. Smith (5-6 Bat).
115. J. F. Morrison (5-6 Bat).
116. R. E. Townshend (6 Trump).
117. E. H. Lees (8 Zenith).
118. M. Hands (8 Williamson).

DIVISION 2.—SIDECAR COMBINATIONS OR 3-WHEELED CYCLE CARS

Class G.—500 c.c.

119. H. C. Marston (3½ Triumph).

Class H.—750 c.c.

121. Hugh Gibson (3½ Bradbury).
122. A. J. Stevens (6 A.J.S.)
123. D. Bell (6 A.J.S.)
126. R. C. Davis (5-6 Clyno).
127. Philip Grout (6 A.J.S.)
128. Thomas Stevens (3½ James).
129. Cecil Duplock (6 A.J.S.)
130. Rex Pearson (5-6 Clyno).
131. Claude Freeman (5-6 Clyno).
132. J. A. Poxon (3½ Bradbury).
133. George Wray (5-6 Clyno).
134. George Nott (5-6 Clyno).
135. A. D. Arter (4½ James).

Class I.—1,000 c.c.

136. C. H. R. Norrington (6 Enfield).
137. H. Greaves (6 Enfield).
138. W. H. Eggington (6 Enfield).
139. Fred Crosthwaite (8 Matchless).
140. J. Chater-Lea, jun. (8 Chater-Lea).
141. E. B. Glisson (8 Wall trica-).
142. Denis Buckley (8 Matchless-Precision).
143. Fred Turvey, jun. (6 Enfield).
144. Victor Garland (8 Chater-Lea).
145. T. Silver (7 Quadrant).
146. W. Land Dibb (6 Rex).
147. C. R. Collier (7-8 Matchless).
148. R. E. Guest (7-8 Matchless).
149. T. Rutherford (7-8 Matchless).
150. H. F. S. Morgan (8 Morgan).
151. Doug. Alexander (8 Williamson)
152. J. B. Blackbourn (8 Morgan).
153. R. A. Rhodes (6 Wulfruna).

DIVISION 3.—CYCLE CARS.

Class K.—1,100 c.c.

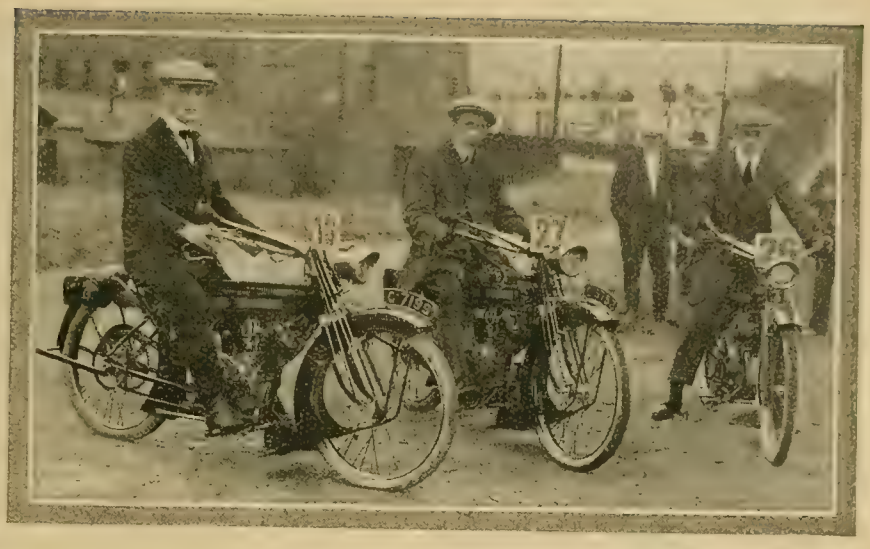
154. F. K. Portway (9 Paragon).
155. P. D. Walker (10 Harding and Summers).
156. C. M. Keiller (8 G.W.K.)
157. W. Chater-Lea (8 Chater-Lea).
158. Alan T. Tamplin (8 G.W.K.)
159. Lionel Martin (10 Singer).
160. E. B. Slater (8 J.B.S.)
161. R. Bourbeau (8 Bedelia).
162. W. Cooper (8 Humberette).

.C.U. Six Days' Reliability Trials.

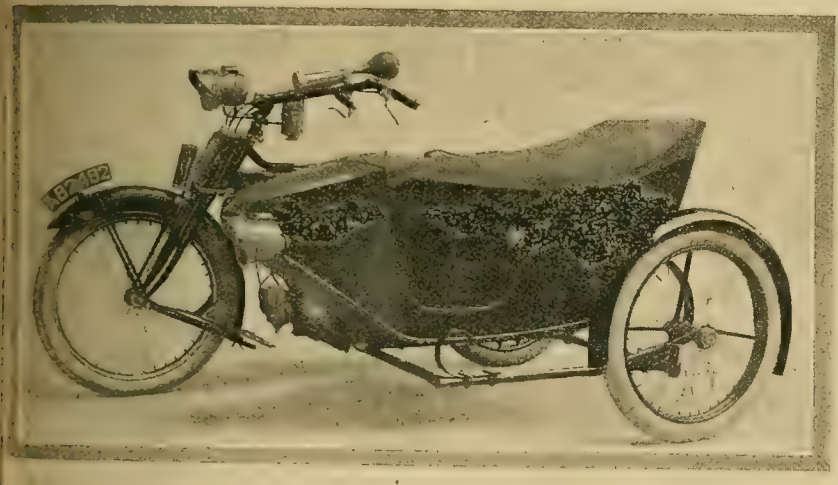
ere undertaken by Mr. S. W. Philpott, ho worked extremely hard. When this eration was over the men went back to e skating rink and there took up their llotted positions, which were indicated them by Mr. Otto Thomas.

The Sealing.

The sealing then took place. Seals ere placed on the frames, gear boxes, d engines. The wires were placed in osition by the competitors and then e seals were affixed by the officials. he only difficulty was the sealing of ch gears as the P. and M., Enfield, and lotosacoche, and where these could not e satisfactorily dealt with some im-ortant integral part, such as a wheel, as sealed. Each man had a card, and each operation was performed it was gned by the official in charge. The ems marked thereon were, sealing, eighing, etc., and when all was complete e whole was signed by Capt. Davidson, e only judge who had turned up at the me of writing. Inside the skating rink ute cards, luncheon ticket coupons for e whole week, celluloid route card pro-



THE P. & M. TEAM.—Left to right, Sproule, Shaw, and Drake.



A new Enfield sidecar combination with underslung sidecar frame and spring handlebars. It is being driven by H. Greaves.

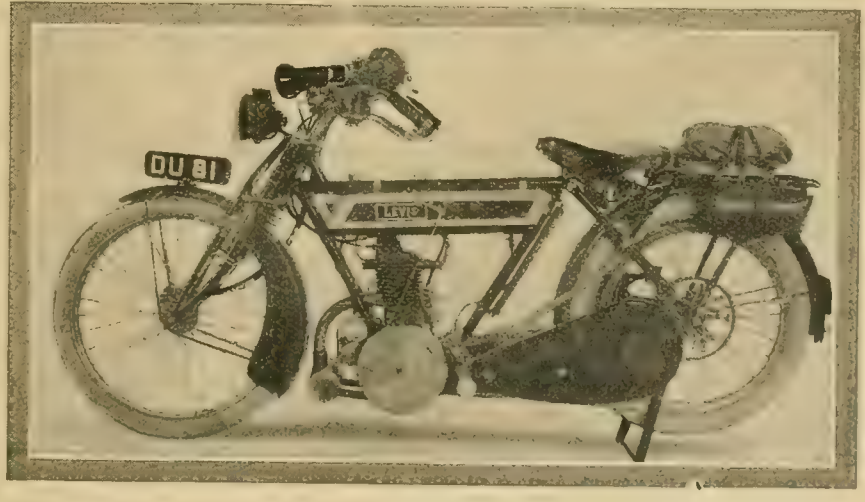
ctors, numbers, and armlets were doled t by Mr. H. P. Beasley, who was ably sisted by Mr. F. Davies.

Spare Parts.

Messrs. Ebblewhite and Glazebrook rformed the duties of customs officials examining tool bags for spare parts. ll genuine spares, such as valves, kets, cams, timing wheels, etc., had be declared, and sealed up in packets, hich will be examined at the conclu-ion of the trial. Spare tubes, plugs, elt fasteners, and such parts as were t actually component parts of the achine, were allowed. Some of the iers had a wonderfully complete assort-ent, and in one case we saw a com-lete spare magneto, and in another we en heard of a spare connecting rod, hile as a contrast others carried no pares at all. It is interesting to note hat this year Mr. Ebblewhite has worked ut the times on the route cards for each ndividual competitor, thereby saving ach man much trouble and anxiety. ven in these early stages the organisa-tion has been excellent, and the only dissatisfaction has been about the weighing, when there were grumbles at the figures given out by the man in charge of the public weigh-bridge, who, certain people considered, had made errors on the heavy side.

A Comparison.

Out of a grand total of 162 entries only one absentee was noted on Sunday afternoon, so that the number of starters is a record. This is nearly forty more than last year at Taunton, and let us hope that the ranks will not be sensibly diminished before the week is out. The route is considerably more severe than last year, and, if a better proportion finish, it will denote real advance in construction and design. Though the skating rink is excellent for the motor bicycles, it is a little awkward for the cycle cars as the exits are narrow, and care has to be exercised by the drivers of the passenger machines in going out and returning.



A two-stroke Levis with two-speed countershaft gear and auxiliary chain gear enclosed in case, giving three speeds in all. It is being ridden by H. Newey.

A.C.U. Six Days' Reliability Trials.—

1. Starting line of the reception passenger machines in the foreground is E. M. Sadler's C.W.A.

2. The new overhead 348 c.c. Rex fitted to the Hon.-Secs.' Car of the Finest Team of the International Touring Club. In addition to the wheel of Mr. Perrin, which has a two-speed countershaft gear as well as expanding pu-ys.

3. [illegible] of Engine & Magneto [illegible]

4. One of the P. & M. [illegible] which have a new pattern fixing and cast aluminium number plates.

5. The A.C.U. passing cattle on the [illegible] Pass. H. C. Mills and J. S. Holroyd registering their machines.

STARTING THE COMPETITORS FROM THE SKATING RINK, CARLISLE.
C. R. Collier (7-8 h.p. Matchless sidecar) and F. C. de la Hay (2¾ h.p. Sunbeam). F. A. Applebee (2¾ h.p. Scott).

RST DAY: 124 miles. Carlisle, Cotehill, Kirkoswald, Penrith, WATERMILLOCK, Ullswater, KIRKSTONE PASS, Ambleside, FOOLSTEP HILL, RED BANK, Grasmere, DUNMAIL RAISE, Keswick (lunch), Braithwaite, WHINLATTER PASS, WHINFELL, Mosser, Buttermere, BUTTERMERE HAUSE, Derwent Water, Keswick, Bassenthwaite, ULDALE, AUGHERTREE FELL, Dalston, and Carlisle.

The weather, and the weather plays important part in these long distance als, was perfectly glorious on the open- ; day, and what is indeed good news that the forecasts are extraordinarily spitious. The A.C.U. officials were ry strict, and no one was allowed inside skating rink except the officials. isson (Wall tricar) arrived too late last ght to be examined, and so he was ghed and sealed before the start. The ler of starting on the first day was cided by ballot, and the numbers of competitors were called out by Mr. ss in order, by batches, to be allowed look after their machines for fifteen nutes, and, as each man started, his mber was crossed off a board, just as s done last year. A very fair crowd sembled towards 8 a.m. to witness the rt, and among those present we ticed Mr. Brooks, a Carlisle resident, o some years ago was a keen competi- in A.C.U. competitions. Messrs. uglas arrived in the new water-cooled uglas cycle car.

The Start.

The times at the start were taken by ssrs. C. P. Glazebrook and A. G. nolds. The first man to be dispatched Townshend (Trump), followed by rr (N.S.U.). The way out of Carlisle s clearly indicated by boy scouts and nemen, and, fortunately, there was le traffic. After following the London d for a short distance, an arrow nted to the left, and we may mention e that the arrowing, which was in the rge of Mr. C. L. Scott, of Messrs. mey Westall, Ltd., was excellently ne. Before the actual turn cards bear- the words "left" or "right" gave competitors due warning that a devia- n would be made.

For the first few miles the road surface was very rough and several steep pitches were encountered. The hill at Armathwaite, which only a few years ago would have been considered exceptionally severe, came quite as a surprise, but the vanguard took it in excellent form. Another surprise came at Kirkoswald, but these were but a foretaste of what was to come. Then came a magnificent descent to Penrith, through glorious country, and after leaving this town the men had to pass through two gates at each end of which, cap in hand, stood two children, but we fear that though the traffic exceeded their wildest hopes the revenue derived therefrom was, to say the least of it, disappointing. We next came upon the foot of Ullswater lake, which looked particularly beautiful, and at this point a notice board was passed which marked the beginning of the first non-stop section. Watermillock, one of the chief tests of the morning, was very long and about 1 in 5 near the top. On the whole the performances on the hill were excellent, but many made the all too common mistake of changing down too late.

The unfortunates who failed were Teeton (James), Guilloreau (Clément), Dibb (Rex sc.), Walker (Harding and Summers cycle car), Sproston (Clément), Brown (Rover), who assisted with his feet, Bassett (Sun-Villiers), who was using too small a jet; Morrison (5-6 Bat), one cylinder firing; Poxon (Bradbury sc.), Garland (Chater-Lea sc.), Edmond (Humber), Lea (Lea-Francis), Rutherford (Matchless sc.), Greenwood (Imperial), Cocks (Connaught), Crossthwaite (8 Matchless sc.), Day (Bradbury) fell, and Slater (J.B.S. cycle car) missed gear. Alexander (Williamson sc.) suffered from water boiling. Andrews (Ariel), Buckley (Matchless-Precision sc.), and Gabriel (Clément) failed near

Lionel Martin (10 h.p. Singer cycle car) on Watermillock Hause. This hill is 1¼ miles in length, with three sharp turns and a steepest gradient of 1 in 4½.

A.C.U. Six Days' Reliability Trials.—

the summit. Mr. A. V. Ebblewhite was taking the time check at the summit. The competitors then proceeded to Kirkstone Pass.

The first competitor we saw in trouble was Dr. Moss Blundell with a puncture; later Ellison Hawkes suffered in the same way. The Paragon cycle car early retired; it was reported that a horse was seen towing it only forty miles from the start.

Kirkstone Pass.

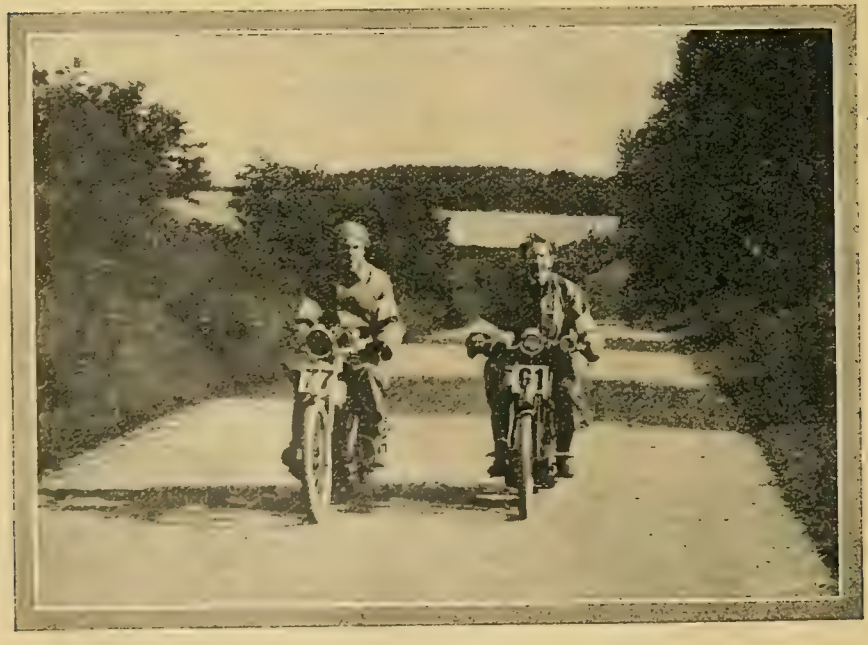
Kirkstone Pass from Patterdale ought not to have troubled the riders in view of what is in store, yet nine found the gradient too much for them. These were Keyte (Enfield), Greenwood (New Imperial), Hoult (Matchless), Norman Lea (Lea-Francis), and the whole French team, Guilloreau and Gabriel on the Clements, and Bourbeau (Bedelia), Pearson (Clyno sidecar), and Buckley (Matchless-Precision). Crossthwaite ran alongside his Matchless, and so succeeded in reaching the top. Through Ambleside the riders were directed to Foolstep Hill, which was the steepest gradient in Monday's route, and to make matters worse the stiff portion is on an S bend.

Observations on Foolstep.

We saw thirty riders come to grief here, including Milner (Levis), Ball (Douglas), Ritchie (Rudge), who were followed by many successful riders of whom we noticed Phillips (Douglas), Cooke (A.S.L.), the Singer cycle car, and Little (Premier), making excellent ascents. Holroyd (Motosacoche) was kept in check by a Williamson sidecar, but got up well nevertheless; Noble (Rover) only just changed down in time. Tamplin's G.W.K. baulked Colliver on the narrow road, but the Indian rider managed to crawl along behind the cycle car in very impressive style. H. C. Marston can claim to have made one of the best performances of the day on his 3½ Triumph sidecar. While many 3½ h.p. solo mounts and even twins failed, Marston showed the spectators how, with careful manipulation, a good machine can accomplish more than it was ever designed to perform. Lester treated the spectators to a fine skidding exhibition on his P. and M. The engine had ample power, but the back wheel first slewed to one side of the loose and stony road then to the other, but he got up under power all the same. The twin Jameses did well, except Dixon, who changed into neutral by mistake. Pearson (Clyno sc.) this time did splendidly.

A group of competitors and their machines at Carlisle.

The driver of the Harding and Summer cycle car knew he would fail and signalled to observers to assist him before actually coming to a standstill. Sproston's low gear, as we imagined, was not low enough for exceptional hills. The Ariel team to a man showed up well, also the Triumphs, though Mundy was baulked the first time by three fallen competitors including the Chater-Lea cycle car. Young (Chater-Lea) got up finely on the sidecar. Dan Bradbury's Norton has any amount of power, for he can switch off at bends when he wishes, and his engine takes up the drive again without protest. Stevens (A.J.S. sc.) actually left changing down until he was half-way up the 1 in 4 stretch. Hutchinson (Trump-Jap) skidded, but made a fine recovery. Garland (Chater-Lea) and Applebee, senr. (B.S.A.), stopped on the very crest of the hill, the latter due to a broken fastener. Gray (Rudge) hit a boulder at the roadside and came down heavily, but on the next try made a perfect climb. Hugh Gibson had got his throttle open too far, for on the bend his sidecar skidded bodily across the road into the bank and burst a front tyre. The Bat riders did very well, Tessier in particular.



On the road near Penrith. H. Berwick (3½ h.p. Hampton) and G. J. Shemans (3½ h.p. Triumph).

Beauties of Thirlmere.

The following made creditable ascents: Silver (Quadrant sc.), Davis (Clyno sc.), Hardee (Triumph), Edmond and Knowles (Humbers), Morgan (Morgan runabout), Hands (Williamson), and lastly, the Bedelia, which Bourbeau drove in excellent fashion.

The route now lay down Red Bank and Grasmere, through Wythburn to Keswick, and the beauties of the ride alongside Thirlmere should long remain in the memories of the competitors, for the atmosphere was clear and the hill tops sharply defined against a blue sky.

At Keswick we learned from Catt (Triumph) that his hub gear had got

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SCOTTISH SIX DAYS' RELIABILITY TRIALS.

G. I. Francis, on Lea-Francis with J.A.P. Engine.
GOLD MEDAL.

GRAND PRIX

W. G. McMinnies (Morgan Cycle Car).
J.A.P. 1ST (also 4th in the Cycle Car Race.)

THE "J.A.P." PLUG.

All J.A.P. Engines should be fitted with a "J.A.P." Sparking Plug.

J. A. PRESTWICH & Co., Northumberland Park, Lower Tottenham, London, N.

Telephone: Tottenham 1612 (3 lines).

J.A.P. Engines can be obtained from stock from Robertson's Motor Agency, 157 Gt. Portland St., W.

Having, in the course of four detailed announcements, told you much about New-Hudson Three-Speed Motor Cycles, we now come to a few points of great importance, that cannot be illustrated. It is essential that their existence be fully appreciated by you. We refer particularly to the system of

Lock-nuts,

Spring washers and split pins fitted to every part of New-Hudson Three-Speed Motor Cycles likely to be affected by vibration.

This practice is unique, although the Motor Cycle Press has frequently urged the necessity of a lavish use of lock-nuts, spring washers, and split pins. We claim that no manufacturers have given more attention to these details than we have.

Finish.

New-Hudson finish is also exceptional. The plating is very thick and retains its lustre through a long life.

The general scheme of finish on all New-Hudsons is as follows: Black frame, forks lined brown and green, brown tank with claret panels, lined in black and green. Gold lettering. Grey finish, with lining in black, is optional.

The Tests.

New-Hudson's receive their road tests under conditions similar to but much more severe than those arising in ordinary use.

The course shewn in the plan below—over thirty miles of difficult roads and steep hills—is traversed by every machine before its final inspection and adjustment. It is only when the machine has completed this course to the satisfaction of our expert testers—men able to detect little faults in running whose existence you would never suspect—and found, on its return to our works, to be perfect in every part, that it is passed as ready for the road. As a consequence of this rigid system of testing, combined with our careful manufacture, New-Hudsons run with the consistent reliability of the Scotch Express.

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Homogeneity.

We could not allow these details to pass without some reference to the direct association of the component parts

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of the New-Hudson Cycle Company, where every process is carried out upon a large, economical scale, and the most rigid tests made to ensure your perfect safety and comfort. Only the direct association of component parts—absolute homogeneity—can assure you absolute reliability. And have we not proved many times that New-Hudson Three-speed Motor Cycles are consistently reliable, even in the hands of unskilled riders?

And now—

we have told you a good deal about New-Hudson Three-Speed Motor Cycles—enough to make you realise how much better they are. We have given details of the New-Hudson engines, magneto, carburetter, Armstrong three-speed hub, front stand, kick-starter, back carrier, adjustable pulley, tank, aluminium footboards, silencer, foot brake, front brake, countershaft drive, wheels, mud-guards, tool set, pannier bags, and front forks.

All these features are made so well as to provide New-Hudson reliability—*the kind any novice can realise.* And then, after receiving a beautiful finish, they are built-in, one with the other, and, after the final tests are successfully passed, are known as New-Hudson Three-speed Motor Cycles—the "World's Best Value."

The whole story, under one cover, made far easier to refer to than is possible within these announcements, and illustrated with topical photographs of real interest, is contained in the New-Hudson Motor Cycle Catalogue. Before doing anything else, you should write for your copy. Send a postcard now and make sure of it. A book of instruction for the novice, and of reference for the expert.

Invitation.

Come for a pleasant ride with us—in a comfortable sidecar—and with a New-Hudson by your side, see for yourself how sweetly it runs, how easy it is to drive. Write us about this now.

New-Hudson Cycle Co., Ltd.
Works—Parade Mills, Birmingham.
LONDON—43 & 45, Gray's Inn Road, Holborn, W.C.

MANCHESTER.—245 and 205, Deansgate.
HULL.—58, Anlaby Road.
LEEDS.—16, Briggate.
PARIS.—5, Rue de Sablonville, Neuilly.
GLASGOW.—250, Buchanan Street.
BRIGHTON.—6, Western Road, Hove.
MILAN.—Via Vincenzo Monti 16.
BELFAST.—103, Ann Street.
DUBLIN.—29, Bachelor's Walk.

Agents or branches everywhere.

ON KIRKSTONE PASS.

Victor Garland (8 h.p. Chater-Lea sidecar). H. Blamire (5-6 h.p. Hazlewood) and Norman Lea (3½ h.p. Lea-Francis).

deranged, the middle gear only being workable, Hawks (Rudge) had had three punctures, Browne (James) was troubled with tank sediment collecting in the jet, Cuffe (Premier) arrived very late for lunch, having had to remove his back wheel twice, owing to tyre troubles. He elected to continue without stopping for lunch.

A Rough Mountain Track.

After an excellent lunch at Keswick, where we heard that Sawer (Premier) had suffered a puncture, we pushed on up Whinlatter Pass, which, though rather better engineered than many of the Lakeland roads, possesses a couple of fairly steep pitches, and is on the main route from Keswick to Cockermouth. Some miles down the Pass the main road was left, and the route winds to the bottom of the valley through Low Lorton village. Fortunately, the long descent cooled the competitors' engines. The hill is approached by a fairly steep ascent and a very sharp corner, followed by more steep pitches and a very rough surface interspersed with water courses and ending in a grass track, which caused some grumbling, the performances up this hill were excellent, and we only noted two failures, those of Guilloreau and Sproston, among about eighty we observed.

On Buttermere Hause.

The performances on Buttermere Hause were much better than anticipated, a splendid percentage successfully reaching the top of this long tiring climb which peters out into a grass-grown track. There were six failures, comprising those who found Foolstep too much for them. F. W. Roberts (5-6 Rudge) was credited with the fastest ascent, though speed on such a road abounding in water courses was risky, and most preferred to peg away slowly on their low gears.

Hairpin Bends.

After Newlands Hause there was a magnificent run round Derwent Water, commencing with a climb known as Cat Bells, which is not excessively steep, but includes two bad hairpin bends. The cornering in some cases was not to be admired, several riders being obviously nervous and shaky. Others went round as coolly as it was possible. Incidentally, there are a lot of novices in the event, and we vow they will return home with a profound respect for Lakeland acclivities, for Mr. Loughborough assures us that Monday's run is the easiest of the five. It is difficult to avoid bunching with so many competitors, but many owe their failures to being hampered.

Passing through Keswick a second time, the route home was *via* Chapel Beck and Aughertree Fell. At the former place we encountered L. Martin inspecting the cause of a noise in his cycle car engine, and subsequently traced it to a burnt out big end bearing.

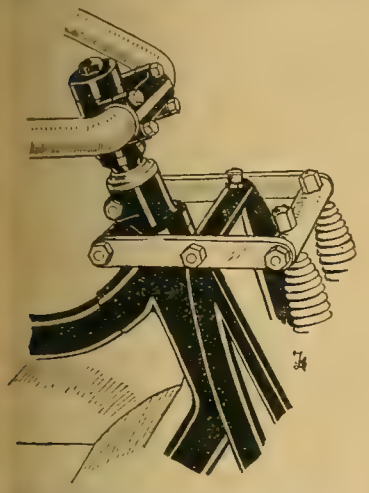
Many Failures at the Rake.

The Rake was the next test hill, and there were over two dozen failures. It was not so much due to the gradient as the loose stony surface, which cut up badly on the right angle bend of 1 in 5 or so. Steel (Sunbeam) charged up a bank and squandered the spectators. Ingham (Veloce) was baulked by Drake (P. and M.), but did well next time. It was the turn for B.S.A. riders to show up well here. S. L. Sealey came along when two riders who had failed occupied nearly all the road, but he neatly rode between them, and received applause. Fenn also made a sure climb. Newey (Ariel) made a good climb, also his brother on a Levis. Mundy almost stopped, but his Triumph kept going. Hands managed his Williamson with great skill, and steered a perfect course.

S. Browne (3½ h.p. twin James) approaching one of the bends on Foolstep.

A.C.U. Six Days' Reliability Trials.—

The G.W.K.'s and the Morgans were again among the successful ones. Greaves (Enfield sc.) has ample power; his only difficulty is to hold his combination on the corners. Rutherford's failure on an 8 h.p. Matchless sc. was simply owing to trying to go fast, and consequently skidding bodily into the ditch. Cocks is suffering from a slipping clutch on his Connaught, and Lea (Lea-



Spring handlebars and double spring forks fitted to the Enfield sidecar ridden by H. Greaves.

Francis) complains of overheating, hough his *confrère*, Francis, had a no-rouble run.

On the run home we overtook Green-vood (Imperial) who had plug trouble, slater (J.B.S. c.c.) who lost a footboard, nd Silver (Quadrant sc.) who ran out f petrol only three miles from the finish. Guest (Matchless) broke a sidecar stay, nd among the absentees may be men-ioned Glisson (Wall tricar), who was ot seen after the start, and Bourbeau Bedelia), who disappeared after lunch. Among the day's incidents may be men-ioned the case of Dover, who ran over dog and fell in the second non-stop ection.

It was the general opinion at the end f the day's run that a 20 m.p.h. average ver such twisty and narrow roads is xcessive, especially in view of the radients, which naturally mean increas-ng the pace afterwards to make up time. On Monday evening Hugh Gibson handed n a protest to the officials signed by the idecar drivers protesting against such a igh average speed in view of the state nd nature of the roads.

C. B. Moss-Blundell went over a wall escending Kirkstone and damaged the ater connections, but continued. The ollowing were the ten retirements in Monday's run: W. Cooper (Humberette) ngine trouble, W. Land Dibb (6 Rex c.) burnt out low gear brake band, F. . Portway (9 Paragon c.c.) seized ngine, T. Rutherford (8 Matchless sc.) eared magneto sprocket, H. Berwick ½ Hampton) gear trouble, E. B. Glis-on (8 Wall tricar) big end bearing, W. hater-Lea (8 Chater-Lea c.c.), R. Bour-eau (8 Bedelia c.c.), and C. Duplock (6 .J.S. sc.) It will be seen that there ave been five retirements of the twelve ycle cars entered.

SECOND DAY: 164 miles. Carlisle, Wreay, Penrith, Orton, Grayrigg, Kendal, Sedbergh, WHITE SHAW MOSS, Ingleton (lunch), NEWBY HEAD, Hawes, BUTTER TUBS PASS, STONESDALE HILL, TAN HILL INN, Brough, Appleby, Skirwith, Glassonby, Kirkoswald, Gumwhitton, Warwick, Carlisle.

Tuesday morning proved another glorious day, though dull at the commencement. The first section was rough, but improved later, and there were no difficulties in the route till some miles after Penrith. The main road was then left and a terribly rough surface encountered followed by a watersplash six or eight inches deep, causing several riders to stop. Mills, whom we had passed previously repairing his belt, dropped his route card in the middle of the stream and had to wade in to recover it.

A Hill which Caused a Protest.

Next followed a grass-grown surface with deep ruts, which served no other useful purpose than to test the three track cycle cars. After Kendal Greyhound Hil' had to be climbed, and though there were many spectators to see the long line of riders, there were very few failures to interest them. The real test of the morning was Gastack Beck, seventy miles from the start, and beyond Dent; it was approached by an awkward hairpin, followed shortly after by another, after which came a stiff ascent with rough surface, with about a 1 in 4 gradient, which was really difficult and accounted for many failures. Excellent climbs were made by D. M. Brown (3½ Rover), P. Grout (6 A.J.S. sc.), F. C. North (3½ Ariel), H. C. Mills (3½ Zenith-Green), S. Tubb (3½ Humber). J. Hoult (3½ Matchless), R. Pearson (6 Clyno sc.), C. M. Keiller and A. T. Tamplin on G.W.K.'s, while H. Newry (2¾ Levis) made a most creditable performance. J. Oliphant (3½ Premier), though impeded by a fallen competitor, made a fine climb, and R. E. Guest (8 Matchless sc.) went up excellently, and so did A. J. Stevens (6 A.J.S. sc.), and G. A. Gregson (6 Bat) also climbed well.

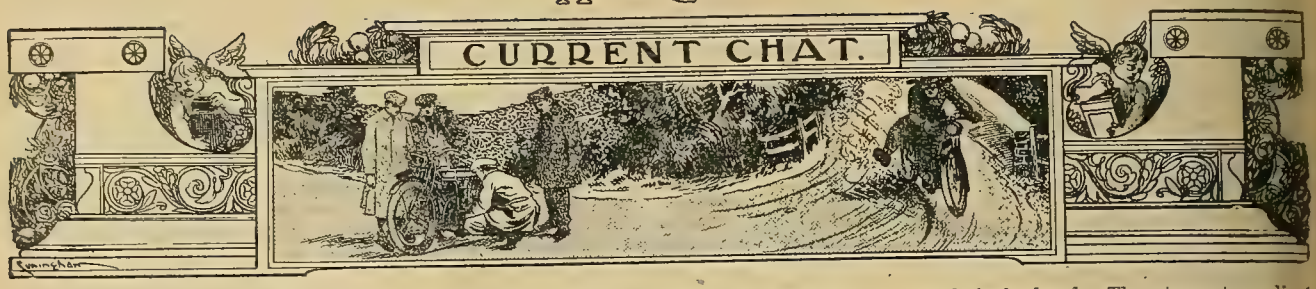
G. J. Francis (3½ L.F.) came up silently, but he had just to give one dig with his foot, and Norman Lea (3½ L.F.) did even better. T. Silver (7 Quadrant sc.), the veteran, was among the best. A competitor passed H. Blamire (5 6 Hazlewood) on the gradient, and they hampered one another, while Richard (4¼ Sun-Precision), G. Hunt (6 Campion), and F. E. J. Bartlett (4 Endurance) came up well, but the last named had to avoid the Harding and Summers cycle car. F. Dover (3½ Premier) and F. W. Applebee, senr. (3½ B.S.A.), both of them veterans, made splendid ascents, the latter being very fast. A. E. Catt (3½ Triumph) went up shouting with joy, and J. Chater-Lea, junr. (8 Chater-Lea sc.) came up in good form. G. T. Gray (5-6 Rudge) skidded all over the road and had to assist with his feet, and A. C. Andrews (3½ Ariel) skilfully avoided R. Mundy (3½ Triumph). F. G. Ball (2¾ Douglas) had to crawl behind the J.B.S. cycle car. W. Westwood (3½ Triumph), a local rider, was heartily applauded, while W. H. Longton (3½ Alldays) and Morrison (5-6 Bat) made excellent ascents.

The surface of the hill was appallingly bad, and the ascent terminated in a final steep pitch almost as acute as the first piece. Gastack Beck is undoubtedly an abnormal hill with an abnormal surface.

At mid-day to-day, the following are reported to have retired: P. Grout (2¾ Douglas), gear trouble; R. C. Davis (5-6 Clyno), engine trouble; Thos. Stevens (4½ James sc.), chain trouble. A. D. Arter (4½ James sc.), is overdue.

One hundred and twenty of the competitors who took part in to-day's run signed a protest against the hill above Gastack Beck being included in the trials. This hill is the one on which the above observations were made.

H. C. Marston (3½ h.p. Triumph sidecar), the only 500 c.c. sidecar combination in the Trials, and W. Land Dibb (6 h.p. Rex sidecar) on Watermillock Hause. Note the state of the surface.



TIME TO LIGHT LAMPS.

Aug. 21st	... ...	8.10 p.m.
,, 23rd	... ...	8.6 ,,
,, 25th	... ...	8.1 ,,
,, 27th	... ...	7.57 ,,

Methods of Lubrication.

"The lubricant in his silencer was beginning to run low, and he feared that shortly the humming of his machine would betray his presence." From "The Flying Detective." Let us continue! "Therefore he hurriedly dismantled the armature and cleaned it with a piece of Brooks soap, jettisoned his carburetter, and put another handful of the finest sand into his crank case. He then proceeded calmly and silently on his nefarious errand."

Liege-Paris Trial.

The above event was held on the 15th, 16th, and 17th inst., and comprised a journey from Liège to Paris and back at various speeds, according to the horse-power of the machines, a speed trial at Spa, and a hill-climb. Every competitor who did not lose more than a minute at any of the twelve controls receives a gold medal, and a silver cup for the best team performance, and each member of the team a special award. Prizes were also offered for first and second on time and formula in the speed trial and hill-climb.

The following British riders finished: A. J. Dixon (3½ Singer) and S. A. Rowlandson (3½ Rudge), and the following Continental riders completed the journey on British machines: Kummers (3½ Singer), Kutegens (3½ Singer), Pacquay (3½ Singer), Lemont (3½ Rover), Cocriamont (3½ Premier), Taymans (3 Royal Enfield), and Lewis (4 James), while Mengold finished on a 7-9 Indian. The awards will be announced at a later date.

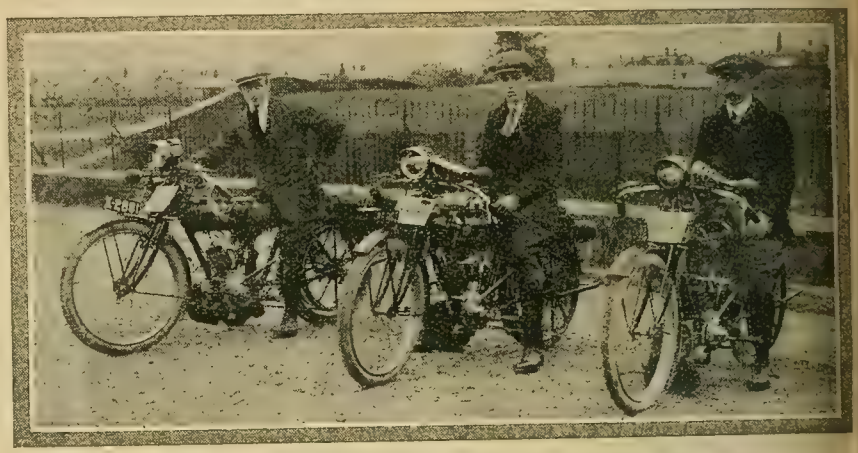
Rosedale Abbey Bank.

We are informed that this hill has been recently ascended by F. E. S. Townsend on a 3½ h.p. Ivy-Precision fitted with Sturmey-Archer three-speed, gear ratios 4.75, 6.96, and 9.78 to 1. He made the climb at the fourth attempt. It is believed that this is the third successful attempt.

This hill is situated between the village of Rosedale Abbey and Kirkby Moorside. There are several gullies and more than one hairpin bend. The steepest gradient is approximately 1 in 3.

Good Ears or a Long Bow.

When a motor cyclist was fined 10s. and costs at Bromyard recently for using a cut-out on a motor cycle, the police constable stated that he could hear the noise of the exhaust for fifteen minutes before the rider reached him. Estimating the speed at 20 m.p.h. the explosions were heard five miles away! After this we need no longer appeal to "Friends, Romans, Countrymen" for a useful loan, it will be more profitable to "Ask a Policeman."



THE NUT-J.A.P. TEAM. All of the machines are fitted with 3 h.p. engines, belt drive, and hub gears. Left to right the riders are R. S. Scoon, G. E. Keel, and J. Robinson.

PASSENGER MACHINES ON FOOLSTEP. THE STEEPEST GRADE IS 1 IN 4½.

(1) H. F. S. Morgan and Mrs. Morgan (8 h.p. Morgan runabout) followed by E. Keyte (3 h.p. Enfield).

(2) The passenger representative of the French team, R. Bourbeau (8 h.p. Bedelia c.c.)

Mont Ventoux Hill-climb.

The first sidecar to be entered for this important French hill-climb is a Clyno, which, of course, will be driven by Frank Smith.

Stolen Machines.

A new Douglas was stolen in Guildford on the 9th inst. The engine number is 10.193, and the owner, Mr. G. Kinneir, is offering £10 reward for its recovery and the conviction of the thief.

A 3½ h.p. Sunbeam.

A larger single-cylinder Sunbeam has just been introduced. Though in outward appearance it exactly resembles the now popular 2¾ h.p. model, the 3½ h.p. engine has a bore and stroke of 85 × 88 mm. and a three-speed countershaft gear exactly similar to the one fitted to the 6 h.p. twin which we dealt with some weeks ago. The gear change is operated through a gate. The engine is noteworthy for its large diameter valves, which measure 1½in. across the head. A slipping clutch of the same design as on the 2¾ h.p. is used, and, of course, oil bath chain cases.

Proposed Speed Limit for Wallsend.

Motorists generally, and especially those residing in the North of England, are asked to note that the Wallsend Borough Council on Tyneside, having made application to the Local Government Board for a reduced speed limit on the main road through Wallsend, have, at the request of the North-eastern Automobile Association also representing the Royal Automobile Club and the Automobile Association, agreed to withdraw their application for twelve months. This withdrawal is conditional upon the North-eastern Automobile Association providing special signs, and the object of this note is to request all motorists using the road, which is part of the main road from Newcastle to Tynemouth, to use special care in driving through Wallsend.

FUTURE EVENTS.

Aug. 30.—Streatham and District M.C.C. Annual Open Hill-climb.
" 30.—Hertfordshire M.C.C. Open Half Day Trial.
Sept. 3.—Bournemouth & District M.C.C. Open Speed Trials.
" 6.—Scottish A.C.U. Speed Championships at St. Andrews.
" 6.—Coventry and Warwickshire M.C. Annual Open Hill-climb.
" 6.—A.C.U. East Midland Centre Speed Trials.
" 13.—B.M.C.R.C. Race Meeting.
" 20.—Streatham M.C.C. Open Speed Trials at Brighton.
" 24.—A.C.U. Open One Day Trial.
" 27.—B.A.R.C. Brooklands Meeting.

Unknown Garages.

We have received a complaint from a reader that, when his machine was left at a garage in Blackpool, it was ridden in his absence and damaged. We hope that such proceedings are uncommon, but still, it is a wise precaution when leaving a valuable machine in the charge of unknown persons to put a suitable padlock on it. The reader in question was unable to obtain any satisfaction from the proprietor.

Hill-climbing in the Alps.

Sixteen competitors took part in a two days' reliability trial and hill-climbing competition from Marseilles to Lyons on the 15th and 16th inst. Altogether five important mountain passes were crossed, the greatest height reached above the sea being 7,800 feet. The only competitor to reach Lyons without loss of marks was the rider of a 7 h.p. Indian, who won the 1,000 c.c. class. Frank Smith, on a Clyno (32 points) won the 750 c.c. sidecar class. The 500 c.c. bicycle class was won on a Clément, as was the 350 c.c., and the 500 c.c. sidecar class on a Motosacoche.

A Forthcoming Open Trial.

Among the prizes in the open reliability trial on October 4th, organised by the Sutton Coldfield A.C., will be the P. J. Evans's cycle car trophy, which will be awarded, with a gold medal, for the best performance in the cycle car class. The trophy must be won three times to be won outright.

B.M.C.R.C. September Meeting.

The next meeting of the B.M.C.R.C. is to be held on Saturday, September 13th. The events in the preliminary announcement are as under:

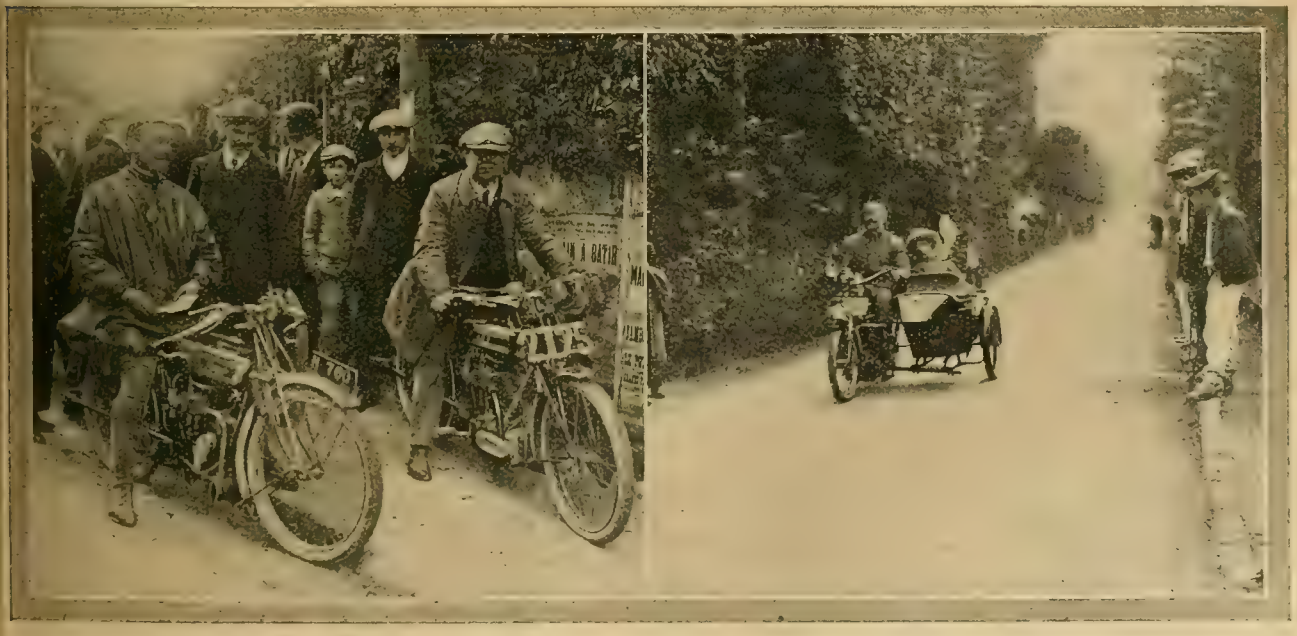
Morning.—Time trials.

Afternoon.—2 p.m.: One Lap Sprint, Classes A and B. 2.10 p.m.: One Hour Team Race, Classes A and B. 3.15 p.m.: One Lap Sprint, Class C. 3.25 p.m.: One Hour Team Race, Class C. 4.30 p.m.: One Lap Sprint Race, Classes D and E. 4.40 p.m.: The Sidecar Relay Race. 5 p.m.: Ten Miles Scratch Race and Sealed Handicap for Cycle Cars and Sidecars.

The team races are open to teams of three of any single make; greatest aggregate distance wins. In the Sidecar Relay Race one of the machines must be of Class C.

A.A. and M.U. Note.

CATTLE ON HIGHWAYS AFTER DARK.—The Executive Committee of the Association has granted a sum towards the costs of contesting an appeal by the owner of three sheep killed by a car. The County Court judge held that the negligence was entirely on the part of the owner of the sheep, one hundred of which were being taken along the road on a pitch dark night without lights or anything to indicate their presence to other road users, and nonsuited him. In view, therefore, of the importance of this case to motorists, the Association decided financially to assist the motorist involved in contesting the appeal.



BRITISH MACHINES IN THE PARIS-LIEGE TRIAL. Left—Riders of a Singer and Triumph waiting to enter a control. Right—A Canoolet sidecar.

An Afternoon's Run in Picturesque Airedale.

IF you do not already know the capital of Craven, namely, Skipton, the oldest chartered market town in Airedale, and probably the oldest in Yorkshire, it is high time you did, for, apart from being a splendid centre for a number of trips, it is full of interest itself, possessing a famous castle, believed to date back to the reign of William I., and an ancient parish church. However, it is not the writer's intention to probe very deeply into history, but rather to have a pleasant jaunt, and therefore we will leave the castle and run down to the bottom of the market place, where a signpost points to Clitheroe, and this is the road we will follow for about three and a half miles to Broughton, having a good view of the hall grounds on our left as we approach the village. We leave the main road at this place by turning to the right and passing through the village proper by somewhat narrow but very pretty roads, run on to Gargrave, a nice little place which, tradition says, originally had seven churches, six of which were destroyed in some Scottish raid, the remaining one being spared because it was dedicated to the Scottish patron saint.

A TRIP IN AIREDALE: PICTURESQUE "MALHAM."

(1) Showing the entrance to Gordale Scar. (2) A pretty scene near the village of Malham. (3) View of the falls in Gordale Scar.

On entering Gargrave, we proceed over the river bridge and then immediately turn left as if for Settle; about two miles on at the village of Coniston Cold we turn right and proceed through lovely lanes to Bell Busk, but, instead of running down to the station, take the turn to the right over the river bridge and continue straight on to Airton, where close by is Calton Hall, the birthplace and one time residence of General Lambert, well known in connection with Cromwell during the Civil Wars. Continuing straight through Airton, we soon drop down into Kirkby Malham, where the old church contains references to the aforementioned general; but the next village, Malham, being the chief object of our trip, we go straight on and soon arrive there.

Fine Views and Steep Hills.

Now Malham itself is only a tiny little place, but for all that it seems an easy matter to obtain sufficient fuel, and of excellent quality, for the inner man, but on no account is it advisable to run short of petrol. No one in this vicinity seems to keep this necessary commodity.

After refreshments, we go over the little bridge, and by proceeding straight on over very bumpy and narrow roads and down a stiff hill, we obtain a grand view of the famous Gordale Scar in the distance. We make for this by dismounting and wandering through a few fields.

The Scar is probably the finest view of its kind obtainable in Great Britain, it takes the form of two giant limestone cliffs gradually closing in on each other, at the end of which, from a considerable height, flows a stream. Although I call the waterfall the "end" it is not really so, for by tricky driving we can surmount the first obstacle and so climb to the top of the cliffs, but if one is not careful overheating may intervene. From the top it is possible to walk a mile or so to Malham Cove, but remembering that the machines are still within a respectable distance, it is better for us to return and ride back to the village, and, on entering, take the road to the right and by means of a very stiff hill with numerous water cuts

An Afternoon's Run in Picturesque Airedale.—

running across proceed a mile or so to the Tarn. This road gradually gets worse and worse, and unfortunately for us the Tarn is private property. This Tarn is the largest natural lake in Yorkshire, the water goes to ground at the Water Sinks, and eventually reappears at the Cove, which we reach by returning to the village and taking a short walk up the road to the left and through a few fields.

The Cove is a grand and peculiarly formed limestone cliff of crescent formation nearly 300 feet in height. Here the river Aire commences its life, being a bright and cheerful stream, and no one who has seen this river passing through the City of Leeds would ever for one moment associate it with such a glorious birthplace as the one under review.

A Delightful Round.

Geologists, botanists, hill-climbers, and rough-riders will find plenty to interest them round this district, but seeing that we are only ordinary tourists we will pack up our traps and away from this paradise, returning by the way we came to a mile the other side of Airton, and here turning left over the bridge make for Eshton, passing on our way through the grounds of Eshton Hall, the home of Sir Matthew Wilson, in whose house, I believe, are a number of very fine paintings.

Running through this pretty spot we notice some fine Alderney cattle gazing at us with limpid eyes, but unfortunately we soon leave this delightful place behind, and half a mile before Gargrave turn left, and another half-mile further on left again, thus joining the Skipton-Settle main road and so run on to Skipton. At the time of penning these notes, the surface of this section is the worst we have struck.

This trip is one of the best I know, the roads on the whole are good, except that in parts they are somewhat narrow, and care should be exercised round the corners. The distance is not great, only about thirty miles, so that anyone not living near Skipton need not fear the jaunt, but they must remember it takes a considerable time to view the beauties of Malham, only the chief of which I have mentioned.

H.W.F.

AUSTRIAN MOUNTAIN CIRCUIT.

INFLUENCE OF RACING UPON DESIGN.

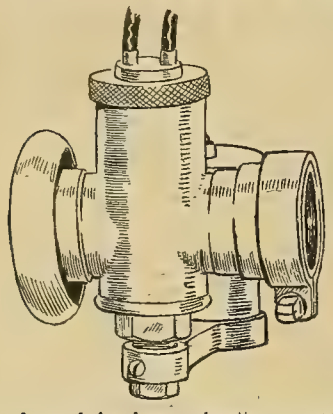
The Mountain Circuit Reliability Trial of the Austrian Allgem. Motorfahrer Verband was held on the 13th inst. and drew over fifty entries of motor cycles, sidecars, and cycle cars. The sport is beginning to have its renaissance in Austria. Recently an enterprising motor cyclist has started an agency for Indian and Douglas machines in Vienna. The trial was a distinct success, only six riders failing to get through within the time limit. Conspicuous among the competitors were the Puch representatives, who had gained much valuable information from their participation in the Tourist Trophy, and had adopted numbers of English "notions" on the Puchs, such as three lever Bowden control, Armstrong three-speed gears, XL'All saddles, B. and B. carburetters. The gears excited great interest and no little comment among the Austrian motor cyclists, who, to a great extent, still know the use of a clutch only from hearsay.

OWLER BAR, a favourite meeting point for Sheffield motor cyclists.

A.C.U. SIX DAYS' TRIALS.

A Look Round the Competing Machines.

AN examination of the machines in this week's trial, which were grouped in rows in the Skating Rink, Carlisle, on Sunday, revealed nothing startling in the way of design.



A new design Amac carburetter on several competing machines. The shield at the back is to collect blown back petrol so that it may be drawn into the engine again.

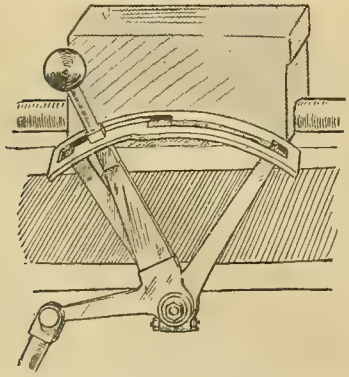
The Six Days' Trial is usually the test selected by manufacturers, in which to put their new models, or, at any rate, new features of design to their final test.

Of innovations there are plenty, but in the main the machines are of a thoroughly workmanlike character with nothing experimental about them. Indeed, many of the machines are absolutely standard throughout, notably the Triumphs, Premiers, Rovers, Scotts, Douglases, Enfields, Bradburys, A.J.S., Humbers, and B.S.A.s.

As might be expected, there is not a single-geared machine among the 150 odd in the trial, and most have gears with low ratios in the region of 12 to 1, whilst some go as low as 18 to 1.

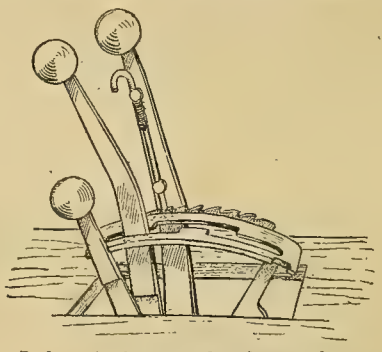
One of the highest geared machines is E. H. Lees's 8 h.p. Zenith, with ratios of 3½ to 5½ to 1. Lees is an amateur, and is carrying no spares though his machine has run 4,000 miles. It will be interesting to see how his 99 × 77½ J.A.P. twin fares on the hairpin bends with which the course abounds.

Among the new mounts making their *début* are three James twins, such as we described a fortnight ago. They have 3½ h.p. J.A.P. engines, three-speed countershaft gears on the same lines as the well-tried gear on the larger mount, but smaller and lighter, and chain drive throughout. Their weight (exceeding 220 lbs.) caused some astonishment, but several 3½ h.p. machines scaled 270 lbs., and doubt is being cast on the accuracy of the weighbridge used. Three Nuts with J.A.P. engines similar to the James and Lea-Francis are also out in competition for the first time. These machines have belt drive and Armstrong gears, with kick starters. Berwick is riding a Hampton with T.D.C. engine and Armstrong mark VII. hub gear. He is not overconfident, seeing that his machine was only assembled last week, and is practically untested. The gear is the latest Armstrong, the only one in the trial, and has a large and improved change-speed lever.



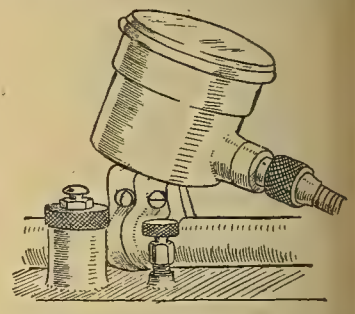
A neat gate change speed lever on C. R. Collier's Matchless sidecar combination.

Among the passenger machines, the Bedelia is a newcomer to six day events, and there is a great deal of speculation as to what it will do. It was seen hung up on Kirkstone Pass on the way to Carlisle on Saturday, but the driver told us that his baggage accounted for this, and with luck he hoped to get round. The 82 × 100 mm. twin engine, with cylinders at 90 degrees, is geared 4 to 1 on top, and by means of a double counter-shaft and chains a low gear of 12 to 1 is obtained, which should see it up the steepest hills with such a hefty engine and a light vehicle. The expanding pulleys work on the automatic governor principle. The 6 h.p. Enfield sidecar machine, handled by Greaves, is a forerunner of the 1914 model, having an underslung frame sidecar, spring handlebars, giving a four-inch movement by means of three enclosed spiral springs, double springs to the front forks, and spring footboards. These devices should go to make the Enfield sidecar much more comfortable, there never was any doubt about its reliability; as instance of this, there are four in the trial. Incidentally, Greaves's machines has a new Amac carburetter, of which there are four or five in the trial.



Brake, gate change-speed, and reverse levers on the J.B.S. cycle car.

Charlie Collier has still further improved his Matchless sidecar. A neat little gate change on the top tube is used to operate the three-speed gear, and the lubrication is arranged so that oil is first fed to the back of the front cylinder, and another pipe conveys o to the driving chains. The supply in t latter case is governed by a tap. Fitte with a smart coachbuilt sidecar th Matchless is among the prettiest sideca in the trial.



Speedometer attached to the top tube of E. A. Colliver's 7 h.p. Indian. It is a Corbin and Brown, driven from the rear wheel.

A Four-speeded Cycle Car.

The J.B.S. cycle car is a newcom to trials work, and should do well, f it is designed on well-tried principl having an 8-10 h.p. J.A.P. fan-cool engine, tubular frame and shaft drive a particularly strong looking rear ax with strengthening webs cast integr It is chiefly notable for its four-spe and reverse gear box, the top ratio bei 4½ to 1 and the low 14 to 1. T Harding and Summers cycle car is t same that participated in the Scott Trials, likewise the Singer, driven by Martin, which has received much atte tion in drilling to reduce weight to t required limit. The Paragon is air-cool and is notable for its extremely lo belt drive.

In examining the machines we ma a point of enquiring for gear ratios, a it is strange how different the feeli is in respect of gears.

Sproston's Clement has ratios of 7 a 10½ to 1, ratios too low for top and t high for bottom in our judgment, b practically all the lightweights have 6 1 top gears. The Sunbeams and Le Francis are on equal terms with 6 a 12 to 1 ratios. The two latter, by t way, have the Everest automatic ca buretter, which we described recently.

At the last moment the trials we robbed of interest by the non-appearan of the three three-speed Scotts with sid cars. Mr. A. A. Scott told us th owing to an unforeseen occurrence, was found impossible to finish the n

A useful plug cover on a Bat. It is sold by Hunts.

GET NOW A BINKS AUTOMATIC CARBURETTOR.

BE SURE IT IS A BINKS AS I SEE THAT SOME OF MY COMPETITORS ARE NOW COPYING THE PILOT JET OF WHICH I AM THE FIRST INVENTOR.

THESE INSTRUMENTS GIVE A TICK ROUND WHEN IN FREE.

A SLOW PULL IN TRAFFIC.

VIOLENT ACCELERATION.

UTMOST POWER.

GREAT ECONOMY.

USE BENZOL or PARAFFIN.

FIT ANY MACHINE AND GIVE MARVELLOUS RESULTS ON THE BIG TWINS DOUGLAS or SCOTT.

SENT ON APPROVAL & TRIAL.

THOUSANDS OF TESTIMONIALS, SEND FOR BOOK. ALSO MY TREATISE ON CARBURATION.

London,
August 2nd, 1913.

Dear Sir,

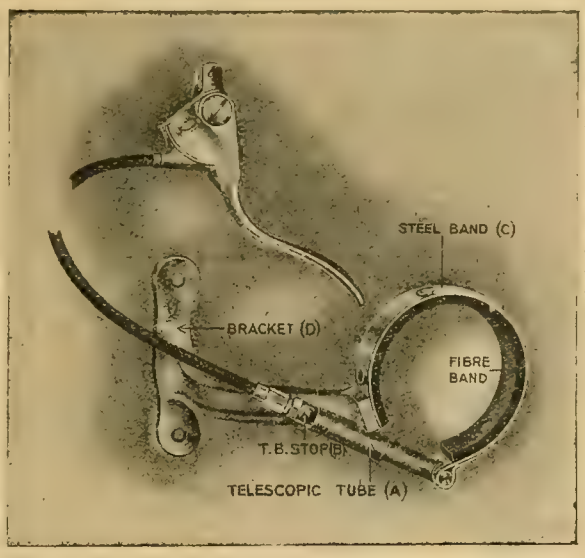
I am simply delighted with the carburettor. It is wonderful the way you can crawl along in traffic, and then slam the lever open, and then simply leap ahead by the movement of one lever. My friends were very sceptical at first. One of them is ordering one to-day.

ORIGINAL CAN BE SHEWN AT WORKS, ALLOWANCE MADE FOR OLD CARBURETTORS.

J. BINKS, Ltd., ECCLES.

EXPERIENCE

BOWDEN
HANDLE-BAR CONTROL
for
PHILIPSON PULLEY.



The only efficient control.

The only efficient control for the Philipson pulley is from the handle-bar. It is obviously impossible to retain accurately any desired gear by means of foot control, for the reason that roads are not billiard tables.

The Bowden Control takes the form of a band brake, which operates on the collar of the pulley.

When ordering, state make and year of machine and diameter of handle-bar.

Prices :

	s.	d.
With bracket complete, ready for fitment	17	6
With short straight plate, ready for fitment	15	0

(Special brackets for Triumph, Rover, and Bradbury only).

BOWDEN WIRE, LTD.,
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LONDON.

SUCCESSES IN THE

DAYS TRIALS

A REVUE!

A.C.U. 6 DAYS' TRIALS.

1909 Kempshalls won the Team Prize and Gold Medals.

1910 Kempshalls won the Team Prize and Gold Medals.

1911 Kempshalls won the Team Prize and Gold Medals.

1912 Kempshalls won the Team Prize and Gold Medals.

N.B.— This year's results are not to hand at the time of going to press with this advertisement.

SCOTTISH 6 DAYS' TRIALS.

1910 Kempshalls gain numerous Gold, Silver and Bronze Medals.

1911 Kempshalls gain numerous Gold, Silver and Bronze Medals.

1912 Kempshalls gain numerous Gold, Silver and Bronze Medals.

1913 Kempshalls gain 16 Gold Medals and Special Prizes for private owner and trade rider.

The remarkable continuity of these successes can only point to one thing, viz.:—The overwhelming superiority of Kempshalls. Have you fitted them yet?

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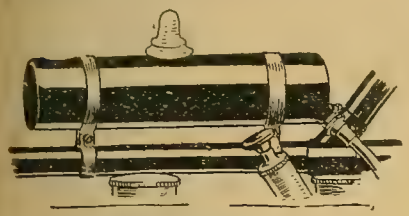
C.D.C.

KEMPSHALL T.Y.R.E.S

A Look Round the Competing Machines.—

gear in time, so the riders held a hurried council of war, and elected to dispense with their sidecars and ride the standard two-speeders as solo mounts. The Douglases have low gears of about 12 to 1, and appear to be standard otherwise in every detail. C. E. Murphy, by the way, is riding a Douglas, and not the machine first named. The 7 h.p. Indians of Colliver and Alan Hill attract attention, not only by their vivid red finish, but by their absolute controllability. On the low gear the riders can crawl along around obstacles in a manner that compels appreciation. The gears are 4 and 7 to 1 with 28in. wheels—

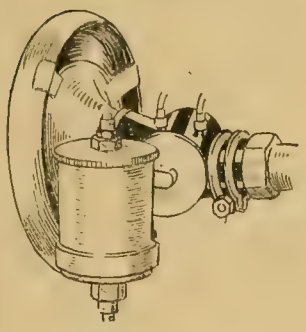


Water tank on the top tube of Dr. Moss Blundell's Green Precision.

not low in view of the prevalency of single-figure gradients and acute bends. Hill's silencer has been named "the Octopus," as it has two pipes at the foremost end, and three others of different diameters extending rearwards.

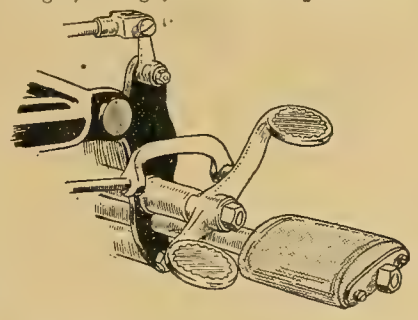
A Tyre Riveted to the Rim.

G. T. Gray is riding a 5-6 h.p. Rudge, and so certain is he of immunity from tyre troubles with his Kempshalls that he has *riveted* the covers to his rims to prevent creeping. We shall see! The P. and M.'s are always attractive competition mounts. Those in the trial are of exquisite finish with black and green tanks and plated carriers. This latter move is sure to be copied, for what tourist has not rendered his black finished carrier unsightly owing to the straps chafing? The P. and M.'s also have aluminium cast number plates and



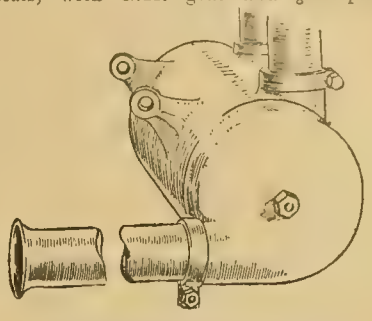
Mud screen and shield over the air inlet of Senspray carburetter on a Connaught.

an acetylene generator fastened by a bracket to the crank case with plated pipe connection for the lamp affixed to the tank tube. C. Q. Roberts's Blackburn and Dr. Moss Blundell's Green respectively have special handlebar controlled clutches to their hub gears. H. W. Hands' Williamson is a water-cooled model, and the rider hopes to do as well as Mundy did in Scotland on an air-cooled mount of the same make. The four L.M.C.'s possess no departure from standard practice. The two-stroke lightweight brigade are represented by the Levis and the Connaught, though, if rumour prove true,



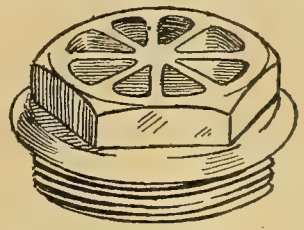
Separate mounting of clutch pedal on F. C. North's Ariel to avoid damage in the event of the footrest being bent.

next year will see many additions to the type. Newey's Levis has a three-speed gear, a two-speed countershaft gear, and the lowest gear is brought into operation when required by simply moving the ordinary gear lever into the "neutral" position. Cock's Connaught is the same he used so successfully in the Scottish trials, with G.H. gear and ⅝in. pitch



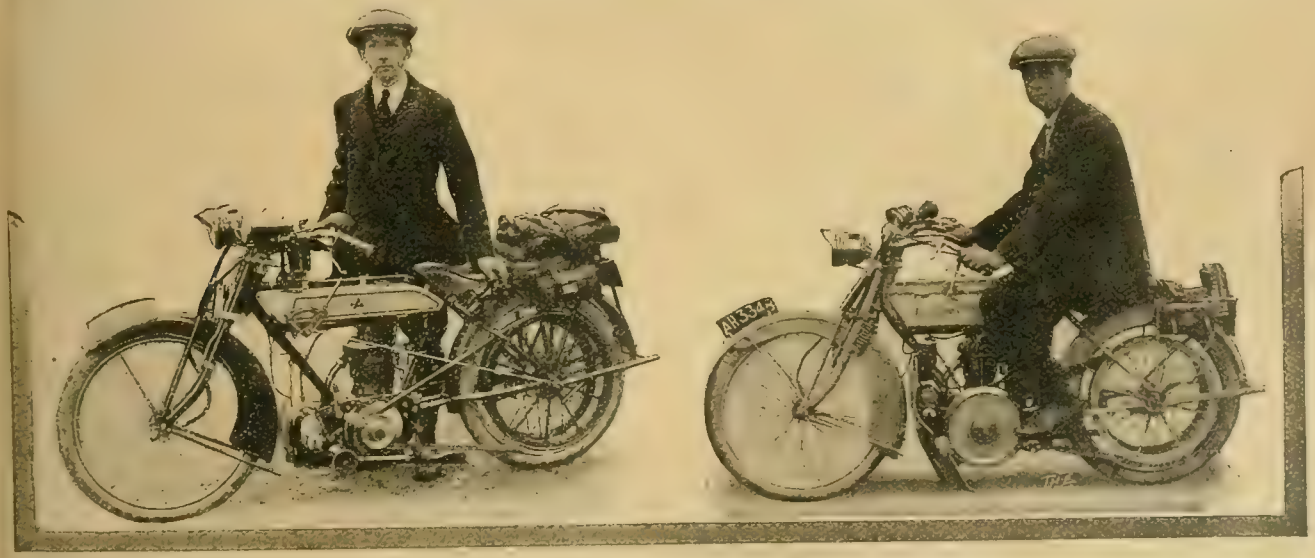
Latest pattern silencer on the Premier single-cylinder machine.

chains throughout. The Bats look very spick and span with their round tanks and all finished in French grey. Mills is still faithful to the Green water-cooled engine on his Zenith. Wide dropped handlebars are fitted to the Motosacoche of J. S. Holroyd, and also to the three Nut-Japs already referred



Exhaust cap on the 3½ h.p. Blackburn.

to. The Clyno sidecar machines are absolutely standard mounts, though Frank Smith is not among the drivers, as he is in France for the Mont Ventoux hill-climb. G.S.



NEW MACHINES IN THE TRIAL. (1) H. Berwick and the 3½ h.p. Hampton, with T.D.C. engine and new Armstrong Mark VII. gear. Observe the change speed lever. (2) C. Q. Roberts on the 3½ h.p. Blackburn, with outside flywheel.

CLUB NEWS.

St. Helens and District M.C.

The first reliability trial of this newly-formed club took place recently over a severe course in North Wales. Result :

		Marks.
1.	J. Middlehurst (6 Zenith)	lost 3
2.	A. M'Tean (3½ Rudge-Multi)	,, 51
3.	T. A. Moulds (3½ Zenith)	,, 54
4.	M. P. Killie (2¾ Douglas)	,, 56
5.	S. E. Bold (2¾ Douglas)	,, 57

Stirling and District M.C.C.

A gymkhana was held at Bridge of Allan on Saturday last. Results :—The cigarette race, A. McNab (3½ Zenith). Glass of water race : R. McAlpine (3½ Humber sc.) Slow race : T. Brown (3½ Triumph). Appearance event for sidecars : R. McAlpine (3½ Humber, Bramble sc.) The suffragette event : The winner, Miss Maitland, should have no difficulty in qualifying for Holloway, as she smashed all the windows provided. See-saw and apple bobbing : H. Brown (2¾ Douglas). Heads and posts : A. McNab (3½ Zenith). Bun tussle : J. Muir (3½ Triumph). Medley : A. McNab (3½ Zenith).

Ayr and District M.C.C.

A long distance reliability trial of 233 miles was run off on Wednesday of last week over roads in the South of Scotland. Of the ten starters seven completed the course, although three of these were late at one of the controls. Route : Dalmellington, Carsphairn, Dumfries, Annan, Longtown, Langholm, Hawick, Selkirk, Peebles, Biggar, Lanark, Muirkirk, Ochiltree, and Ayr. W. Paterson (3½ Rudge multi) had two punctures in the first check, and in consequence was late at Dumfries. T. Hill (2¾ Douglas) also had trouble on this stretch, and did not put in an appearance at the control. J. Gilchrist (3½ Triumph) broke a valve, but managed to arrive to time. Miss May Senior (2¾ Douglas) had plug trouble near Hawick, and afterwards the engine gave trouble. She ultimately finished the route on the back carrier of the 6 h.p. Edmund ridden by A. G. McGibbon. W. Munro (2¾ Douglas) had rather an unfortunate accident, the frame of his machine breaking and throwing him heavily, necessitating his finishing the journey by train. The following lost no marks : H. Clark (3½ Triumph), J. Gilchrist (3½ Triumph), W. Allan (3½ Triumph), J. Meredith (3½ P. and M.), and A. G. McGibbon (6 Edmund-Jap). T. McComb (6 Edmund-Jap) lost no marks until the last check, when a burst tyre caused him to be a few minutes late.

Birmingham M.C.C.

The following are the official results of the Birmingham to Edinburgh run : Winner of P. J. Evans trophy, awarded for best performance by solo rider, S. C. Perryman (3½ Quadrant); winner of Sarsons and Duke trophy for best performance by amateur, H. Ball (3½ Triumph); winner of P. J. Evans rose bowl for best performance by sidecar machine, W. H. Longton (3½ Alldays); team prize for best performance by team of three riders, the Quadrant team (Messrs. S. C. Perryman, T. Silver, and H. Silver). The James team were placed second and Raglan team third.

Gold medals were awarded to the following : T. Silver (3½ Quadrant), H. Silver (3½ Quadrant), H. Ball (3½ Triumph), J. Stevens (3½ James), S. C. Perryman (3½ Quadrant), D. Brown (3½ Rover), A. Young (3½ Abingdon), E. H. Baker (3½ Monarch), R. W. Duke (3½ Rover), T. Pollock (3½ James), C. Wilson (3½ Quadrant), S. A. Rowlandson (3½ Rudge), T. Peck (3½ Ivy), J. Allday (Alldays Midget car), F. C. Sangster (3½ Ariel), A. W. Sarsons (2¾ Sun-Precision), H. Hopkins (3½ Abingdon), H. G. Dixon (3½ James), and G. N. Norris (3½ Raglan).

Silver medal awarded to R. W. Lovegrove (3½ Raglan).

Bronze medals awarded to J. Gray (3½ Abingdon) and T. F. Blumfield (3½ Abingdon).

"The Motor Cycle" Diary of Week-end Club Events.

Aug. 23rd.—Ipswich and District M.C.C. Inter-club competition, Colchester.
,, 23rd.—Cumberland County M.C.C. Knock-out hill-climb, Cold Fell.
,, 23rd.—North Birmingham A.C. Run to Broadway.
,, 23rd.—Mersey Liverpool M.C. Reliability trial.
,, 23rd.—Mid-Bucks M.C.C. Hill-climb.
,, 23rd.—Walthamstow M.C. Run to Eastbourne.
,, 23rd.—Lincolnshire A.C. Reliability trial.
,, 23rd.—South Birmingham M.C.C. Speed-judging competition.

FORTHCOMING OPEN EVENTS.

Herts County A.C.

The above club will hold an open half-day trial on August 30th.

Aberdare and District M.C.C.

A hill-climb will be held up Graig Mountain on September 4th. This will include two open and three club events.

The Streatham and District M.C.C.

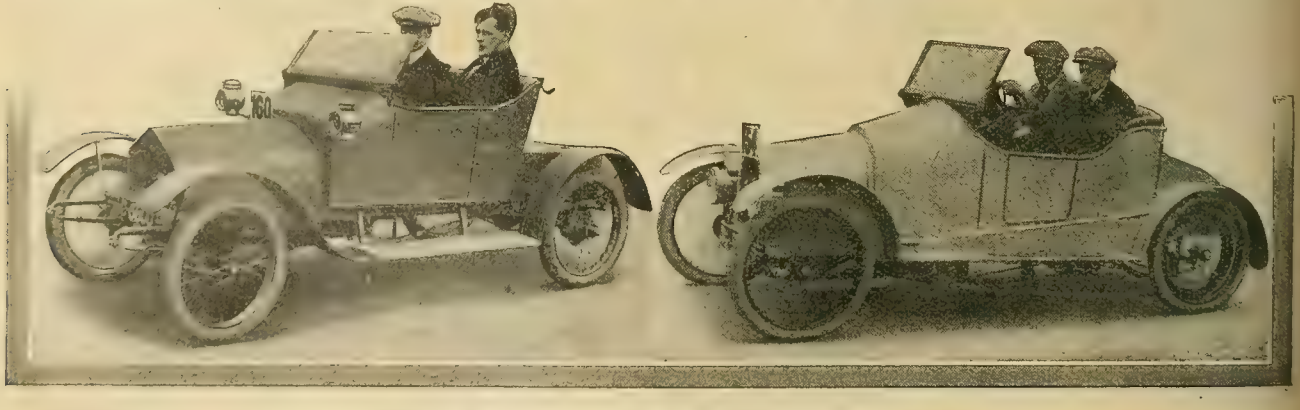
The Streatham Club's open hill-climb is down to be held on August 30th.

Stockport and District M.C.C.

An open hill-climb will take place at Buxton on the 30th inst. There will be classes for standard touring, racing, T.T., and passenger machines. Cycle cars are eligible in the last-mentioned class. Entries close on the 25th inst. to Mr. H. Marsden, The Ash, Florist Street, Stockport.

Bournemouth and District M.C.C.

Open speed trials will be held at Canford Park, Wimborne, on September 3rd. There will be six classes; bicycles to 350 c.c., 350 to 600 c.c., ditto for riders who have never won an award, to 1,000 c.c.; sidecars to 650 c.c., sidecars and three-wheeled cycle cars to 1,000 c.c., and four-wheeled cycle cars to 1,100 c.c. Entries (to Mr. E. L. Herring, 54, Seamoor Road, Bournemouth West), close on the 25th, or at double fees on the 27th.

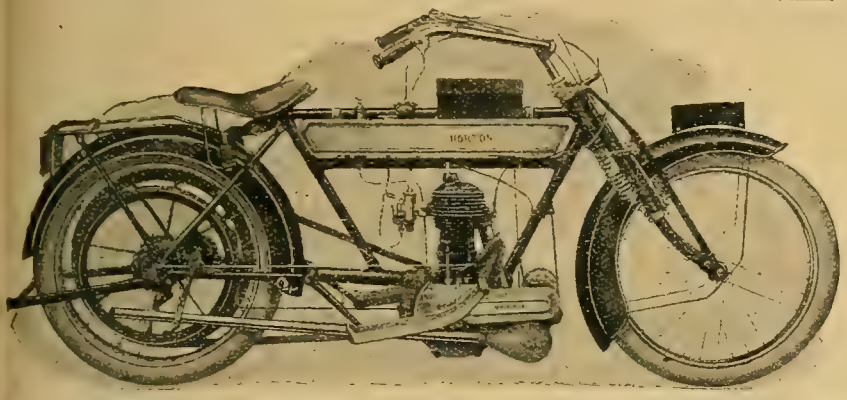


TWO NEW CYCLE CARS IN THE SIX DAYS' TRIALS.

(1) The 8-10 h.p. four-speed shaft-driven J.B.S. cycle car. (2) The Paragon, which has an air-cooled engine and long belt drive.

COMFORT is one of the outstanding features of the unapproachable NORTON

Not only the comfortable riding position afforded by the exceptionally long wheelbase, comfortable footboards, and entire absence of vibration due to perfect balance, but the comfort due to the knowledge that underneath you there is **POWER** and **PLENTY OF IT,** that nothing will go wrong or come adrift, that you are certain of climbing any hill on any road anywhere.



That is what is meant by the combination of the word in **"COMFORT"** with the unapproachable **NORTON.**

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are infinitely more reliable under the strains of motorcycle work than any tyre with a canvas foundation; they wear longer, give regular, satisfactory service, and are practically immune from punctures.

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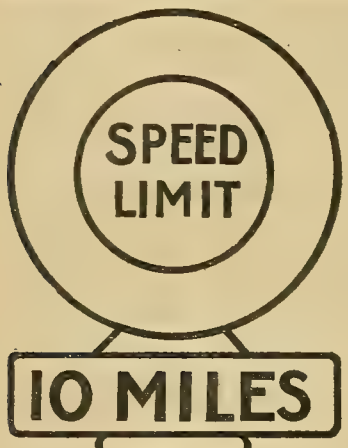
103, St. John Street, Clerkenwell, London, E.C.



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AND TRY YOUR SKILL FOR A 3-SPEED 1913 CLYNO MOTOR CYCLE.

We are giving away 10 of these, and you can laugh at speed limits.

Value £75 each.

Further particulars with **1/6** *Tins of Robbialac from*

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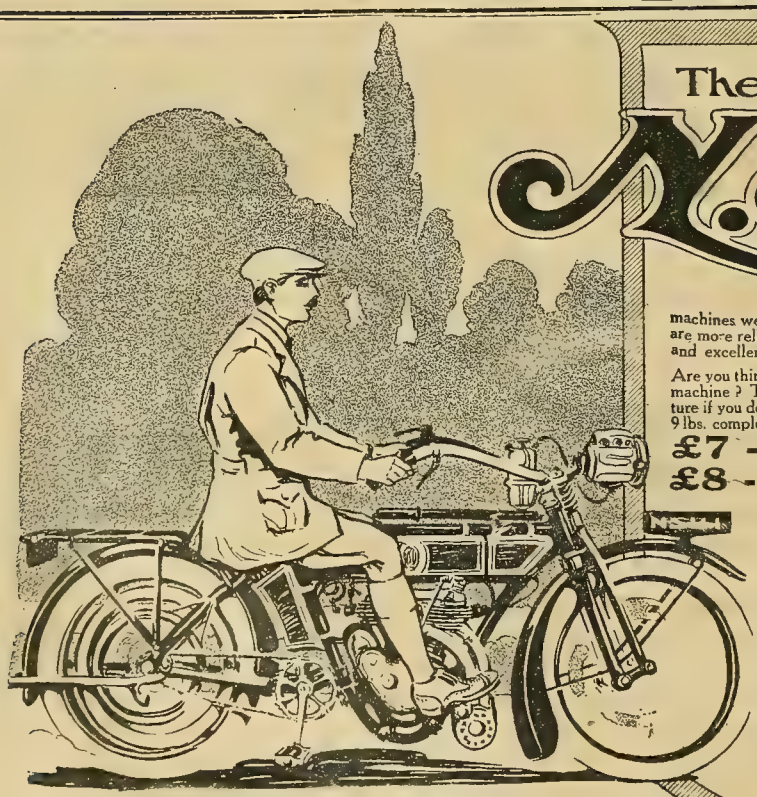

The very earliest N.S.U.

machines were celebrated for their reliability—The latest are more reliable than ever, while the simplicity of design and excellent finish of all working parts, ensure efficiency.

Are you thinking of fitting a sidecar to your single-cylinder machine? The N.S.U. two-speed gear is an essential feature if you do—and is absolutely foolproof. It weighs only 9 lbs. complete—is fitted in 15 minutes—and costs only—

£7 - 0 - 0 (with fixed pulley)
£8 - 0 - 0 (with adjustable pulley).

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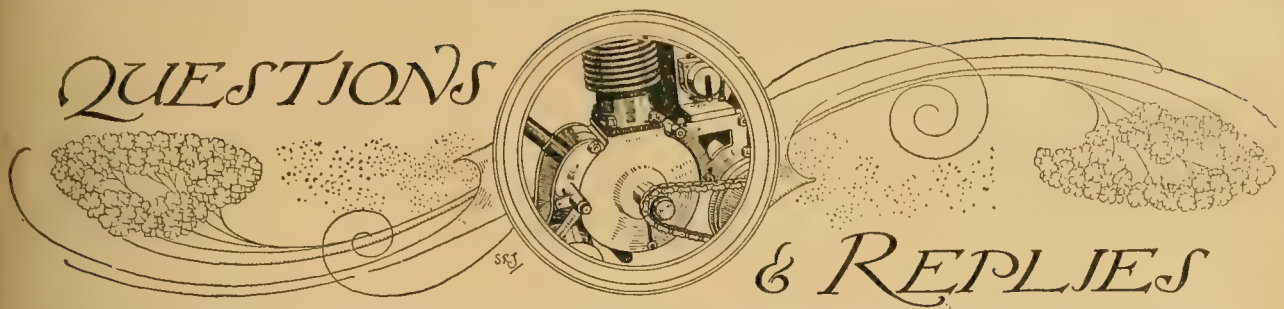
LONDON: Eagles and Co., 275, High Street, Acton, W. WREXHAM: North Wales Motor Exchange, Holt Street. WALES: J. Rould, Ltd., 138, City Rd., Cardiff. IRELAND: H. S. Huet, 5, South Anne Street, Dublin. SCOTLAND: North British Machine Co Ltd., 56, Great Clyde Street, Glasgow.

MODELS (with adjustable pulley):

2 h.p. Single-cylinder, **£34.** 3 h.p Twin-cylinder, **£45.**
3 h.p. ,, **£43.** 6½ h.p. ,, **£58.**



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

London to Edinburgh.

Would you kindly inform me which would be the best route to take to go from London to Edinburgh?—H.B.

The route from London to Edinburgh is absolutely direct along the Great North Road. You leave London *via* Highgate and proceed to Hatfield, Biggleswade, Norman's Cross, Grantham, Doncaster, and so on through Newcastle, Berwick, to Edinburgh. It is quite impossible to miss the way, as it is signposted the whole distance. It is approximately 400 miles.

Sidecar Steering Difficulty.

I have a Vindec motor cycle which is difficult to steer with sidecar attached, the front wheel wobbling badly when I remove one hand from the bar. Turning corners is not difficult, but it is easier to turn to the right. The sidecar (rigid) is properly fitted with wheels in line. My own idea is that the trouble is caused by the spring of the Truffault forks being too weak.—C.W.F.

Your solution as to the trouble experienced in steering your sidecar is probably correct. We advise you to go over all the fittings of the Truffault forks to see whether you can find play, and have the looseness adjusted.

Fitting Nail Catchers.

I should be much obliged if you would tell me what is the best method of catching nails picked up by the tyre. I have tried the ordinary nail catchers, made with a piece of thick wire, but find that stones are picked up and lock the wheel, or tear off the nail catcher. This has happened four times in about ten days, and once the front mudguard was badly damaged, the nail catcher being attached to its stays. On this occasion I tried running without nail catchers and each time punctured within ten miles. I ride a 1913 Scott.—P.T.

A very good form of nail, etc., extractor is called "The Bulldog," and is sold by Gamages. It consists of a small piece of curb chain mesh such as is used for scouring purposes. The method of fitting is to place it over your tyre, fitting the front one towards the front of the mudguard, so that it is trailing lightly on the tyre, and the rear one fairly close to the bottom bracket.

Fast on Level: Slow on Hills.

I have a 1907 3½ Quadrant which goes well on the level and starts first turn of the pedals, but will not climb the least rise. It is fitted with a 1912 B. and B. carburetter and latest pattern Bosch magneto. The compression is excellent. It has automatic inlet valve, and it goes well on the stand and on the level, but on the slightest rise the power dies away entirely.—F.C.

It is very difficult to advise you as to what is the matter with your machine without seeing it, but the indications point to the inlet spring being too strong. A strong spring on an automatic inlet valve is all right for high speeds and running fast, but immediately the motor slows down the suction is not sufficient to open the valve. We advise you to try a slightly weaker spring, and see if you get better results.

An Unsatisfactory Sale.

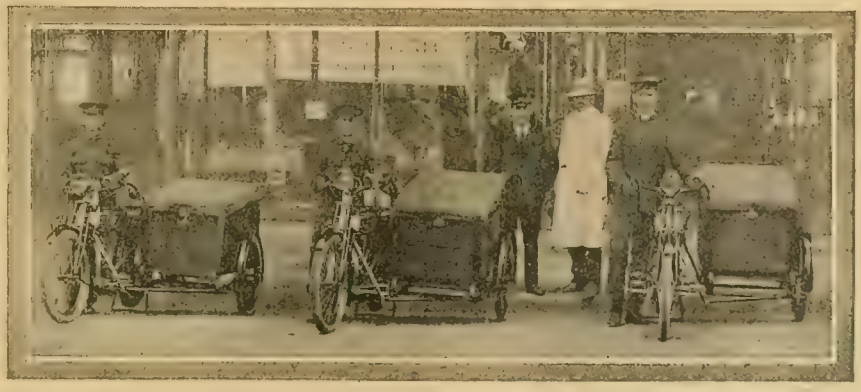
Can you inform me the best way to get the money owing to me from the sale of a motor cycle? I live in Blackpool, and sold it several weeks ago to a London dealer for £24. He gave me £5 down, and promised the balance in a few days. He keeps putting me off with excuses, but does not deny the debt. The only thing is to take legal proceedings. Should I employ a local Blackpool solicitor, or will it be better to have a London one?—J.D.

It depends upon where you effected the deal. If the machine was sold through the post and you were in Blackpool at the time, it is quite sufficient for you to issue a summons from Blackpool, in which case it is not necessary for you to employ a solicitor at all, though, if you take the matter into court, it would be necessary for either yourself, or a solicitor on your behalf, to attend, otherwise the case might go against you by default. If you called at the tradesman's establishment in London, and the deal was done there, it is necessary for the summons to be issued in London.

Repairing Cracked Cylinder.

I have detected a very slight crack across the exhaust valve seating of my 2¾ 1907 Minerva. It runs transversely across and scarcely extends right across the seating. As I am planning a rather long tour, I shall be glad of your opinion as to whether I need apprehend any serious trouble or consequences through this.—W.J.A.

We should not advise you to go out for a long tour with the seating of the exhaust valve cracked. It is quite possible that it may run for a considerable distance without giving trouble, but it will be far better to have this seen to. It can easily be remedied by electrical welding. There are several firms who specialise in this work, whose names and addresses you will find in our miscellaneous advertisement columns. It would be advisable to ask their opinion concerning such a repair before proceeding.



Three 5-8 h.p. Rudge multi G.P.O. combinations supplied to the South African Union Government as parcel carriers for use in Johannesburg.

Combined Roc and Philipson.

I have a 1911 Humber with two-speed Roc gear and sidecar. Could I fit the Philipson pulley to my machine, and use it in conjunction with my two-speed gear? Would my footboards interfere with its control, which I understand is by foot? I am a regular reader of your paper, and notice that several competitors used the pulley in the T.T. —C.J.R.

There is no objection to you fitting a Philipson pulley to your two-speed Humber, if you wish to do so, except that you may have to alter the left-hand footboard, and you would, of course, be able to get a lower gear ratio than you can at present.

Liverpool to Portsmouth.

I should be much obliged if you would advise me of a good route from Liverpool to Portsmouth, avoiding the large towns. I should like to pass through Oxford *en route*.—A.R.H.

Your best route would be as follows: Liverpool, by ferry to Birkenhead, then through Whitchurch, Wellington, Bridgnorth, Kidderminster, Worcester, Cheltenham, Cirencester, Cricklade, Swindon, Pewsey, Upavon, Amesbury, Salisbury, Southampton, Fareham, to Portsmouth. This is the most direct route. If you wish to go through Oxford, you will have to branch off at Kidderminster and go through Alcester, Stratford-on-Avon, Shipston-on-Stour, Enstone, and Woodstock to Oxford, continuing to Portsmouth through Dorchester, Wallingford, Reading, Odiham, Alton, Petersfield, and Cosham.

Correct Way of Descending Hills.

I have a 1912 two-speed B.S.A. motor cycle. I am only a beginner, and so far have had no time to examine much of the interior of the machine. I must explain that I always run "free engine" down any hill of considerable length, to avoid the injury to the exhaust valve which I understand results from frequent lifting. My habit has been on reaching the bottom of the hill to raise the exhaust valve and press the foot control lever into low gear, and then to drop the exhaust. On riding the machine lately I noticed that when I pressed the foot lever after running down a hill there was a grinding sound in the hub, which I had never heard before. Ought I to have started the engine on high gear? And, if so, am I likely to have caused any damage by putting in the low gear when the engine would have started all right in high gear?—M.C.E.

Your method of driving downhill is partly correct. If you run downhill with the engine free and not revolving, you should restart the engine by raising exhaust and gradually engaging the high gear. This should be done before reaching the foot of the hill; in this way you will have the engine revolving and ready to take up the drive when required. Putting in the low gear first might cause damage to the transmission owing to the greater strain imposed, especially if it were done at all suddenly.

Excessive Vibration.

I have a 1911 3½ machine on which the engine vibration seems excessive. On opening throttle on a hill the cylinder rocks backwards and forwards tremendously until I have picked up to a good speed, and then becomes fairly steady as long as the pace is kept. I should be much obliged if you can tell if this can be remedied, as it plays havoc with parts of the machine, especially the petrol pipe union, which I have had soldered three times during last month.—D.C.C.

It is quite impossible for the cylinder to rock about "tremendously" provided the frame does not whip and the holding down bolts are secure. If it is as bad as you say, it sounds a case of having the engine and frame seen to. If you have trouble with the petrol pipe breaking, why not try a flexible petrol pipe, which you could obtain from any large dealer.

Engine Losing Power.

I have a 1910 Douglas motor cycle which has developed the following symptoms. It will take very little air at full throttle and speed has dropped off. It starts all right, but gets hot after three or four miles, slows down, and then develops a knock. The ignition is set right and the jet is clean. Pistons and cylinders also clean, and engine gets plenty of oil. Inlet pipe and fittings all gas tight. If you could give me any advice *re* the above I shall be glad.—W.R.E.

All the symptoms you mention in your engine point to carbonisation of the cylinder, and the valves not being gas-tight, with the further probability that the piston rings have got carbon behind them. Take your engine down, and pay special attention to cleaning the carbon from behind the rings. It is possible that new rings are required. In any case, after three years, there is bound to be an advantage in fitting them. See that the valves are perfectly clean, and closing correctly on the seating.

READERS' REPLIES.

Steering with Sidecar.

Your correspondent, "E.S.," is having the same trouble as I had, and the following are the causes: (1.) The front tube, where sidecar lug is attached, gets pulled over, and will not allow the front wheel to be in centre. (2.) Back wheel gets pulled over by the driving belt, which causes the wheel to be running out of line with the front one; the same applies if the front wheel is not in the centre of the forks.—F. GOFF.

Taking Second-hand Machines to Australia.

I noticed recently in *The Motor Cycle* a query with regard to taking second-hand machines to Australia. I took a second-hand machine to New Zealand a year ago, and was able to pass it into the country without paying duty on assuring the officials that it was for my personal use. They were particular as to its being of British manufacture. The custom laws in Australia are, I believe, the same as in New Zealand.—CHARLES K. WIGRAM.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"B.G." (Folkestone). — Laurin and Klement twin with low-tension magneto.

"R.B." (Barrow).—1913 Scott, solo riding; consumption, reliability, and flexibility. Also 3 h.p. twin Enfield; flexibility and silence.

"R.M.D." (Dundee).—1913 Douglas with carburetter other than standard. Economy, efficiency, and flexibility.

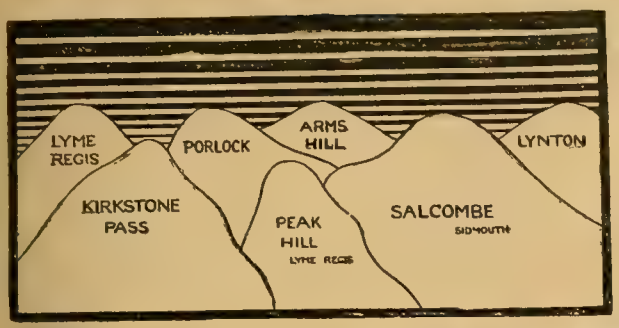
"A.A.G." (India).—Efficiency, reliability, and economy of retreading back covers.

"W.H.B." (Newbury).—Four-cylinder F.N. for sidecar work, compared with 3½ h.p. single-cylinder machines. Reliability, hill-climbing, and consumption.

"W.D.M." (Glasgow).—Henderson and sidecar. Hill-climbing, speed, reliability and consumption.

MOTOR CYCLISTS AT THE FORTH BRIDGE.

A group of Westmorland M.C.C. riders waiting to be ferried across the Firth of Forth at Queensferry, during the reliability trial to Kirkcaldy and back.



THE

EXCELSIOR

BIG SINGLE—

the Single-cylinder which CAN Climb Hills,

—do it continuously—and without freak gears.

Look at these few creditable climbs, and then investigate, for the Excelsior Big Single IS the machine for YOU.

ARMS HILL, Henley-on-Thames.
KIRKSTONE PASS, Ambleside.
BLEATARN PASS, Lakeland.
WYCHE CUTTING OLD ROAD, Gt. Malvern
WORCESTERSHIRE BEACON, Gt. Malvern.
SALCOME HILL, Sidmouth.
BRANSCOMBE HILL, Branscombe.
LYME REGIS.
PEAK HILL, Lyme Regis.
PORLOCK, North Devon.
LYNTON, Lynmouth to Lynton.
STATION HILL, Lynton.
"NAILSWORTH LADDER," Nailsworth.
BUSHCOMBE HILL, near Cheltenham, etc., etc.

BAYLISS THOMAS & CO.,

Excelsior Works - (Founded 1874). - Coventry.

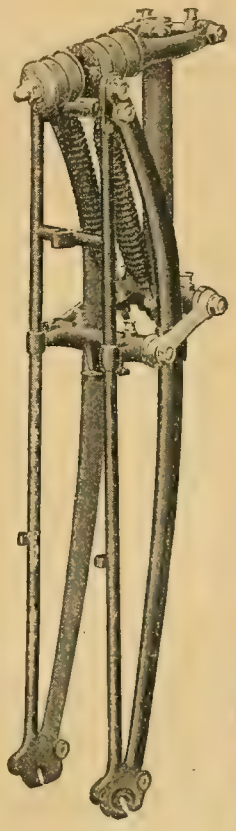
LIVERPOOL—F. C. Jones & Co., 3, Redcross Street. SHEFFIELD—H. Eggington, 23, Commonside. DONCASTER—The Doncaster Autocars & Cycles, Ltd. NORTHAMPTON—G. Loveday & Co., 2, Kingsley Park Terrace. MANCHESTER — Manchester Motor Exchange, 32, Downing Street. Distributing Agents for SOUTH AFRICA—The Raleigh Cycle Agency, Cape Town, P.O. Box 636. Johannesburg, P.O. Box 4912.

THE

"BRAMPTON BI-FLEX" Spring Fork

Absorbs both vertical and horizontal shocks

Other makes absorb shocks in one direction only—generally vertically.



In the Brampton Biflex Fork the girder is attached to the bottom of the steering column by links, and a pair of springs absorb vertical shocks. The top of the girder is not held by links, but cushioned between two sets of rubber buffers, and moves backwards or forwards under horizontal shocks. These two movements taking place simultaneously absorb all shocks, the buffers damping out any tendency to bounce.

The bearing surfaces are large, and adjustment is provided to take up wear in the links.

This fork gives a high degree of comfort unobtainable by any other make, whilst two years of continuous testing have proved its reliability and durability.

Descriptive pamphlet free on request.

BRAMPTON BROS. LTD., Oliver St. Works, Birmingham.

MORE RECORDS

Fall to the users of the famous

STERNOL

Sternol Elite Motor Cycle Oil.

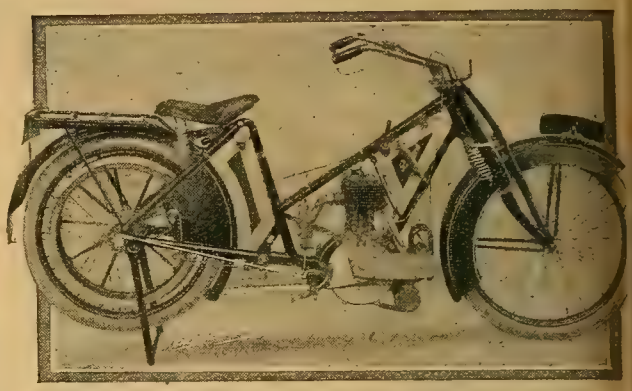
At the Brooklands M.C.R.C. Meeting, August 9th, in the 350 c.c. 10 Miles Race, G. E. Stanley (Singer), who always uses "Sternol Elite," made new record for distance, and was first in scratch race and second in sealed handicap. In the 500 10 Miles Race G. E. Stanley (Singer) beat record, and was first in scratch race and second in sealed handicap. In the latter event another Sternol user, E. H. Victor (Singer), was first in handicap and third in scratch race. G. W. Baker (3½ h.p. Peerless), using Sternol, had previously beaten the 10 Mile record by 34 4/5 secs. Another Sternol user, M. Anderson, scored successes at the Herts County Meeting; and A.T. Dixon (3½ Singer) gained Gold Medal in M.C.C. Trial, N. Devon, besides making fastest time of class up Porlock Hill.

For speed, for hill-climbing, for economy, "Sternol Elite" Oil is IT.

Get some and test it for yourself. All leading dealers stock it. In case of difficulty write to us.

STERNOL
(Stern-Sonneborn Oil Co., Ltd.)

56, Royal London House, Finsbury Sq., London, E.C.



THE **ORIGINAL**

AND STILL BY FAR THE BEST

LADY'S OPEN FRAME MOTOR CYCLE.

The machine with a name for RELIABILITY

"BROUGH."

Write for particulars.

W. E. BROUGH & CO., Nottingham.

RECENT SUCCESSES

achieved on the

'U.H.' MAGNETO

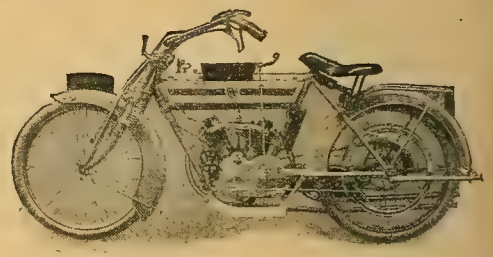
SIX HOURS RACE.
Brooklands, 16th July, 1913.
Class B. Mr. Hugh Mason on a 2¾ h.p. N.U.T. **FIRST**
Setting up new records for 2, 3, 4, 5 and 6 hours, 100, 150, 200, 250 and 300 miles.
Class C (Sidecar). Mr. H. Riddel on a Zenith-Green Precision .. .. **FIRST**
Setting up new records for 5 & 6 hours & 200 miles
12 SIDECAR RECORDS were set up at Brooklands, 23rd June, 1913, by Mr. H. Riddel, on a Zenith-Precision, with Bramble Sidecar and Passenger.

JUNIOR T.T., 1913,
was won by Mr. Hugh Mason on a 2¾ h.p. N.U.T.

MERSEY MOTOR CLUB SPEED TRIALS, Colwyn Bay, 5th July, 1913.
Mr. B. Heywood, driving a 10 h.p. Singer, equals fastest car time of the day (44⅘ secs.) Average speed 50·16 miles per hour.

Full particulars post free on request:
S. Wolf & Co., Ltd., 115, Southwark Street, LONDON, S.E.
Telephones: 5172 Central, 2734 Hop. Telegrams: "Widerstand, London." C.D.C.

MOTO-REVE



4 h.p. Twin, chain drive, two speeds, clutch, 58 guineas.

2½ h.p. single, 3 speeds, clutch, 43 guineas.

2 h.p. single, free engine .. 32 guineas.

GRAND PRIX DE TURIN, 500 c.c. class.

4 h.p. MOTO-REVE 1st,

Average Speed 52.5 m.p.h.

MOTO-REVE CO., Ltd., Alperton, Middlesex.

SELFRIDGE'S

The Ideal Store for Motor Cyclists.

FOR 1/5th of its cost you can have immediate possession of any of the Motor Cycles listed in this announcement.

Payment of the balance can be extended over a year. For this added convenience we charge 2½% on the balance only.

The extra is only 2%, or less, on the entire cost of your machine. The greater your original deposit, the less your machine costs in proportion.

Motor Cycles in Stock.
1913 Models.

A.J.S., 6 h.p., 3-speed	£72 9
DOUGLAS, Model O, 2¾ h.p., 2-speed	£48 0
DOUGLAS, Model R, 2¾ h.p., 2-speed	£52 0
DOUGLAS, Model P, 2¾ h.p., 2-speed	£48 0
TRIUMPH, 3½ h.p., 3-speed	£59 15
REX, 6 h.p., 2-speed	£62 10
ARIEL, 3½ h.p., 3-speed	£59 10
B.S.A., 3½ h.p., 2-speed	£60 0

Certain makes of Motor Cycles supplied on makers' terms.

Double twist Motor Cycle Horn. Powerful deep note. In nickel, with adjustable clip fastening. **9/6**

Spare Belt and Tube Case. In solid leather, 6¾in. diameter, 3¼in. deep **6/9**

All Bristle Combined Spoke and Chain Brush, with polished handle. Length 15in. .. .. each **1/-**

Jack for Sidecar (as sketch), very light in weight and convenient for travelling, taking up little space. **3/6**

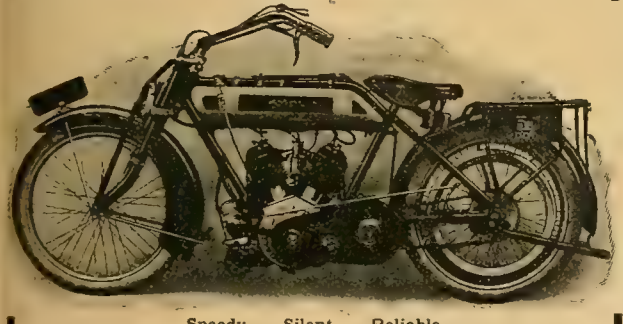
SELFRIDGE & CO., Ltd., OXFORD ST., W.

Slightly Store-Soiled Motor Cycles, all 1913 Models.

	Usual Price.	Reduced to
LEA-FRANCIS, 3½ h.p., twin-cylinder, 2-speed, countershaft gear, chain drive	£68 5	£63 0
NEW HUDSON, 3½ h.p., 3-speed, belt drive	£60 18	£56 5
SUNBEAM, 2¾ h.p., 2-speed countershaft gear	£63 0	£58 5
MARTIN-J.A.P., 8 h.p., fitted with speedometer	£64 6	£59 10
ZENITH, 3½ h.p., Gradua gear, kick starter	£63 0	£58 17
ZENITH, 6 h.p., Gradua gear, kick starter	£78 15	£75 0
ROVER, 3½ h.p., 3-speed	£58 0	£56 0
MATCHLESS, 8 h.p., 2-speed, chain drive	£73 10	£70 0

DOT
AVOID TROUBLE

MOTOR CYCLES.



Speedy. Silent. Reliable.

Notice what our Standard Touring Combinations did at

COLWYN BAY SPEED TRIALS:

CLASS 16—
F. C. Topham - 8 h.p. DOT and Sidecar - FIRST.
E. Longden - 8 h.p. DOT and Sidecar - SECOND.
CLASS 18—
E. Longden - 8 h.p. DOT and Sidecar - SECOND.
Only beaten by 10 h.p. Cycle Car.
CLASS 14—
H. REED - 8 h.p. DOT - - - - SECOND.

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Telephone: 2125 Central.

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THE BEST HOUSE IN LONDON
FOR
Motor Cycle and Sidecar Combinations

ASTOUNDING VALUES.

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Deferred Terms

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Brompton Road, London, S.W.
RICHARD BURBIDGE, Managing Director.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To insure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmorland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

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BARGAINS SATISFY THE MOST EXACTING CRITICS.

Study our offers below. Bring an expert Motor Cyclist with you and examine every detail of the machines. You will find our Bargains satisfy every test. We offer largest selection, lowest prices, every machine ready for riding, second-hands fully repaired, and every machine fully guaranteed. Any machine sold on

WAUCHOPE'S EASY WAY

¼ DOWN & 11 EASY EQUAL PAYMENTS.

Write for details, Order Form, and our to-day's List, which includes—

7398.	3½ h.p. 1910 2-speed **REX**	£27 10
7400.	2¾ h.p. 1912 2-speed **DOUGLAS** model K	£39 0
7404.	3½ h.p. 1912 **RUDGE-MULTI**	£37 10
7406.	2¾ h.p. 1912 2 speed **DOUGLAS** model K	£38 0
7409.	3½ h.p. 1912 2-speed **P. & M.** and Sidecar	£54 0
7410.	3½ h.p. 1910 F.E. **TRIUMPH**.....	£29 0
7411.	3½ h.p. 1912 **SCOTT** and Sidecar	£50 0
7376.	3½ h.p. 1912 2-speed **CENTAUR** and Sidecar	£37 10
7380.	3½ h.p. 1911 F.E. **TRIUMPH**	£34 0
7383.	2¾ h.p. 1912 3-speed **HUMBER**....	£34 0
7395.	2¾ h.p. 1911 2-speed **F.N.**	£28 0
	6 h.p. 1910 2-speed **MATCHLESS** and Sidecar	£45 0
7343.	6 h.p 2-speed **N.S.U.** and Sidecar..	£30 0
7345.	3½ h.p. 1911 2-speed **P. & M.**	£36 0
7356.	6 h.p. 1912 **REX** Sidette	£50 0
7360.	2¾ h.p. 1912 2-speed **DOUGLAS** ..	£35 0
7332	8 h.p. 1913 **HUMBERETTE**.....	£105 0
7336	2 h.p. 1912 **HUMBER**	£24 0
7307.	3½ h.p. 1912 2-speed **HUMBER** ...	£38 0
7311.	6 h.p. 1912 2-sp. **BAT** and Sidecar	£60 0
	6 h.p. **ANTOINE**	£15 0
	2¾ h.p. 1912 2-speed **ENFIELD** ...	£35 0
7281.	3½ h.p. 1910 2-speed **P. & M.**	£32 10
5596.	3½ h.p. 1910 **KERRY ABINGDON**	£27 0
5621.	2¾ h.p. 1912 3-speed **HUMBER** ...	£34 0
5742.	3½ h.p. 1910 T.T. **TRIUMPH**	£29 0
6082.	5 h.p. 1908 **V.S.**	£17 10
6161.	3½ h.p. 1912 F.E. **RUDGE**	£38 0
6170.	3½ h.p. 1911 **REX** tourist	£28 0
6176.	3½ h.p. 1912 free-engine **RUDGE** ..	£35 0
6179.	3 h.p. 1912 2-speed **N.S.U.**	£30 0
6276.	8 h.p. 1912 **ZENITH**	£55 0
6296.	3½ h.p. 1912 F.E. **KYNOCH**	£35 0
6343.	8 h.p. 1911 3-speed **CHATER-LEA** and Sidecar	£58 0
6378.	6 h.p. 1911 **ZENITH** and Sidecar	£50 0
6397.	8 h.p. 1912 3-speed **CHATER-LEA** and Sidecar	£65 0
6421.	3½ h.p. 1908 **MINERVA**	£18 0
6516.	8 h.p. 1911 3 speed **CHATER-LEA**	£47 10
6543.	3½ h.p. 1911 2-speed **ALLDAYS** and Sidecar	£35 0
6646.	5-6 h.p. 1911 **A.C. SOCIABLE**	£52 10
6799.	7 h.p. 2-speed and F.E. **INDIAN**	£40 0
6837.	3½ h.p. 1911 F.E. **RUDGE**	£35 0
6863.	3½ h.p. 1910 **BAT**	£27 0
6900.	3½ h.p. 1912 F.E. **ROVER**	£38 0
7043.	3½ h.p. 1912 **ZENITH-GRADUA** ..	£38 0
7080.	6 h.p. 1912 **CLYNO** and Sidecar..	£55 0
7081.	3½ h.p. 1909 2-speed **TRIUMPH** and Sidecar	£32 10
7098.	3½ h.p. 1911 **ZENITH** and Sidecar	£37 10
7108.	3 h.p. **GIVAUDAN**	£20 0
7110.	1½ h.p. 1909 **MOTOSACOCHE**	£14 0
7116.	3½ h.p. 1912 2-speed **BRADBURY**	£39 0

Telegrams: "Opificer, London."
Telephone: 5777 Holborn.

9 SHOE LANE. FLEET STREET LONDON.E.C.

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For the convenience of advertisers, letters may addressed to numbers at "The Motor Cycle" Offi When this is desired, 2d. will be charged for registratio and three stamped and addressed envelopes must be se for forwarding replies. Only the number will appear the advertisement. Replies should be addressed, "N ooo, c/o "The Motor Cycle,' Coventry" · or if "Londo is added to the address, then to the number given, c, "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown perso may deal in perfect safety by availing themselves of o Deposit System. If the money be deposited with "T Motor Cycle,' both parties are advised of this receipt.

The time allowed for a decision after receipt of t goods is three days, and if a sale is effected we remit t amount to the seller, but if not we return the amou to the depositor, and each party to the transaction pa carriage one way. For all transactions exceeding £10 value, a deposit fee of 2s. 6d. is charged, when und £10 the fee is 1s. All deposit matters are dealt with Coventry, and cheques and money orders should be ma payable to Iliffe & Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive answer to their enquiries are requested to regard silence as an indication that the goods advertised h already been disposed of. Advertisers often receive many enquiries that it is quite impossible to reply to e one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, a Westmorland.

1912 Rudge Multi and Sidecar, perfect, new co tion; £40.—Walker, Fishburn, Ferryhill. [X6

1913 P. and M., Douglas, Scott, and A.J.S., in st at list prices.—Walker, Fishburn, Ferry [X6

1911 P. and M. and Millford radial sidecar, all perfect order, little used; £39.—Walker, F burn, Ferryhill. [X6

3½h.p. Ariel, 1910, splendid condition; £25, or near offer.—McBride and Brown, 3a, Warwick P Carlisle. [X6

1912 Free Engine Triumph, with N.S.U. gear, la horn, tools; £38; trial. — Nixon, Brumpt Cumberland. [X6

1913 New Hudson, 3½h.p., 3 speeds, and cane s car, very fast, all perfect condition; £49.— Hare, Howlish, Bishop Auckland. [X6

NEW Hudson, 1912, 3½h.p., 3 speeds, free eng perfect order, horn, lamp, etc.; bargain, £4 Arnison, Forest House, Penrith. [X6

1910 3½h.p. Excelsior, good order, very relia with Philipson governor pulley, £25; with £22; offers; photo.—Howie, Gillingate, Kendal. [X6

1911-12 Zenith, 3½h.p., and new coach-built side (£11/5), turnout like new, lamps, horn, s tubes, and valves; cash offer.—Wright, Park Rd., W Hartlepool. [X6

3½h.p. Humber Motor Cycle, 1912 model, 2-s gear, in perfect condition, lamp, horn, e £38; inspection and trial invited.—Turvey and Co., Motor House, Sunderland. [X6

8h.p. Chater-Lea and Coach-built new sidecar, 3 spe 700×80 back tyre, practically new condition; over £100, great bargain, £55; expert inspection trial invited.—Turvey and Co., The Motor Ho Sunderland. [X6

TURVEY and Co. have in stock new 1913 mo for immediate delivery; B.S.A., Triumphs, H bers, Royal Enfields, Rovers, and Hazlewoods; any these models can be seen and tried at any time; pri ranging from £35. [X6

3½h.p. Humber, T.T. model, in good running or can do over 60 m.p.h.; a bargain, £26; wants seeing; speedometer included.—Turvey and The Motor House, Sunderland. [X6

1911 Douglas, splendid order, £22/10; 1912 Lan Elk, 3½h.p., Mabon clutch, £22/10; 1910 N.S 6h.p., £25; Zenith-Gradua, 3½h.p. Fafnir eng £16/10.—Wilkinson, Washington St., Workington. [X6

3½h.p. Rex Motor Cycle, good running order, n bushed, new trembler coil, valves, and gu splendid condition, excellent hill-climber; bargain, £ —J. H. Fothergill, Brownber, Newbiggin-on-Lune. [X6

YOUR TIME'S SHORT.

Brand New 1912 6 h.p. 2-sp. **REX** de Luxe	£62	10	0
15% cash discount	9	7	6
	£53	2	6
Allowance for your 1912 2-sp. Douglas or similar type of machine	£38	2	6
Cash required	£15	0	0

NEW 1913's

TRIUMPH, 3½ h.p., 3-speed Sturmey	£59 15
REX, 6 h.p., 2-speed, de luxe	£62 10
REX, 6 h.p., 2-speed, de luxe, chain drive	£67 15
REX, 4 h.p., 2-speed, de luxe	£56 0
DOUGLAS, 2¾ h.p., 2-speed	£48 0
BRADBURY, 3-speed	£60 0
BRADBURY, 2-speed, kick starter	£60 0
REX-J.A.P., 6 h.p., 2-speed	£71 8
REX-J.A.P., 8 h.p., 2-speed	£73 10
S.S.A., 2-speed, free engine	£60 0
WILLIAMSON, 8 h.p., L75, water-cooled	£82 10
WILLIAMSON, 8 h.p., w.c., and sidecar	£97 10

Easy Payments from £10 deposit.

MISCELLANEOUS MACHINES.

Cash, Exchange, or Easy Payments.

S.S.A., 1913, 2-speed, 2¾in. tyres, 750 miles	£49 10
CALTHORPE 4¼ h.p., 1912, 2-speed	£44 10
TRIUMPH, 1912, 3½ h.p., plate clutch	£44 10
RUDGE Multi, 1912, and sidecar	£47 10
REX, 4 h.p., 1912, the Big Single (NEW)	£39 0
REX, 5 h.p., 1911-12, 2-speed, NEW	47 Gns
GRANDEX-PRECISION, 1912, 3½ h.p., Sturmey-Archer 3-speed gear	£35 10
CONNAUGHT, 1913, 2 stroke, soiled only	£31 10
REX, 1913, 6 h.p., 2-speed, twin	£54 10
ROVER, 1911, clutch model; cost £55	Offers.
REX, 5 h.p., 1909, 2-speed, de luxe	£29 10
J. & M., 3½ h.p., 2-speed, and Sidecar	£25 10
MOTOSCOCHE, magneto	£19 10
CLYNO, 1912, and special cane Sidecar	£49 10
SUEGEOT, 3½ h.p., magneto, 2 speeds	£22 10
REX, 1913, 4 h.p., 2-speed, de Luxe, chain drive, nearly new	£49 10
REX, 1911, 2-speed, twin, de luxe	£38 10
REX, 5½ h.p., twin, spring forks	£15 10
REX de Luxe, twin, 2-speed	£25 10
TRIUMPH, 1908, 3½ h.p.	£27 10
J.A.P., 6 h.p., M.O.V., free engine, spring fks.	£34 10
MOTO-REVE, twin, lightweight, runs well	£13 10
NUMBER, 3½ h.p., 2-speed	£26 0
RADBURY, 1912, 3-speed Sturmey	£47 10
QUADRANT, 1912 free engine	£35 10
REX, 1911, twin, de luxe, and new £10 10s. Sidecar, specially good condition	£45 10
REX, 3½ h.p., magneto, spring forks, 1908	£19 10
REX, 2½ h.p., magneto, lightweight, h.b.c.	£15 10
N.S.U., 3½ h.p., magneto	£17 10
N.S.U., 1911, 3 h.p., 2-speed	£20 10
N.S.U., 5½ h.p., twin, 2-speed	£27 10
N.S.U. 5½ h.p., 2-speed, and Sidecar	£31 0
REX, 3½ h.p., spring forks	£12 10
NUMBER, 3½ h.p., free engine	£10 18
NUMBER CAR, 4-cylinder, 2 seater, hood, screen, magneto good	£9 10
F.N., lightweight battery ignition	£49 10

Make your old machine up-to-date by fitting a

£5 10 1912 **ARMSTRONG** 3-speed Gear, Brand New, and complete with belt rim and controls.
Mark II., **£5 10 0.**
Mark III., **£6 2 6.**
1913 Mark VI., **£10 10 0.**
Usual price **10** gns. and **12** gns.

WHY WAIT? Despatch from stock. Trade supplied.

SUNDRIES.

Wheel Monacar Chassis with body, wheels, steering, and Bowden 2-sp. gear	£4 10 0
New F.R.S. Standard 8ooft. Lamp, with grid generator; usual price, 53/6; clearance price	35 0
New Avon (Druid) 26 × 2 Non-skid Covers	12 11
Dyer's Motor Cycle Stand	3 3
New 26 × 2 and 26 × 2¼ Avon Tubes	5 9
MILLER'S LAMP SETS from	£1 17 6
New Car Speedometer	£2 12 6
New Triumph Pattern Horns 3/- and	3 9

The Halifax Motor Exchange

Largest Rex Dealers,
5, WESTGATE, HALIFAX.
Phone 765 Telegrams: "Perfection."

MOTOR BICYCLES FOR SALE.

ENFIELD, 2¾h.p., 1912, 2-speed, chain drive; £32.—Bennett, 17, Cross St., Brampton, Chesterfield. [X6412

MINERVA, 2½h.p., good running order, perfect condition; £15.—Lowen, Bromborough, Cheshire. [X6455

PREMIER, 1912, 2½h.p., 3-speed, carefully used, perfect condition; £32.—Butterworth, Biddulph. [0704

DOUGLAS, mag., £17, first-class condition; Wolf, 1½h.p., £7/15, perfect.—Hazell, Machynlleth. [X6483

DOUGLAS, T.T. model, new April, money urgently needed; accept best offer.—P. Owen, Ironbridge, Salop. [9836

DOUGLAS, 1911, perfect condition, lamp, horn, spares; £22.—Chapel Ash Motor Depot, Wolverhampton. [X6626

PHELON-MOORE, 2-speed, September, 1911, A1 condition; £34; inspection invited.—Shone, 70, Watergate, Chester. [0668

CALTHORPE, 4¼h.p., 2-speed, kick starter, free engine combination, nearly new; £49.—Slack's Garage, Stockport. [9861

SPECIAL 1913 T.T. Triumph, picked machine, do over 60, month old; £45.—Holland, Kingsway, Northwich, Cheshire. [X5965

1911 Triumph, 3½h.p., enamel and plating good, lamp, etc.; £25/10, bargain.—566, Bloxwich Rd., Leamore, Walsall. [X5971

BRADBURY, 3h.p.; any trial; mag., complete, lamp, horn, Dunlop belt, B. and B.; £15.—Hands, Quarry Terrace, Broseley, Shropshire. [X5983

LIGHTWEIGHT (Calcott, 1912¾), 2¾h.p., a really reliable machine, in perfect condition; £23.—Pane, Deganwy, North Wales. [X6643

TRIUMPH, F.E., late 1911, splendid condition, little used; £28, with Cowey £30; approval.—Bull Piece Villa, Darlaston, Staffordshire. [X6594

MOTOSACOCHE, 1911, 2½h.p., free engine, variable gear, not run 2,100 miles, excellent condition; £22.—Harran, Abbeyfield, Sandbach, Cheshire. [X5967

1910 Motosacoche, 2h.p., Bosch, Whittle, Druids, good condition; £9/10, take cycle part.—Dangerfield, Walsall Rd., King's Hill, Wednesbury. [X6593

ARIEL, 3½h.p., free engine, variable pulley, new Miller lamp, splendid order, with good wicker sidecar: £23, cheap.—S. Davies, 12, Broad St., Welshpool. [X6421

A.J.S., 6h.p., delivered August 14th, £72/9, or with second-hand Canoelet sidecar, fitted with hood, screen, and luggage carrier, £78.—Walsall Garage, Walsall. [X6579

REX de Luxe, 5-6h.p., 2-speed, just overhauled, Farrar's sidecar, practically new; £25, or accept easy payments; trial arranged. — Sherratt, Church Stretton. [X6462

TRIUMPH, with free engine; Norton big 4, free engine, 2-speed, and sidecar; owner no further use.—H. Yeomans, Veterinary Surgeon, Cahill House, High St., Smethwick. [X6497

REX, 1909, 3½h.p., Bosch mag., spring forks, new pulley, Whittle belt, fitted with new Armstrong VI. hub month ago, new Kempshall; clean bargain, £30; going abroad.—A. Felton, 7, Hill St., Cheslyn Hay, near Walsall. [0640

YOU are Buying the right stuff, at the right price, from the right firm when you buy from us. We don't want to sell you the crock in the corner. We hold a stock of motor cycles from which you can select a suitable mount. Exchanges a speciality; let us quote you. The following machines are actually in stock: 1913 6h.p. Rex de Luxe, new, and complete with lamp and horn, £60; 1913 Douglas, model N, £42; 1913 Douglas, model P, £48; 1913 3h.p. A.S.L., 3½h.p. Precision, £45; 1913 3h.p. N.S.U., single, shop-soiled, £38; 1913 2½h.p. Singer Tourist, £39; 1913 2¾h.p. A.J.S., model B, 2-speed, etc., £48/6; 1913 Rudge Multi, £60; 1913 Rover, F.E., £55; 1912 Scott, with 1913 improvements, and sidecar, complete with lamp and horn, a beautiful lot, £57/10; 1912 Bradbury, T.T. bars, fine condition, £35; 1912 Rudge, F.E., and sidecar, speedometer, and lamp, £45; 1912 3h.p. twin N.S.U., with 2-speed gear, just been thoroughly overhauled, £32/10; 1912 3½h.p. Premier, 3-speed gear £37; 1911 Matchless, 8h.p., late 1911, fine order, 2 speed, etc., £47; 1911 free engine Triumph, new tyres, £36; Humberette, complete, latest brown model, £125; one second-hand sidecar, 26in. wheel, complete, £3; head light and generator, 10/-; Garner whistle, 7/6. Let us have your requirements; prompt attention.—The North Wales Motor Exchange, Holt St., Wrexham. Tel.: 283. [X6674

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

B

COLMORE Depots, 31, Colmore Row, Birmingham; 49, John Bright St., Birmingham; and 62, High St., Leicester.

NEW and 2nd-hand at the leading depots for the Midlands; agents for Douglas, Scott, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, Birmingham and Leicester. [X6047

REY

The noted firm. Established in the Motor Trade since **1900,** and known throughout the country for quickest delivery of any Motor Cycle or Cycle Car.

For Immediate Delivery:
G.W.K.—SINGER—HUMBERETTE.

Clearance Sale of shop-soiled Machines.

SECOND-HAND.

£25.	**F.N.,** 4-cylinder	1910	
£28.	**F.N.,** 4-cylinder	1911	
£6.	**Montgomery** Sidecar	1912	
£22.	Twin **Moto-Reve** (lady's)	1910	
£45.	6 h.p. **Zenith** and Sidecar	1911	
£35.	3½ h.p. **Zenith**	1912	
£33.	5-6 h.p. T.T. **Bat,** overhead valves		
£30.	Std. **Triumph**	1910	
£20.	3½ h.p. **Rex**	1910	
£28.	3½ T.T. **J.A.P.**	1912	
£28.	F.E. **Singer**	1911	
£17.	Std. **Triumph**	1906	
£23.	5 h.p. **V.S.**	1910	
£32.	**Rex-J.A.P.**	1912	
£33.	3½ h.p. **Trump-J.A.P.**	1912	
£40.	6 h.p. **Zenith**	1911	
£34.	3½ T.T. **Corah**	1912	
£65.	8 h.p. **Zenith** and Millford coach-built Sidecar	1913	
£54.	4 h.p. **Singer,** new '12		
£40.	6 h.p. **Matchless**	1912	
£48.	3½ h.p. 3-speed Twin **Matchless**	1913	

Deferred Payments on New or Second-hand Cars, Cycle Cars, Motor Cycles, or Sidecars.

FOR HIRE.

Motor Cycles and Sidecars.

TERMS ON APPLICATION.

Sole London Agents for—

Canoelet Sidecars from £12 12
Swan Sidecars from £13 13

Also Folding Sidecars for Immediate Delivery.

Wholesale House to the Trade for Motor Cycles, Cycle Cars, Sidecars, and Accessories.

EASY PAYMTS FROM 2% EXTRA. ON BALANCE.

5, Heath St., Hampstead, N.W.; and 173, Gt. Portland St., W.

Telephones: 3678, P.O., Hampstead; and 1978, Regent.

REY

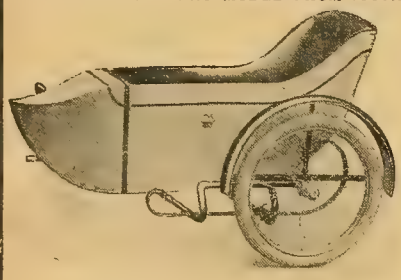
Mr. Sidecar Man!!

Has it ever struck you that with the advent of the

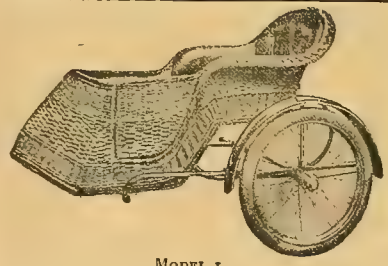
FARLOW

a good sound, and elegant sidecar can be purchased at a most moderate figure?
Send for our price list and be convinced.

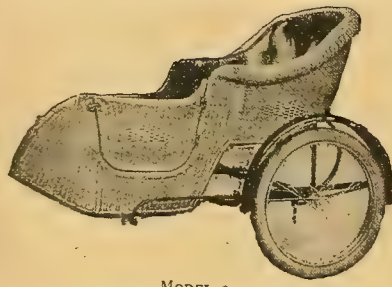
WE CAN DELIVER ANY MODEL FROM STOCK.



MODEL 4.
Underslung chassis (patent 5070), light coachbuilt body, spring cushion, two tool boxes fitted.
10 guineas.



MODEL 1.
Wicker body, canoe front, side door, upholstered and lined inside right down to the toe.
£6 5s. 0d.



MODEL 3.
Reed cane body with roll top, thickly upholstered and lined right down to the toe.
£8 10s. 0d.

Models Nos. 1 and 3 can be fitted with our underslung chassis (patent 5070/12) for **10s.** extra.

All Carriage Paid, and complete with mat, stand, quick detachable joints, and Michelin **Motor Cycle** Tyres. Trade supplied.

MOTOR CYCLE FRAMES.

We have a quantity of frames by well-known maker. Two styles to choose from.
PRICE 32/6 EACH.
Rigid forks, **7/6** extra. Druid forks, **45/-** extra.
Enamelled and plated in first-class style.

ODD BARGAINS.

Cowey Speedometer, done 3,000	£3 0
Sidecar Aprons	7/6
Cowey Speedometer, done 100, perfect	£3 10
New Rubber-studded Covers, 26 x 2¼, beaded	17/6
Triumph Pattern Handle-bar, new	6/6
New Pressed Trembler Coil	15/-

Farrar's Motor Exchange

19, 21, 23, 25, Hopwood Lane,

Telephone 919. **HALIFAX** (Two minutes from G.P.O.)

MOTOR BICYCLES FOR SALE.

BARGAINS in Second-hands.

TRIUMPH, 1913, 3-speed, and supreme torpedo coachbuilt sidecar, not done over 200 miles; £55.—Below.

A.J.S., 1912, 5-6h.p., 2-speed, chain drive, and Canoelet sidecar; £52.—Below.

BRADBURY, 1912, 3½h.p., 2-speed, and torpedo coachbuilt sidecar; £36.—Below.

TRIUMPH, 1911, 3½h.p., free engine, perfect condition throughout; £30.—Below.

REX-J.A.P., 1912. 6h.p. de luxe model, perfect sidecar machine; £43.—Below.

REX, 1912, 6h.p. de luxe, with torpedo cane sidecar, splendid combination, only done 2,000 miles; £46.—Below.

TRIUMPH, 1910, free engine, very good condition; £25.—Below.

MOTOSACOCHE, 1911, 1¾h.p., a real lightweight in good condition; £15.—Below.

ANY of the above machines supplied on approval; full detailed list of over 50 shop-soiled and second-hand machines free upon application.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0316

QUORN Garage (Leicester), Ltd., 178, Belgrave Gate, Leicester.

1912 Martin-Jap, 3½h.p.; £40.—Above.

1912 Forward, 2¾h.p., twin, demonstration model; £33.—Above.

1912 Humber, 3½h.p., 2-speed; £35.—Above.

1913 Ariel, 3½h.p., 3-speed, demonstration model; £55.—Above.

1912 Indian, 7h.p., free engine; £45.—Above.

1912 Rudge, 3½h.p., free engine, and sidecar; £42.—Above.

TRADESMAN'S Box Sidecar, suit 3½h.p. machine, new condition; £6/10.—Above. [0592

2¾h.p. Douglas, 2-speed model, complete with lamps, etc.; £30.

2¾h.p. Douglas, 1910, in good order; £18.

2½h.p. Singer, 1912 clutch model; £30.—Main, 36, Parade, Leamington. [X6610

1911 Standard Triumph, in good running order; £28.—68, Adderley Rd., Leicester. [X6657

1913 Singer, 3½h.p., T.T., 3-speed, good as new; £45.—Apply, F.L.M., 33, Ford St., Coventry. [X5979

TRIUMPH, free engine, 1912; bargain, £38/10; new belt, horn, and tools.—198, West Parade, Lincoln. [X6642

1913 Lincoln Elk, 3½h.p., clutch model, accessories, all new; £28.—Wingad, 6, Bowyer Rd., Saltley, Birmingham. [X6561

DOUGLAS, 1911, 2-speed, free engine; £27 cash; buying sidecar machine.—Kemp, 41, Saxe-Coburg St., Leicester. [X6621

RUDGE, late 1911, free engine, fast, powerful, perfect condition; £29.—6, Weatheroak Rd., Sparkhill, Birmingham. [X6645

1910 2½h.p. Moto-Reve, perfect running order; £15/10.—Bartholomew, 23, Church St., Stanground, Peterborough. [0731

REX, 3½h.p., h.b.c., mag., B. and B., Whittle, Avon, adjustable pulley, good condition; £12.—Jesson, Hose, Melton Mowbray. [X6496

EVANS.—Zenith, 1913, 3½h.p., free engine, kick starter, Mills-Fulford sidecar; lot cost £70, accept £55.—P. J. Evans, John Bright St., Birmingham.

EVANS.—Williamson, 1912, 8h.p., 1913 improvements, Canoelet, with screen, guaranteed sound; £55.—Below.

EVANS.—Bradbury, 1913, 3½h.p., 3 speeds, shop-soiled only; £50.—Below.

EVANS.—Rudge Multi, 1912, with 1913 engine, good condition throughout; £38.—Below.

EVANS.—1912 Enfield and Portland coachbuilt sidecar, just overhauled, good order; £50.—Below.

EVANS.—Zenith, 1912, 3½h.p., brand new, carries makers' guarantee; £45.—Below.

EVANS.—Humber, 1910, 3½h.p., 2 speeds, free engine, handle starting; £25, or with sidecar £28.—Below.

EVANS.—Rex racer, 3½h.p., 1912, built especially for pressman, do 60; to clear £17/10.—Below.

EVANS.—Enfield, 2¾h.p., 1913, 2 speeds, kick starter, absolutely as new; £38.—Below.

EVANS.—Scott, 1911, 2 speeds, free engine, kick starter, fast machine, semi T.T. bars; £28.—Below.

EVANS.—Bat, 1913, 3½h.p., speed model, 3 speeds, condition as new; £42.—Below.

EVANS.—Zenith, 1912, 3½h.p., just overhauled, good tyres and belt; £35.—Below.

EVANS.—Enfield, 1913, coach combination, as new, only done few miles; owner bought car; £72.—P. J. Evans, John Bright St., Birmingham. [X6600

SPECIAL.

A CYCLE CAR FOR £40.

We have a 4-wheeled Cycle Car, new, 7-9 h.p. Blumfield engine, Bosch magneto, Amac carburetter, chain drive, 2 speeds, free engine, handle starting, 2-seater body, given away £40 given away.

The following are complete with sidecars:—

1913 8 h.p. **ZENITH** and 15 guineas Sidecar	£65 0
1909 3½ h.p. **P. & M.,** 2 speeds and Sidecar	£29 0
1912 6 h.p. **CLYNO** and Sidecar	£45 0
1912 6 h.p. **REX** and Sidette Sidecar	£45 0
1911 8 h.p. **MATCHLESS** 2 speeds, and Sc.	£50 0
7 h.p. **ROC,** 2 speeds, and Sidecar	£29 0
1911 4 h.p. 2-sp. **QUADRANT** and Sidecar	£33 0
1909 5 h.p. **REX** de Luxe and Sidecar	£30 0
1908 5 h.p. **REX** de Luxe and Sidecar	£28 0
1908 5 h.p. **REX,** Roc, 2 speeds, and S'car	£25 0
1910 5 h.p. 2-speed **VINDEC** and Sidecar	£30 0
1910 3½ h.p. 2-speed **SCOTT** and Sidecar	£30 0
1908 5 h.p. **REX,** clutch model, and Sidecar	£23 0

All have variable gears except the last-named. We will sell any machine without sidecar.

We have the following New 1913 Machines in Stock:

6 h.p. **A.J.S.,** 3 speeds, kick starter	69 Gns
3½ h.p. **PHELON & MOORE,** kick starter	£65 0
1913 3½ h.p. 3-speed **HUMBER**	£53 0
1913 3½ h.p. **SUNBEAM,** 2 speeds	£63 0
1913 4½ h.p. **SINGER,** 2 speeds	60 Gns
1913 3½ h.p. **NEW HUDSON,** 3 speeds	58 Gns

Easy terms quoted. Discount for Cash.

MORGAN CYCLE CARS.

8 h.p. J.A.P. engine, best of everything.
85 guineas.
—— Delivery from stock. ——

THIS WEEK'S BARGAINS.

1912 3½ **ARIEL,** variable gear	£29 0
3½ h.p. **ENFIELD REX,** M.O.V.	£10 0
2½ h.p. **J.A.P.,** Druid forks	£7 0
1912 6 h.p. **CLYNO,** 2 speeds, kick starter	£42 0
1912 6 h.p. **REX** Sidette, 2 speeds	£45 0
1910 5-6 h.p. **VINDEC,** 2 speeds	£27 0
1909 5-6 h.p. **REX** de Luxe	£28 0
5-6 h.p. **REX** de Luxe, 2 speeds, etc.	£27 0
3½ h.p. 1907 **TRIUMPH,** magneto, spring fks.	£23 0
One Ditto, very good	£24 0
4 h.p. 1911 **QUADRANT,** Roc 2 speeds	£30 0
5-6 h.p. Twin **REX,** magneto and clutch	£19 0
3½ h.p. 1909 **REX** Tourist, good	£21 0
3½ h.p. 1908 **REX** Tourist, 1909 engine	£19 0
3½ h.p. 1910 **REX,** fine goer	£23 0
5-6 h.p. **REX** de Luxe, 1908, 2-speed model	£25 0

We have a few Brand New Clearance Clincher Rubber-studded 26 × 2¼ Covers to fit 26 × 2¼ Rims.
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Approval willingly.

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3½ h.p. 1908 **REX £19**	5 h.p. **REX,** magneto £19
3½ h.p. 1909 **REX £21**	3½ h.p. 1910 **REX** .. £23
2 h.p. **MOTO REVE,** free engine, magneto, Druids	£15
5 h.p. **REX,** magneto, variable gear	£18

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Bosch Twin Magnetos, D.A.I.V., any angle or rotation, new and guaranteed	£2 19 6
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26 × 2¼ Rub-stud Continental Cover, new	30/-
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New Motor Cycle Frame	32/6

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[illegible] h.p. F.N., 2-speed, shaft drive, hand control, clutch, [illegible] guaranteed good order; £18.—Neaum, Fordingbridge. [X6595

[illegible] h.p. Chater-Acter B. and B., h.b.c., tools, spares, splendid condition; £12.—Wilson, 1, St. George's [illegible], Chelsea. [0783

3½ h.p. Overhead Valve M.C., in thorough condition; any trial here; £11.—H. Hartwell, Highetb St., Stow-on-the-Wold. [X6665

3½ h.p. J.A.P., 6h.p., 1911, perfect order; trial and inspection invited.—C. J. Liming, Church Crookham, Fleet, R.S.O. [X6413

WALL Auto-Wheel, £13, nearly new; owner buying motor cycle and sidecar.—Box 3,898, *The Motor Cycle* Offices, Coventry. [X6315

1909 Rex, 6h.p., mag., free engine, newly enamelled and plated, excellent condition; £18.—27, Church [illegible], Wolverton, Bucks. [X6506

RUDGE Multi.—Deliveries from stock; trial runs given; exchanges entertained; trade supplied.—[illegible] agent, Barnes, Slough. [9139

DOUGLAS, 1911, little used, excellent condition; cheap, £19; bought sidecar machine.—Rowland Body, County Wharf, Southampton. [0804

LAYTONS'.—Scott, 1913, brand new, soiled only; list price £68/5, offers wanted; easy payments, exchanges.—Laytons', Bicester, Oxon. [X6724

LAYTONS'.—1913 3-speed Triumph, used once and as new; £52.—Laytons', Bicester, Oxon. [X6725

LAYTONS'.—1912 Scott, complete with lamp, horn, speed indicator, spare chains, etc., used 800 miles only, almost as new, perfect throughout; £52.—Laytons', Bicester, Oxon. [X6726

LAYTONS'.—Sunbeam, 1913, 2¾h.p., kick starter, 2-speed, catalogue price £63, offers wanted.—Laytons', Bicester, Oxon. [X6727

LAYTONS'.—Douglas, model O, 2-speed, just arrived; £48; exchanges, easy payments. — Laytons', Bicester, Oxon. [X6728

LAYTONS'.—Triumph, 1913, 3-speed model, just delivered; £59/15; exchanges, easy payments.—Laytons', Bicester, Oxon. [X6729

LAYTONS'.—B.S.A. 1913 T.T. Roadster, L.O.M. engine and fittings quite new; £45; exchanges.—Laytons', Bicester, Oxon. [X6730

MARTWELLS' Garage, Chipping Norton.—Triumph and Douglas agents; also agents for Swift cycle for Banbury, Burford, and Chipping Norton.

TRIUMPH, 3-speed, 3½h.p., free engine, clutch; in stock; £59/15.—Hartwells'.

DOUGLAS model O, £48; in stock model R, £92.—Hartwells'.

ENFIELD Autolette in stock, £138.—Oxfordshire agents, Hartwells'.

TRIUMPH, 1912, free engine, in fine order throughout, new 1in. Dunlop belt, lamp, horn, and tools; £59.—Hartwells'.

TRIUMPH, 3½h.p., 3-speed, delivered end of July, with Mills-Fulford torpedo sidecar, wind screen, lamp, horn, lamps, mirror, and every accessory, beautiful order, and all of the best, as new; cost £83, no reasonable offer refused.—Hartwells'. [1786

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

PREMIER, 2½h.p., new last month, speedy, excellent climber, faultless, new horn, accessories; £26, bargain.—Young, School, Ebbesborne, Salisbury. [0789

and M., 1913 done 1,500, condition as new; £55, or with new Chater-Lea wicker Canoelet sidecar [illegible]—Holmes, 65, Whiteladies Rd., Bristol. [0725

1911 Douglas, single speed, just overhauled, re-enamelled, replated, excellent condition; £22; seen any time.—Greet, 4, Northbrook St., Newbury. [0639

[illegible] h.p. Chater-Lea Antoine, dry battery ignition, N'all spring forks, good running order; £9/10, or offer.—[illegible] The Birches, Upper Lydbrook, Glos. [X6459

BRADBURY, 1912, 1913 N.S.U. 2-speed and clutch, new 2½in. Pedley, guaranteed perfect, little and fully used; £34.—Conran, Hackwood Rd. Basingstoke. [X6419

3½h.p. 3-speed A.J.S., 1913 new last April speedometer, Lucas lamp, horn, tools, etc., good as new, ridden 400 miles; what offers?—Pool, King's Rd., [illegible], Hants. [0667

9 12/15, 2½h.p. Premier, Bosch, B. and B. carburetter, clutch, spare belt, new tyre on back, and brand new tyre for spare, very fast; £30, or nearest offer.—[illegible] Sun., Kempsford, Fairford, Glos. [0786

ENFIELD, 2¾h.p., 2-speed, F.E., kick starter, cush drive, milometer, spare tube, horn, P. and H. lamp, not done 500 miles, condition absolutely as new; cost £42, or nearest.—Box 3,911 *The Motor Cycle* Offices, Coventry. [X6708

CLUTCH Triumph, 1910, Phillips pulley, Binks carburetter, new cylinder, piston, bushes, 1913 belt wheel, re-built, new 1in. belt rim, 1in. Dunlop belt, Hutchinson passenger back, Avon studded front, etc.; £30.—Toyne, Filton, Bristol. [X6578

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SECOND-HAND MOTOR CYCLES AND SIDECARS.

1216.	1911 **ZENITH**, 6 h.p.	£45
1265.	1912 **BRADBURY**, 3½ h.p.	£36
1276.	1912 **ZENITH**, 6 h.p.	£52
1283.	1912 **ZENITH**, 3½ h.p.	£38
1285.	1912 **CLYNO**, 6 h.p., 2-speed	£46
1286.	1911-12 **MATCHLESS**, 8 h.p., 2-speed, and Matchless Sidecar	£58
1302.	1911 **ZENITH**, 3½ h.p.	£32
1318.	1912 **ZENITH**, 3½ h.p.	£38
1327.	1912 **BRADBURY**, 3½ h.p.	£35
1332.	1911 **ZENITH**, 6 h.p.	£42
1334.	1912 **SINGER**, 4 h.p., 2-speed	£42
1338.	1912 **BRADBURY**, 3½ h.p., free engine	£38
1341.	1912 **ZENITH**, 6 h.p.	£48
1342.	1912 **ZENITH**, 6 h.p.	£50
1357.	1910 **PREMIER**, 3⅜ h.p., twin cylinder	£25
1362.	1912 **RUDGE**, 3½ h.p., free engine	£35
1403.	1912 **HENDERSON**, 4-cyl., 8 h.p., Model B; F.E.	£60
1408.	1912 **P. & M.**, 3½ h.p., 2-speed, and Sidecar	£49
1415.	1911 **DOUGLAS**, Model D	£25
1418.	1912 **BRADBURY**, 3½ h.p., F.E., and Sidecar	£40
1420.	1911 **BRADBURY**, with 1913 3-speed Sturmey gear and comfortable wicker Sidecar with child's seat	£42
1421.	1912 **N.S.U.**, 3 h.p., twin-cylinder, 2-speed	£32
1423.	1913 T.T. Free-engine **TRIUMPH**, as new	£46
1424.	1912 **REX-J.A.P.**, 5 h.p., overhead M.O.V., T.T. roadster	£35

We are open to consider reasonable offers for the following machines, which we are selling for various clients:

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1912	**A.J.S.**, 5-6 h.p., large P. & H. lamp, Jones' speedometer, post horn, watch, mirror, spares, and tools	£55
1912	**BRADBURY**, 3½ h.p., 2-speed belt drive, and Bradbury wicker Sidecar	£22
1912	**HOBART**, 2½ h.p., Miller lamp, serpentine horn, tools	£42
1912	**TRIUMPH**, 3½ h.p., free engine, Cowey speedometer, post horn, Black 1,000ft. F.R.S. belt and tube, case with spare belt and tube, tools	£38
1912	Standard **TRIUMPH**, with Cowey, lamp, horn, tools, and spares	

BRAND NEW SHOP-SOILED MOTOR CYCLES and SIDECARS.

1912-1913	**NORTON**, 3½ h.p.	£39	0
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1913	**ALCYON**, 3½ h.p.	£37	0
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	MONTGOMERY Torpedo, sport	£12 10	0
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	MONTGOMERY, No. 7, Exeter body, hood, and screen	£18 10	0
	MONTGOMERY Standard	£7 10	0
	MILLFORD Corvette, storm apron mat and luggage board	£12 0	0
	MILLFORD Spring wheel, No. 4 chair	£12 10	0
	MILLFORD Rigid, No. 4 chair	£9 17	6
	MILLFORD Rigid, No. 4 chair	£9 17	6
	MILLFORD Rigid, No. 14 chair	£12 10	0
	MILLFORD Rigid No. 3 chair	£12 10	0
	BRAMBLE de Luxe	£13 13	0
	BRAMBLE, No. 6	£10 15	0
	BRAMBLE, No. 4	£11 15	0
	PILOT, No. 7, Patent safety chassis, coach body	£10 0	0
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	PILOT, No. 4, Reed cane, child's seat, luggage grid	£8 10	0
	PILOT, No. 5, Wicker canoe, cantilever chassis	£7 7	0
	PILOT, No. 2	£5 0	0

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2¾h.p. New Hudson, late 1912, free J.A.P. engine, h.b.c., 3-speed, N'all saddle, acetylene, all accessories, good reason selling; condition as new; seen, 47, Chippenham Rd., N.W.; £33/10.—Holcombe, Gable Cottage, Nuphill, High Wycombe. [0843

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BARTLETTS' have in stock Rudge motor cycles.

BARTLETTS' have in stock Elf Motorcycletts, 75 gns.

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BARTLETTS'.—1911 6h.p. Bat and sidecar; £40.

BARTLETTS'.—1911 Zenith, 3½h.p., and sidecar; £36.

BARTLETTS'.—1911 F.N., 2¼h.p., 2-speed gear; £20.

BARTLETTS'.—1912 3½h.p. Fafnir, Chater-Lea, perfect; £24.

BARTLETTS'.—1911 Triumph, free engine; £32.

BARTLETTS'.—1911 Kerry-Abingdon, 3½h.p., re-enamelled; £22

BARTLETTS'.—1912 Arno, 3½h.p., 3-speed, and sidecar; £39.

BARTLETTS'.—1912 Grandex Precision, 2½h.p., 2-speed gear; £25.

BARTLETTS'.—1912 Rudge, free engine, re-bushed; £30.

BARTLETTS'.—Full range of sidecars, £5 to £20.

BARTLETTS'.—2 and 3, Parade, Kilburn. 'Phone: 4807 Hampstead. [0702

MORGAN and Maxwell.—Arno, 3½h.p., 1912½; £28.

MORGAN and Maxwell, The Motories, 80 High Rd., Streatham.—Keen prices, quick delivery.

MORGAN and Maxwell.—Clyno, 5-6h.p., 1912, and coach-built sidecar, 2-speed, Binks; £50.

MORGAN and Maxwell.—Royal Enfield, 1913, chain, 2-speed; £68.

MORGAN and Maxwell.—F.N., 2¼h.p., 1910 Bosch; £10.

MORGAN and Maxwell.—Humber, 1912, 2 speeds, overhauled, with sidecar; £32.

MORGAN and Maxwell.—Humber, late 1911, Ro. 2 speeds; £30.

MORGAN and Maxwell.—Indian, latest 1913, 5h.p., and sidecar; £75.

MORGAN and Maxwell.—Ivy-Precision, late 1911, free engine, 3½h.p.; £28

MORGAN and Maxwell.—J.A.P., 2½h.p.; £7.

MORGAN and Maxwell.—L.M.C., 1913, Armstrong 3 speeds; £45.

MORGAN and Maxwell.—Matchless, 6h.p., 1913, Gradua 6 speeds; £65

MORGAN and Maxwell.—M.to-Reve, 2½h.p., 1911; £15

MORGAN and Maxwell.—Motosacoches, two, Bosch, 1912; £20.

MORGAN and Maxwell.—Two New Hudsons, 1912 3-speed, as new; £40.

MORGAN and Maxwell.—Minervas, 2½h.p., from £7

MORGAN and Maxwell.—N.S.U., 2-speed, with Millford sidecar; £32.

MORGAN and Maxwell.—N.S.U., 1908, mag., 3h.p.; £9.

MORGAN and Maxwell.—Rudge, 1911; £30

MORGAN and Maxwell.—Singers (2), one 1912, one 1913, 2½h.p., free engines; £30 and £32

MORGAN and Maxwell.—Triumph, free engine, 1911 £30

MORGAN and Maxwell.—Triumph, T.T. model, 1911, semi-racing, special fittings; £34.

MORGAN and Maxwell.—One new 1913 free engine Triumph; £59/15.

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EAGLES.—Rudge, 1913, free engine model, as new; £35.

EAGLES.—Bat-Jap, 1912, 3½h.p., spring frame, T.T. handle-bar, very fast; £27.

EAGLES.—N.S.U., 3½h.p., model de luxe (85×88), 1911, 2 speeds, free engine, fine condition; £27/10.

EAGLES.—Bradbury, 1912, N.S.U. 2-speed gear, free engine, had little use; £35

EAGLES.—Enfield 2¾h.p. twin, late 1912, 2 speeds, free engine, chain drive, handle starting, footboards, nearly new; £31.

EAGLES.—Rover, late 1912, free engine model, new condition; £35.

EAGLES.—Zenith-Gradua, 3½h.p. J.A.P. engine, fine condition, all accessories; £29/10.

EAGLES.—N.S.U. 3½h.p. Popular, improved spring forks, 1in. belt, adjustable pulley; £20.

EAGLES.—N.S.U. 3½h.p. Popular, mag., adjustable pulley, 1in. belt; £16.

EAGLES.—N.S.U. 3h.p. Popular, new 1911, magneto, spring forks, h.b.c., fine condition; £17

EAGLES.—Any of the above can be purchased by deferred payments, one quarter of amount down.

EAGLES for prompt delivery of 1913 Bradbury, Douglas N.S.U., Rover, Singer, Triumph, and other makes; best exchange terms.

EAGLES and Co., High St., Acton.—N.S.U. West London District Agency. Tel.: 556 Chiswick. [X7548

M.C.H.—1913 T.T. Douglas, P, 2-speed, not run 400; £45.

M.C.H.—1913 2¾h.p. Douglas, O, 2 speeds, like new; £41.

M.C.H.—1913 3¾h.p. Regal-Green, 2-speed, chain; £47.

M.C.H.—1911 3½h.p. Kerry-Abingdon, lamp set, fine condition; £22.

M.C.H.—1911 1½h.p. Singer Moto-Velo, B. and B., perfect; £17.

M.C.H. for sidecars, engines, gears, carburetters, etc.—69, Leather Lane, Holborn, E.C. [1622

PALMER'S Garage, Tooting.—The pre-eminent place for purchasing.

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PALMER'S Garage, Tooting.—Write for auction catalogue and illustrated price list, containing particulars over 100 automobiles and numerous accessory bargains.

PALMER'S Garage, Tooting.—The following motor cycles immediate available. Those unsold by September 3rd will be offered by auction on that day.

PALMER'S Garage, Tooting.—3½h.p. 1912 Triumph, fixed engine, fine condition; £30.

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PALMER'S Garage, Tooting.—2¼h.p. Royal Enfield, late type lightweight, magneto; £16.

PALMER'S Garage, Tooting.—3½h.p. Rudge, 1913, T.T. model, as new; £37/10.

PALMER'S Garage, Tooting.—4½h.p. Kelecom and sidecar, V.A.F. engine; bargain, £10.

PALMER'S Garage, Tooting.—3½h.p. L.M.C., 1913, F.E., brand new, unused; £47/10.

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PALMER'S Garage, Tooting.—2¼h.p. F.N. lightweight; cheap ready for use, £10.

PALMER'S Garage, Tooting.—3½h.p. N.S.U., 2 speeds, mag., take sidecar; £15.

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PALMER'S Garage, Tooting.—2h.p. Minerva, m.o.v.; reliable cheap machine, £5.

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PALMER'S Garage, Tooting.—2¾h.p. Minerva, nice low machine; clearance price £10.

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PALMER'S Garage, Tooting.—All above and many others in stock. — Sole address, L. N. Palmer's Garage, Merton Tram Terminus, Tooting 20 mins. Victoria, 10 mins. Wimbledon. 'Phone: 208 Streatham. Motor Buses, 48, 49, 66. [X6691

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MOTOR REVE, 1910 ..... **£10**
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SINGER, 3½ h.p., fixed gear, 1913 **£28**
TRIUMPH, 3½ h.p., free engine, 1912 **£35**
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BROWN, 2½h.p., F.E., only shop-soiled; £36.—Lamb's, below.

HUMBER, 2¾h.p., 3-speed, quite new; reduced from £52/10 to £47.—Lamb's, below.

CHATER-LEA, Rover, 3½h.p., mag. machine; £10.—Lamb's, below.

VINDEC Special, 3½h.p., F.E., 2-speed, mag. machine; £20.—Lamb's, below.

SINGER, 1912, 3½h.p., fixed engine; £35.—Lamb's, below.

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3½h.p. Brown, 1909, mag., etc., first-class condition; £22.—95, Beulah Hill, Upper Norwood. [0645

5-6h.p. Peugeot Type Twin, brand new; £7.—Brown, c/o Hill, 59, Gascall St., S.W. Letters only. [0677

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BALHAM.—Lincoln Elk, 3h.p., 1911, Bosch, spring forks, perfect order; £15.—Below.

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ROVERS, all models, from £48/15, or 55/- monthly; deferred payments no extra.—Lamb's, below.

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B.S.A.'s, all models, from £48/10, or 70/- monthly.—Lamb's, below.

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TRIUMPHS, all models, from £49/5, or £3/3 monthly. —Lamb's, 151, High St., Walthamstow. [0716

TRIUMPH, 3½h.p., sidecar, 1908 engine, new cyl., etc., fixed gear; £22.—5, Gatwick Rd., Southfields. [X5976

J.A.P., 2½h.p., h.t. mag., Amac, Michelins, good condition; £10.—Barter, 69, Flash Walk, Hampstead. [0636

1912 2¼h.p. A.J.S., free engine, 2-speed gear, in perfect condition; £20.—Rice Bros., Horsham. [0709

1912 4h.p. J.A.P., free engine, condition and appearance as new; bargain, £32.—Rice Bros., Horsham. [0710

BROWN, 1912, T.T., overhead valves, fast, perfect condition; £25.—81, Drakefell Rd., New Cross. [0773

1912 4h.p. J.A.P., 2 speeds, mag., B. and B., Druids, accessories; £26, lowest.—Sinclair, East Molesey. [X6651

3h.p. Single N.S.U., new mag., low, very reliable; trial; £14/10.—36, Bath St., City Rd., London. [0787

SINGER, 3½h.p., clutch model, speedometer, condition perfect; £35.—35, Tasman Rd., Stockwell. [X6538

DOUGLAS, 1911, excellent condition, new tube, new belts; £22.—38, Durnsford Av., Wimbledon Park. [0836

LEA-FRANCIS, gold medal Scottish Reliability Trials; in stock.—Hucklebridge, 133, Sloane St., London, S.W. [9845

P. and M., new, ready at works, unable to take delivery; £59.—Etchells, 10, King Edward St., Lambeth. [9829

TRIUMPH, 1912, T.T., perfect condition; £36.—B. W. Robinson, 68, Killieser Av., Streatham Hill, S.W. [X5982

1913 Premier, 3½h.p., new 3-speed gear, not been ridden; £50.—Holden, West Wickham, Beckenham. [0721

1913½ T.T. Precision, 3½-4h.p., mag., nearly new unscratched; £32/10.—1, Ebner St., Wandsworth. [X6705

MOTOSACOCHE, 2¼h.p., 1911, in excellent condition. Amac carburetter; £18.—Philpott, Riverdale, Dorking. [0693

P. and M., 1908, 2-speed, F.E., excellent condition tyres good; £20.—Underwood, 17, Bury St., New Oxford St. [0805

DOUGLAS, 1911, 2-speed, free engine clutch, new belt, tyres good, running order, speedometer, lamp tools, and spares; £20.—Seen Smallman Garage, Sutton [0751

MOTOR BICYCLES FOR SALE.

5h.p. N.S.U., perfect; trial; nearest £17. — Carter, Queen's Head, Finchley. [0824

KERRY Motor Cycle for sale; £5, or offer.—Hider, Bossets, Farnboro', Kent. [0681

P. and M., 1911, Lucas, Cowey, fine condition; £40. —9, West Hampstead Mews, N.W. [0733

3½ h.p. Precision, brand new; sacrifice £36; Sensspray carburetter — Groves, plumber, Church St., Brighton. [0701

2¼ h.p. Rex Motor Cycle, in good order, complete; £6 10.—Hurlin and Co., 295, Mare St., Hackney. [0777

3½ h.p. White Poppe, Chater-Lea, mags., splendid running order; £12.—10, Cleveland Parade, South Woodford. [9848

IF You Want Bargains in 2nd-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet St., London. [X9705

QUADRANT, 3h.p., Hellesen, new coil, Amac, good condition, ride away; £6 10; after 8.—5, Villiers Av., Surbiton [0760

INDIAN, 1912 (late), 2-speed, free engine, Cowey, Mills-Fulford sidecar, only done 3,000; genuine bargain, £60.

INDIAN, 1912, specification as above, sidecar, excellent condition; £54.

TRIUMPH, 1911, clutch model, perfect order; £34

JAMES, 1910, 3½h.p., clutch model, very little used; perfect; £22.

NSU, 3h.p., 2 speeds, free engine, good condition; £17.—Flower, High St., Wheathampstead, Herts. [X6417

2¼ h.p. Minerva, perfect condition and running order; bargain, £7/10.—111, Lordship Lane, Wood Green, N. [0850

DOUGLAS, all models, for immediate delivery; trade supplied.—Rey, 5, Heath St., Hampstead, and 173, St. Portland St., W. [9668

ZENITH, 3½h.p., October, 1912, perfect order, new tyres, also sidecar chassis; £43, or offer.—Friend, Eden Green, Kent. [X6679

QUADRANT, 2h.p., overhauled, new coil, splendid condition, perfect order; £5/5, bargain; illness.—3, Charsley Rd., Catford. [0638

DOUGLAS, 1911, single-speed, perfect running order, excellent condition, accessories; £22.—Collyer, 47, Harlow St., Woolwich. [X6426

1912¼ Hobart, Precision engine, Hutchinson tyres, Sturmey-Archer gears; £47/10; deferred payments.—Below.

1912 Singer, 3½h.p.; £35 or deferred payments, bargain; only wants seeing.—Maguet Motor Co., 9, High Rd., Wood Green. [0785

LEA-FRANCIS, twin, chain drive, prompt delivery.—Hucklebridge, 133, Sloane St., London, S.W. 'Phone: 451 Victoria. [7543

TRIUMPH, 1912¾, free engine, not done 600 miles; £40, genuine bargain. — 228, Pentonville Rd., King's Cross, London, N. [X6740

1912 Lady's Humber Lightweight, 2¼h.p., 3 speed, free engine, almost new; bargain, £31.—Charles Cycles, 17, Taviton St., W.C. [X6515

MOTOSACOCHE, 1¾h.p., mag., B.B. C., new belt, Druid forks, and accessories; £13. — Millhouse, Oxshott, Ripley, Surrey. [0797

DOUGLAS, December, 1911, Dunlop belt, Avon tyres, splendid condition; £25.—Daniell, 73, Parsons Green Lane, Fulham, London. [0810

MOTOSACOCHE, 1¾h.p., spring forks, mag., free engine, new Whittle, h.b.c., Palmers; letter.—5, Third Cross Rd., Twickenham. [0853

ZENITH-GRADUA, 6h.p., 1912, picked engine, new condition; £49, or offers.—C. Thomas, St. Bartholomew's Hospital, Smithfield, London [0732

BRADBURY, 1911¾, new cyl., piston, valves, just overhauled, spares, accessories; £30.—Slatford, Holbeck, Hornsey Lane, Highgate. [0852

1912 Douglas, Model K, £36, runs better than when new, tyres unscratched, plating good.—Dr. Fox, Ingworth, Hellingbourne, Maid-tone [0043

TRIUMPH, clutch, 1912¾, lamp, generator, horn, spares, never used, not wanted; seen after 6; £40. 121, Upper Clapton Rd., London. [0512

GENUINE Bargains in new and second-hand machines can be obtained from Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Av. 5548. [0828

FN., 2¾h.p., splendid condition, 2-speed, free engine, just overhauled; a bargain, £20. R. H. Simpson, 11, The Grove, Horsell, Woking. [0855

HUMBER, chain driven, 3½h.p., long bars, low position, dry battery, good mechanical condition; £12. 10. 20, Star St., Edgware Rd., W. [0765

BAT-J.A.P., 3½h.p., 1911, absolutely reliable machine, in excellent condition throughout; £26.—Phillips, Westbourne House, Twickenham. [0648

MATCHLESS, 2¾h.p., ball bearing, overhead valves, Armstrong mark 6, 1913 not ridden; cost 55 gns., will take £41.—11, Angleseu Rd., Woolwich. [X5695

You get a year's motoring for nothing by purchasing your requirements from

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NEW HUDSON, 4 h.p., Model 7a, with Canoclet Sidecar **£75 12**
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ENFIELD, 6 h.p., combination **£84 0**
CLYNO, 5-6 h.p., 3-speed. THE Sidecar Machine **£75 0**
SIDECARS for Clynos from **£10 0**
MATCHLESS, 8 h.p., 2-speed, chain drive, model No. 8 ..... **£73 10**
MATCHLESS, 3½ h.p., twin, 3-speed **£63 0**
MATCHLESS, 6 h.p., twin, belt drive, 2-sp. **£73 10**
ENFIELD, 3 h.p., The Solo Mount **£52 10**
SCOTT **£68 5**
B.S.A., 2-speed, chain drive **£60 0**
JAMES, 3½ h.p., complete with Canoelet Sidecar, chain drive, 2-speed **£72 11**
LEVIS "Baby" **£33 12**
TRIUMPH, 3½ h.p., 3-speed **£59 15**
DOUGLAS, model O, 2 speeds **£48 0**
ROVER, 3½ h.p., 3-speed **£59 15**
SINGER, 4½ h.p., 2-speed, bracket gear .. **£65 0**
SINGER, 3½ h.p., 3-speed **£58 0**
SWIFT, 3½ h.p., 3-speed Sturmey-Archer.. **£58 15**
BRADBURY, 3½ h.p., 2-speed, chain drive **£60 0**
BRADBURY, 3½ h.p., 2-speed, chain and belt drive **£60 0**
BRADBURY, 3½ h.p., 3-sp. Sturmey-Archer **£60 0**
Early Delivery of all model **NEW HUDSONS.**
Two 6 h.p. **ENFIELD** Combinations, with wicker Sidecars. Just from works .. **£84 0**
PREMIER, 3½ h.p., 2-speed countershaft gear, really good **£56 0**
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New shop-soiled **CENTAUR-HUMBER,** 2 h.p. 3-speeds, free engine, listed at **£47 10.** First cheque **£36** secures.

If you require a second-hand machine equal to new, we have several.

CLYNO, 1912, 5-6 h.p., 2-speeds, free engine, kick-starter, lamp, horn, tools, etc., New coach-built sidecar .... **£47 10** the lot
RUDGE, 3½ h.p., new this year, free engine, absolutely as new **£40 0**
T.T. **SINGER,** 1913, 3½ h.p., specially tyred for racing, not done 400 miles **£37 10**
2¾ h.p. **TORPEDO,** complete with speedometer, lamp, and horn, 1912 model. A bargain **£26 0**
HUMBER, 3½ h.p., 2-speed, free engine, handle starting, also good Sidecar, complete. A bargain **£32 10**
TRIUMPH, 3½ h.p., 1908 standard, Mabon clutch, footboards, good machine ... **£24 0**
TRIUMPH, 3½ h.p., lamp, horn, tools, etc., in good condition. Accept **£18 0**
PREMIER, 3½ h.p., 1910 model, complete with lamp, generator, horn, tools, etc. **£25 0**
HOBART, 1912, 2¾ h.p., fixed-engine model, only done 500 to 600 miles, and cost well over £40, absolutely as brand new. Clear for **£30 0**
SCOTT Cycle, new October, 1912, in really grand order and condition, big bargain. Clear for **£55 0**
REX, 3½ h.p., in good running order..... **£4 10**

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MOTOR BICYCLES FOR SALE.

SUNBEAM, 2¾h.p., 2-speed, kick starter, quite new, slightly shop-soiled; 55 gns., usual price £63.—F. Spearman, Bridge St., Bishop's Stortford. [0735

TRIUMPH, free engine model, quite new; £46.—F. Spearman, Bridge St., Bishop's Stortford [0736

NEW Hudson, 2¾h.p., 3 speeds, ridden 300 miles, perfect condition; £36.—F. Spearman, Bridge St., Bishop's Stortford. [0737

CASS'S.—Trump-Japs, 1913, special offer, 6h.p., 3-speed, kick starter, decompressor, best frame in market; list £69.10, sale price 60 gns.

CASS'S.—Multi Rudge, late 1912, and Millford sidecar, perfect condition; great bargain, £41.

CASS'S. Multi Rudge, 1913, and sidecar, delivered June, as new; sacrifice, £48.

CASS'S.—James, 1912, and sidecar, excellent condition, 2-speed countershaft all accessories; £50

CASS'S.—Zenith-Gradua, 8h.p., late 1912, very little used, and £16/16 sidecar, complete with all accessories; £68, exceptional value

CASS'S.—All makes, new and second-hand, motor cycles and cycle cars supplied, sidecars, tyres, accessories; deferred payments.—Cass's Motor Mart, 5, Warren St., W. (opposite Tube Station). Tel.: 3624 Mayfair. [0813

TRIUMPH, little used, all accessories; owner going to Belgium trial; seen at any time; bargain £28.—The Oak, Cann Hall Rd., Leytonstone. [X6307

MATCHLESS, 3h.p. Twin, Armstrong 3-speed, 1912, been 20 miles only; cost 60 gns., must sell, £45. Dangois, The Bungalow, Pratt's Bottom, Kent. [X5696

1912¾ Premier, 2¾h.p., only used few times, equal to new, Lucas lamp and horn, spare tyre; £24, or exchange.—Reader, Mill Rd., Aveley, Essex. [0794

DOUGLAS, Nov., 1911, 2 speeds, free engine clutch, tyres like new, perfect condition; must sell; £32, near offer.—19, Woodlands Rd., Ilford. [X6663

SCOTT, 1912, 3¾h.p., 2-speed, kick starter, in splendid order; price £42.—Below.

SCOTT, 1911, 3¾h.p., late model, with large F.R.S. lamp and generator, Lucas horn, etc., 2½in. Palmers, recently overhauled by makers; £35.—Below.

SEE our Display Advertisement in this issue for full list of bargains.—Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [0829

1911½ Triumph Standard, in perfect condition throughout, new parts fitted to engine by Triumph Co.; any trial; £32.—78a, Junction Rd., N. [0849

KERRY-ABINGDON, 3½h.p., 1910, Mabon clutch, new Peter-Union back, Miller head light, overalls; nearest £23.—Stevenson, 102, Riggindale Rd., Streatham [0768

4h.p. Roc, free engine model, Bosch, B. and B., good tyres and belt, £14; also sidecar, £4; or lower power and cash.—76, Summerley St., Earlsfield, S.W. [0637

IVY-PRECISION, 3½h.p., perfect condition, done about 1,200 miles; £32, a bargain, offers considered.—Neve, 7, Wincott St., Kennington Rd., S.E. [0545

T.T. Bradbury, 1913, had 3 months' wear, cost £50 bargain, £34; Motosacoche, 2h.p., mag., Whittle equal new; £17.—Salt, 82, Balling Rd., Hammersmith [X6569

TRIUMPH, late 1909, good condition, lamp, generator, horn, tools, only used week-ends; any trial given; £25; £27 with sidecar.—56, Franklin Rd., Brighton. [X6632

TRIUMPH, 1907, mag., 1913 B. and B., X'all saddle, Jones speedometer, lamp, horn, tools, splendid condition; trial; £25.—Allen, Crouch, Werthing. [0807

TRIUMPH, late 1910, Tourist model, 3½h.p., good tyres, perfect running order; must sell quickly; £22/10.—Petty's, 5, Norbury Parade, Norbury, S.W. [X6513

TRIUMPH, 1908, faultless condition, only used week-ends, this year's reliability winner, all accessories; £20.—W., 32, Woodside Rd., Kingston-on-Thames [0780

1913 2¾h.p. Torpedo Precision, free engine, new, unscratched; medical reasons cause of sale; cost £43, sacrifice £36.—Rydder, Wethersfield, Braintree. [0816

TRIUMPH, F.E., only done 1,000 miles, Lucas lamp and horn, new condition; bargain, £35.—Haworth, 7, Brunswick Mews, Gt. Cumberland Place, London, W. [0821

TRIUMPH, 1910, new Palmer cord tyres, exhaust whistle, lamp and generator, tools, splendid condition; £26/10.—Beaven, 9, Market Parade, East Finchley. [X6511

FOR Sale, 1911 2¾h.p. lightweight Enfield in first rate condition; owner buying new bicycle; great bargain £20.—Apply, K. R. Polly, Kentwins, Nutfield, Surrey. [0633

4½h.p. Minerva, Bosch, newly enamelled and plated, just overhauled, low position, nearly new tyres, grand condition; £18. 6, Lorenzo St., Pentonville Rd., W.C. [X6637

3½h.p. Bradbury, 3-speed, only done 75 miles, new in July, 1913 complete with lamp, horn, and tools accept £52/10.—Motorist, 51, Stanton St., Peckham London. [0731

2¾h.p. Douglas, T.T., new April, P.H. lamp, generator, horn, Jeoheroons speedometer, condition as new, just overhauled; £45. Osmond, 45, Blackheath Park, S.E. [0720

MOTOR BICYCLES FOR SALE.

1912½ 6h.p. Free Engine T.T. Matchless and £12/12 sidecar, Lucas lamp, horn, cost £85, all as new; £46, no offers.—472, Archway Rd., London, N. [0856

6h.p. Antoine, Chater-Lea No. 6, spring forks, Hellesens, B. and B., new tyres 26in.×2½in., recently overhauled; £18.—114, Markhouse Rd., Walthamstow. [0745

1911 3½h.p. Rex, Bosch, B.B. (fitted last June variable gear, free engine, belt, and Dunlops, studded); highest over £25 secures. — Gurry, Elmdon, Walden, Sussex. [X6466

HUMBERS, 1911, 3½h.p., 2-speed, £30; and 2h.p., £20; both mag., new tyres, good condition and running order; buying car.—Hack, Marlowes Cottage, Hemel Hempstead. [0652

TRIUMPH, 1913, Tourist Trophy roadster, Phillipson pulley, Cowey indicator, lamp and horn, been only 1,200 miles, perfect order throughout; £43.—4, West bury Gardens, Ealing. [0812

RUDGE Multi, late 1912, in perfect condition, B and B., variable jet, spare belt, tools, suit overalls, etc.; £36, or nearest offer.—Bramble, 32, Thornton Av., Streatham Hill. [0817

DOUGLAS, 1911, 2-speed, overhauled, splendid, £27; with speedometer, lamp, suit case, accessories leather coat, riding suits, etc.; £33.—Lieut. Dible, Royal Warwickshire, Shornecliffe. [X6523

HUMBER, 1912, 2-speed, Dunlops, 650×65 tyre on back, fine condition, will pull a sidecar anywhere; £39.—17, Avenue Mansions, Finchley Rd., N.W. 'Phone: 4861 Hampstead. [0834

BAT-J.A.P., 7-8h.p., 1912, not run 3,000 miles, complete, lamp, speedometer to 80, 7 to 70 m.p.h., guaranteed, almost new tyres; £45.—Digby Johnson, Westmorland, Tunbridge Wells. [0630

3½h.p. Motor Cycle, Stevens engine, recently overhauled, in good condition, £7/10 cash; cane sidecar, upholstered, £2/10; would sell separately.—H.B., 10, Dunoon Rd., Forest Hill. [0845

PREMIER, 3½h.p., Sturmey 3-speed, free engine, lamp, horn, tools, Canoelet sidecar, new in November, special tuned engine, fast, reliable; £48. —Willey, Church St., Leatherhead. [0858

TRIUMPH, clutch, 1911¾, perfect condition, speedometer, lamp, horn, belt-tube case, spare belts, tubes, plugs, valves, tools; £35: ride 50 miles genuine purchaser.—Webster, Hadleigh, Essex. [0825

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled and are in perfect order.—Can be seen at above address. [0131

BARGAIN.—3½h.p. Bat and sidecar, T.T. handle-bars, head light and generator, horn, B.B., all new tyres and 1 new tube; £15 cash, or will sell separately. —W.J.P., 14, Woodcote Rd., Wallington. [X5978

F.N., 1913, 2½-3h.p., 2-speed, clutch, shaft drive, starts at walking pace, very little used, condition perfect; price £35 (lowest).—Williams, c/o Kendall, 13, Melbourne Grove, E. Dulwich, S.E. [X5512

1913 Ariel, 3½h.p., Armstrong 3-speed, free engine, and decompressor, spring seat-pillar, as new, only ridden few miles, £49; also Ariel sidecar for same, £6.—Sorrell, Clarnico Works, Victoria Park, N.E. [0695

THE Premier Cycle Co., Ltd., have a few good second-hand motor cycles for disposal, not the ordinary more or less worn-out machines, but cycles that will be a good advertisement to ourselves and a pleasure to ride.

PREMIER, 1912, 3½h.p., Armstrong 3-speed, and new Mills-Fulford sidecar, complete; £48.

PREMIER, 1912, 3½h.p., free engine model, perfect order, new tyres, ready to ride away; £36.

PREMIER, 1913, 3½h.p., crankshaft 2-speed, Canoelet, sidecar, lamp, and hooter, good condition; owner buying 7-9h.p. twin; £60.

PREMIER, 1913, 2½h.p., lightweight, had very little wear, tyres good; £28.

SINGER, 1912, 3½h.p., free engine model, splendid condition, lamp, etc.; £30.

MOTO-REVE, 1912, single-cyl., splendid condition; £21.

A FEW Shop-soiled Sidecars for sale, cheap; inspection invited; advice and trial run places you under no obligation to buy. Terms arranged.—Premier Depot, 20, Holborn Viaduct. [0763

J.A.P.-GRANDEX, 2½h.p., 1910-11, Bosch, B. and B., Druids, Palmers, spare Hutchinson butted, Lycett, spare Dunlop belt, accessories; £19.—Write, Gates, 110, Manwood Rd., Crofton Park. [0748

BRIGHTON.—Sunbeam, almost new, ridden 900 miles, £52; N.S.U., 6h.p., thoroughly overhauled and re-enamelled, offers over £18; agent for Douglas, Scott, Clyno, Premier, Bradbury.—Turpin's, 29, Preston Rd. [0311

3h.p. Minerva, spring forks, new tyres (Hutchinsons T.T.), comfortable seats, £9; also new sidecar basket, beautifully upholstered, white cane, latest pattern, with apron, 21/-.—Laurel Brook, Castlands Rd., Catford. [X6309

KERRY-ABINGDON, 1911 free engine, adjustable pulley, lamp, horn, generator, speedometer, belt and tube case, with spares, tools, etc., overhauled in May; £29/10.—Nicholas, 99, Chamberlayne Rd., Willesden, N.W. [0808

Replace it!!—

with a NEW mount.

—If you're not satisfied with your present mount, and being discontented, wish for something better—bring it to ME. I'll make you a liberal allowance for it, and fix you up with a brand new 1913 Model—a mount that will give you perfect satisfaction—a mount you'll be proud of.

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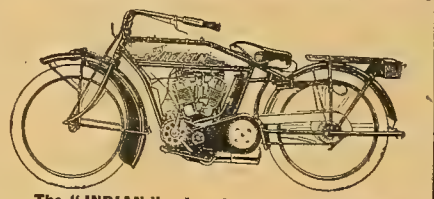
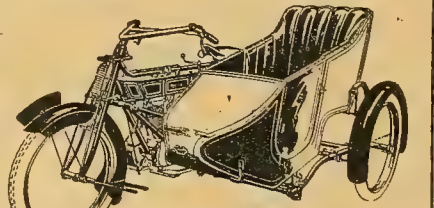


The "INDIAN" 7 h.p. Twin 2-sp., price **£70**



The "ENFIELD"

6 h.p. Two-speed and Sidecar, **82 Guineas.**

—All models of MONTGOMERY, CANOELET, GLORIA, MILLS-FULFORD, etc., Sidecars in stock.

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in 1913 Motor Cycles and Small Cars (soiled only)—also 50 "Second-hand" Motor Cycles from **£10** to **£60** each—all overhauled and guaranteed in perfect condition for riding.

—If you fancy a Small Car—I can supply from stock,

G.W.K.	complete	**£150**
HUMBERETTE	,,	**£125**
ALLDAY'S Midget	,,	**£138**
SINGER	,,	**£185**
FORD Runabout	,,	**£135**
FORD Touring Car	,,	**£150**
PERRY	,,	**130 Gns.**
CALTHORPE Minor	,,	**160 Gns.**

—and early delivery of STANDARD, SWIFT, etc.

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"EVANS"

MOTOR BICYCLES FOR SALE.

ROBINS and Day, Ltd., The Motor Garage, Rochester, have for sale 1912 Douglas machine, complete with lamp and accessories, £28; T.T. Rudge, 1913 pattern, at £38; Douglas, model R, at £35; bargain prices for quick sale. [X6508

1913 T.T. Douglas, absolutely as new, ridden a few miles only, special exhaust and gears, adjustable pulley, tools and spares, exceedingly fast, guaranteed perfect; cost over £50, accept £42, nearest.—P. Davies, Ailsa Tavern, St. Margaret's, Twickenham. [0803

ROVER, 3½h.p., F.E., Sturmey-Archer 3-speed gear, delivered June, 1912, Lucas lamp and horn, Cowey speedometer, practically new front Dunlop tyre (only run 10 miles); may be seen by appointment; £44.—P. W. Johnson, Kirk Braddon, Croydon Rd., Beckenham, Kent. [7500

1913 2¾h.p. Enfield, 2-speed, free engine, kick starter, speedometer, Lucas lamp and generator, horn, mirror, and reflex light, done 400 miles; price £46, cost £56 June last, perfect condition; want light car.—West, c/o Seymour and Co., 131b, Plumstead Rd., S.E. [0666

HUMBER, 2¾h.p., twin-cyl., late 1912, Lucas head lamp and generator, horn, mirror, pan seat, watch, speedometer, only run 900 miles, paintwork unscratched, smart little machine, fast and good hill-climber; bargain, price 30 gns.—Apply, 89, Wigmore St., W. Tel.: 3743 Mayfair. [0703

3½h.p. Fafnir, free engine, B. and B., h.b.c., low, 2¼ Clinchers, Chater No. 6 frame, ⅞ belt, powerful, fast engine, everything splendid condition, all accessories; trial; bargain, £10; the sidecar, latest shape, torpedo, side door, 26×2¼ Palmer, mat, £3/10.—45, Charles St., Commercial Rd., E. [X6699

1913 Bat-Jap, lap Brooklands over 70, £65; 2½h.p. Hazel-Precision, 2 speeds, nearly new, £35; 2½ h.p. Hazel-Jap, fine condition, £28; 2¾h.p. Hazel, exceptionally fast, £25; 3h.p. Quadrant, mag., been modernised, £18; 2h.p. Moto-Reve, £15; many other machines from £8.—Hazel Motors, 24, Woodford Rd., Forest Gate, E. [0729

BARGAINS. Bargains, Bargains.—1913 Rover, 3-speed, with sidecar, £45; 1913 Rover, 3-speed, shop-soiled, £48; 1912 Humber, 2-speed, and sidecar, £37; 1912 Premier, 3-speed, and sidecar, £42; 1912 Bradbury, clutch, new, £35; 1912 2-speed Bradbury, £32; 1912 Enfield combination (October), £55.—Batchelor and Co., Clarence St., Kingston-on-Thames. [X6566

MESSRS. PALMER and Kitson, South Eastern Garage, Herne Hill, London, S.E., guarantee all the following machines to be in running order: Zenith-Gradua, 6h.p., 1912, Millford sidecar, £55; Antoine tricar, 4½h.p., 2 speeds, £15; 3½h.p. 1912 Zenith-Gradua, £36; 5h.p. 1911 F.N., £28; 1¼h.p. F.N., £10; 2¼h.p. Clement, £10; 1910 Douglas, £18; 4h.p. Peugeot and sidecar, £15; 1912 2½h.p. Calcott, £27. Accessories.—First P.O. secures the following; money refunded willingly if not satisfied; Mabon clutch, new, suit lightweight, £2; Jap car carburetter, new, 70/-; Ford car carburetter, 20/-; cycle car generator, new, 17/6; pair electric cycle car lamps, new, 20/-; exhaust whistle, h.b.c., 10/-; inner liner for car cover, new, 7/6; car tube gaiters, new, 5/-; Triumph pattern bars, with all 5 controls, new, 25/-; adjustable pulley, suit J.A.P., 5/-; etc., etc. Write for lists. [8457

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

DOUGLAS, 1913, Model O., £48; Model R., £52; both in stock.—Moffat, Yeovil. 'Phone: 50. [5324

3¼h.p. Royal Enfield, in perfect condition; £8.—Newbury Cycle Works, Gillingham, Dorset. [X6584

EXETER Motor Cycle Co., 6 and 7, Bath Rd., Exeter. —The big western people for motor cycles and cycle cars.

EXETER Motor Cycle Co.—6h.p. Enfield, £86/2; 3 h.p. Enfield, £52; 2¾h.p. ditto, ditto, £50.

EXETER Motor Cycle Co.—3½h.p. Singer, £58/15; 3½h.p. Centaur, £57/10; 2h.p. ditto, ditto, £37; 1912 Bradbury, new, £45; 3½h.p. Zenith, £55/13.

EXETER Motor Cycle Co.—G.W.K. cycle cars, Rollo ditto, etc., etc., in stock.

EXETER Motor Cycle Co. for sidecars. About 30 second-hand motor cycles and cycle cars ready for the road, £15 to £145. Deferred payments arranged on any the above from 2% on balance.

EXETER Motor Cycle Co. for repairs.—Expert mechanics ready at a moment's notice to ride 30 miles either way to do roadside repairs.—Ring up 975.

EXETER Motor Cycle Company for quick supplies to the trade. Write for terms. Most the best makes stocked. [1722

LEA and Francis Motor Cycles actually in stock; delivery at once; 65 gns.—Guy, Reynolds, Weymouth. [0847

DOUGLAS, 1913, model R, only ridden 150 miles; bargain, £45.—St. Malo, Ellenborough Park, Weston-super-Mare. [X5555

WHITE and Poppe, 3½h.p., Bosch, Druids, Triumph free engine hub, Davison tank, X'all saddle, splendid condition; £25; trial.—Middlesex House, High St., Taunton. [0761

TRIUMPH, clutch model, good condition, £38; New Hudson, 1913, and Canoelet sidecar, 72 gns.; Rex, £16; Victoria Precision, 1913, 2½h.p., new, £33.—Harris, Parade, Exmouth. [2542

August 28th, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND FORTY-FOURTH CONSECUTIVE ISSUE.

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The Six Days' Trials.

EVERY year, in commenting on the A.C.U. Six Days' Trials, we have stated that they are the stiffest that have ever been held, which is, of course, quite right, since, as machines improve, so must trials grow more difficult, to enable machines to be adequately tested. Now, this year the test was made more arduous in two ways. Firstly, by increasing the severity of the course, and, secondly, by making the regulations more stringent. As will be seen on reference to the report, terrible roads had to be traversed, roads perhaps that the ordinary motor cyclist would not dream of using, but roads which tested hill-climbing, the power of picking up, the strength of the frame, and the skill of the driver.

Motor cyclists are rarely afraid of hills, and many dearly delight in surmounting, or attempting to surmount, hitherto unclimbed gradients; but the trials competitors did not like bad-surfaced hills on which a skid on a patch of loose stones might cause a tumble which would deprive them of a first award at one fell swoop, merely through luck, because these difficult hills always occurred in non-stop sections. Unfortunately, the element of luck cannot be eliminated, though it must be admitted that the chances of a fall are certainly increased by bad surface, and in many places the roads of this year's routes were absolutely abnormal.

These are the chief grounds the competitors had for complaints, and they were made on the Tuesday after a long and tedious ride over bumpy surfaces, which harassed the riders' nerves and made them saddle-sore, and, as an official remarked to us, "a man who is saddle-sore is worse off than a bear with a sore head." The grumbling, though by no means groundless, was, we are sorry to say, put forward in a rather unsportsmanlike manner. However, the Union is undoubtedly to blame for stating that no abnormal hills or roads having an abnormal surface would be included, and, though such a statement should never have been published, the officials did their best to repair the error by making the worst hill and the deepest watersplash a means of gaining extra marks by a successful competitor, while the unsuccessful lost nothing. In consequence of the severity of the trial comparatively few gold medals have been awarded, but the public should bear in mind that these trials are not organised to prove how good the modern motor cycle is, but to show what it can do under abnormal conditions, and those which do perform well must be super-excellent.

The average speed of 20 m.p.h. in such country as was traversed was well-nigh impossible to attain, but here again the A.C.U. did its best to remedy matters by adjusting the time limit to suit. Obviously, it would have been better to have foreseen such a contingency, and next year it is to be hoped the same error will not be made.

The organisation was good on the whole. The secretary's general scheme was excellent, and where it failed it was through too much being taken on by one man, and too little delegated to responsible lieutenants.

The press arrangements were very poor. In fact, we may say that results were issued to the competitors but not to the press. Every night preliminary tables of marks lost were posted at the official hotel, but it was well-nigh impossible to copy such a mass of figures amid a surging crowd of competitors.

Nearly all Saturday the judges, Captain Davidson, R.E., and Mr. Archibald Sharp, were examining the machines, and a very thorough examination it was, even though superficial, as, of course, no engines or gears were stripped for inspection. Generally speaking, the machines finished in good condition, distinctly better, in fact, than last year. Among the points which call for criticism may be mentioned control wires, which in many cases were stretched or broken, though in extenuation it may be said that in many instances bad fitting was the cause. Magneto controls were very unsatisfactory, being in many cases jammed, thus causing the drivers to have a fixed ignition. In some cases gear or clutch control pedals were fitted to footrests or footboard supports, which does not appear to be very satisfactory, as in the event of a fall the footrests were the first to suffer. Front brakes were often found to be sticking. The condition of the change-speed gears on the whole was good, but apparently there was often too much play in the dog clutches. This does not, of course, mean the amount of play purposely left by the makers, which was ignored. Several machines finished with leaky tanks, and, of course, there were a number of broken footrests due to falls, and frequently loose or strained mudguards. As regards general cleanliness of machines we regret to say there has been very little improvement.

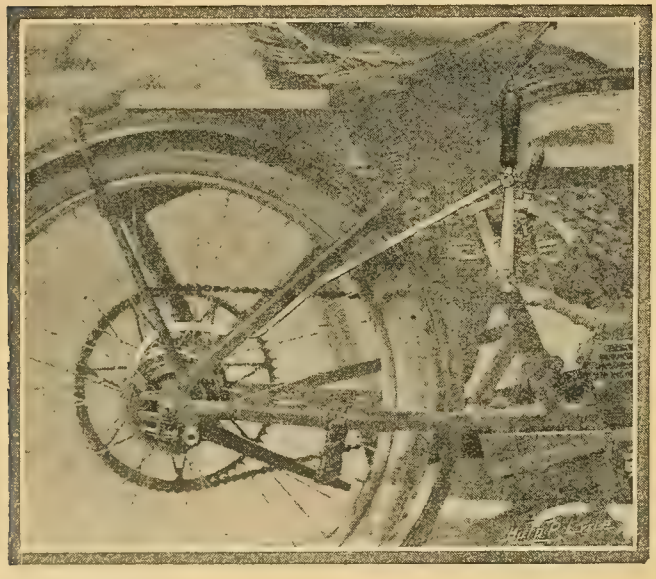
The Pedersen-Alpass Three-speed Hub Gear.

IN these days when motor cycles are expected to carry their owners, when required, up mountain tracks where sheep generally have undisputed territorial possession, it is imperative first of all to have a variable gear, and, secondly, that the gear employed should absorb as little power as possible on its lower ratios and run with as little friction as possible.

We do not propose to enter here into the question of hub and counter-shaft gears, fierce as the battle is, but we have just had the opportunity of examining and seeing in action a novel three-speed gear primarily designed for use in the rear hub, but which can, if preferred, be employed in the counter-shaft of a motor cycle.

This gear is the Pedersen, the invention of Mr. Pedersen, of Dursley-Pedersen cycle fame. The inventor has spent years experimenting in this direction, and the gear under notice is what he has finally decided upon as the best of a long series. It has several claims to notice. In the first place, it is comparatively small, and its total weight is only 8 lbs. Next, the whole of the shell is given over to the gear, which allows large pinions to be employed, and ball bearings with an ample margin of strength on which the pinion straps may revolve, thus going far to eliminate frictional losses. Then the clutch, though on the hub, is external, and is adjusted from the outside in literally a moment by the screwing up or down of a plate with a hammer and small tommy bar. Lastly, the inventor claims that it can be fitted to any existing 3½ h.p. motor cycle without structural alteration to the rear forks.

Mr. Pedersen ascending Birdlip Hill with his Douglas and sidecar fitted with the Pedersen-Alpass hub gear.



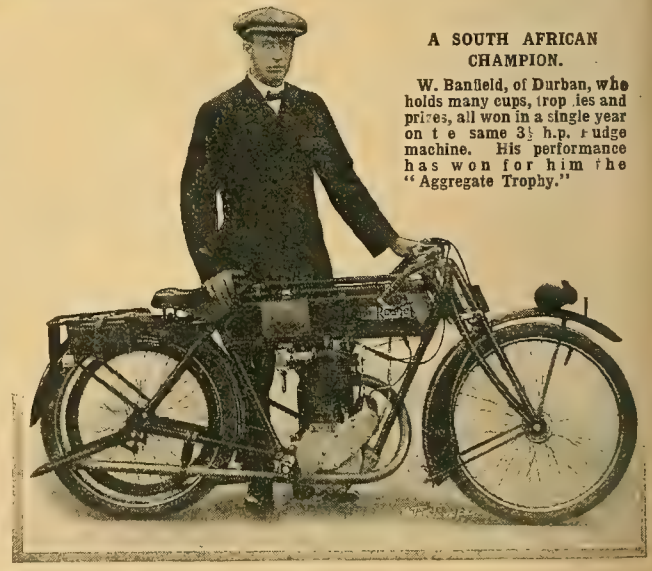
General appearance of the experimental Pedersen-Alpass hub gear fitted to a Douglas.

For the purpose of testing the gear a representative of *The Motor Cycle* attended at Birdlip Hill last week when Mr. Pedersen, after explaining his gear, made several ascents of the famous hill on a 2¾ h.p. Douglas fitted with the new device. The Douglas gear box had been removed *in toto*, and a sidecar fitted to the machine. The drive was by a single direct chain from engine to rear sprocket, and the ratios were 7 to 1 on top, 10 to 1 second, and 15 to 1 on first speed. After making an ascent with one passenger, the inventor brought up his wife and two children in the sidecar, the whole load being hauled up to the last bend on second gear, first speed being required for the last hundred yards or so. Of course, this shows the wonderful pulling powers of the little engine, but it also shows that the gear runs with smoothness and with very little friction.

A feature of this gear is the very small number of parts, the inventor stating that there are only fifty-two in all.

We are informed by members of the Pedersen-Alpass firm that it is hoped to produce the gear in quantities in six months' time, and that the selling price will be very attractive.

One of our illustrations gives a good idea of the general appearance of the gear.



A SOUTH AFRICAN CHAMPION.

W. Banfield, of Durban, who holds many cups, trophies and prizes, all won in a single year on the same 3½ h.p. Rudge machine. His performance has won for him the "Aggregate Trophy."

Occasional Comments by "Ixion"

The Technical Trend of Trials.

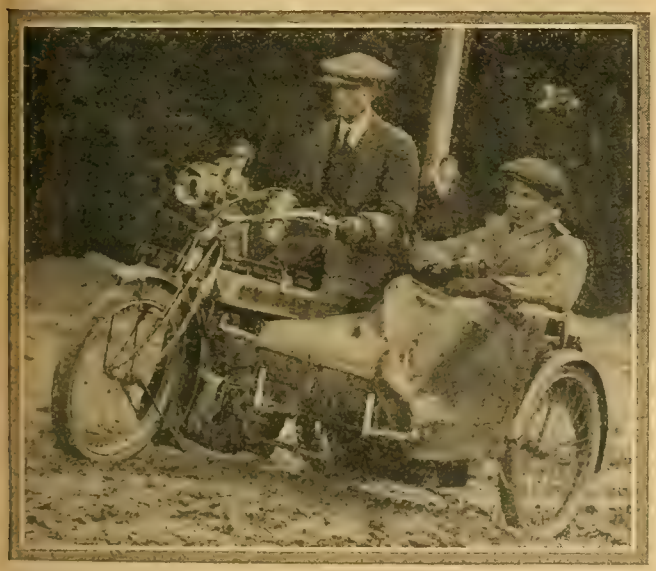
The A.C.U. have taken a definite forward step this year in the direction of making the premier trial a technical event. Not so long ago, the trials were sporting by emphasis. The test-hills were just not too severe for the machines, and it lay with the driver to perfect his tuning, his lubrication, his control of the levers, and his steering; but there was always a doubt as to whether he could earn enough hill-climbing marks to be sure of a gold medal.

As the climbing powers of machines were increased, various factors were imported to prevent a gold medal becoming ridiculously cheap; some of these factors were almost entirely arbitrary, as, for instance, the close timing schedule; others had some distant reference to the real purpose of the trials, *e.g.*, the deduction of marks for a bent pedal or lost brake shoe. But finally the introduction of variable gears, providing emergency ratios of 15 to 1, if desired, has killed the sporting aspect, and, though the rider still has much in his hands, the accomplishment of a really fine performance rests principally with the designer.

That regiment of riders for whom competition work is a delightful hobby, must regret the change; but so far as the general public is concerned, it is desirable that an A.C.U. trial should reproduce the precise scrutiny, the frank, dispassionate statements, and the scientific detail of an R.A.C. certificate. The trials serve a double purpose: (a) they supplement the work of commercial competition in developing the machines by setting them tasks a shade too difficult for all but the best, and (b) they serve to inform the public of the relative merits of different makes. Neither function has yet been fully achieved by any trial. In fact, it is impossible, when so many entries are handled, to answer the root question, which is: "In what condition have the different machines finished?" For it is not practicable to take so many engines and machines to pieces.

Perhaps it may be possible in 1914 to offer a substantial cash prize, say of £50, or even more, for the machine which finishes in the best condition. Under the head of "condition" we should include the degree of carbon deposit, wear of all kinds, whether in the engine or the machine, range remaining on any provided adjustments, tyre life, transmission wear, cleanliness, cable condition—in fact, the total effects of the distance on the machine. A fee of a guinea or so might be charged in addition to the original entry fee; this would limit the number of machines requiring precise examination.

If the complete details of this examination were printed in pamphlet form, the document would prove an invaluable guide to the buying public, for it would show the relative merits of various makes, give an idea of the absolute durability to be expected from a carefully handled machine, and condemn, by its silence, such makers as did not venture to compete for the special condition award. The main defect of all our trials is that they falsely equalise machines of widely divergent efficiency; and they have this effect because the differentiating methods they employ are superficial in character.



The North Canterbury Motor Cycle Club of New Zealand recently held a sidecar trial over 10 miles. The roads were very heavy in parts. Our photograph shows H. Jones, who gained first place on formula, driving a twin Abingdon-engined machine. Mr. Jones gained 983 marks out of a possible 1,000, performing a non-stop run with sidecar and fifteen stone passenger.

Spring Footrest Mounting.

Apropos of my remarks on the damage sustained by a machine when the rider gets a toss, a reader informs me that he has adapted his machine so that it is practically tumble-proof. He carries his lamp very low down, just above the front mudguard, and several falls have failed to affect it. His carburetter levers open inwards, and when shut do not protrude beyond the handle-bar. His ignition is operated by one of the old-fashioned thumbslides, and is safely out of the way. His footrests have a friction grip on the front down tube, and the short drop arms, carrying the horizontal foot spindles, are telescopic, and normally distended by coiled springs.

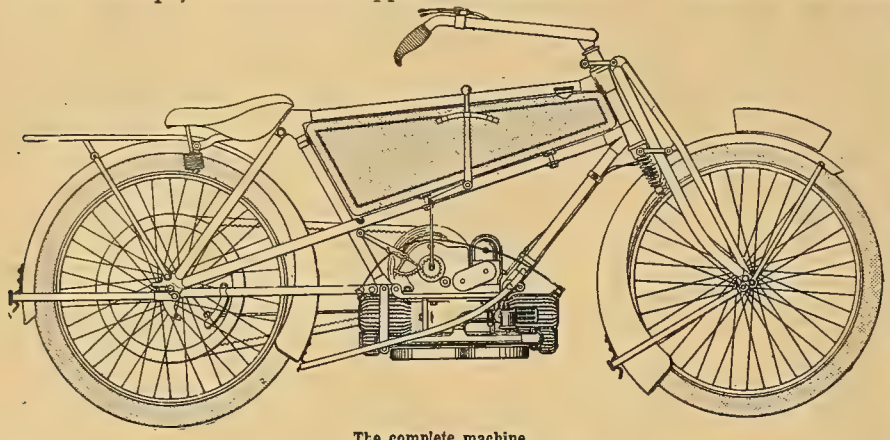
These springs ease the jars of rough roads, and when the rest hits the road in a tumble, the telescopic tubes and springs take the first brunt of the blow, and the friction clip on the frame tube takes the rest, so that he has never yet had to straighten a bent rest.

This design seems to me extremely sensible and practical, though I am a little surprised at the alleged extent of its success. I should have imagined that the blow caused by a fall was too sudden to permit time for the tubes to slide, the springs to compress, and the frame clip to slip. However, he is talking practice, and I am thinking theory, so probably he is right. Manufacturers, please note.

A Horizontal Engine with Vertical Crankshaft.

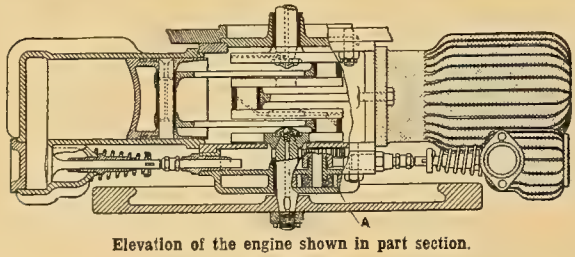
MR. G. F. RAYNER, 37, Chancery Lane, W.C., will shortly place on the market a machine fitted with a horizontal engine which possesses many interesting features.

In the first place, the frame is of approximately diamond shape, and has its opposite corners connected by diagonal strengthening stays. All the tubes, it will be noticed, are perfectly straight, and yet allow a low saddle position to be obtained. The long struts extending from the bottom of the steering head to the back axle are in duplicate, one on each side of the machine, and ensure great rigidity, thus enabling the frame to stand the strain of taking a sidecar.



The complete machine.

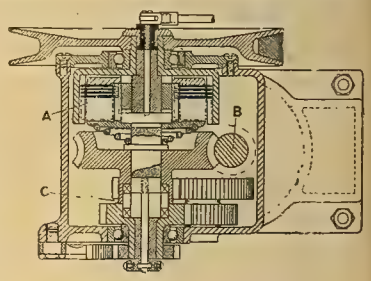
Another interesting feature is that the back wheel can be easily detached. The ends of the longitudinal struts and the back stays support the fork ends, independently of the chain stays, which are made detachable and serve only to hold in position and lock the back wheel. No adjustment is necessary when the back wheel is replaced. The chain stays are slotted and counter-sunk at one end, so that they may be quickly detachable from their connecting bolts, thereby allowing the back wheel to be removed from the slotted fork ends without the necessity of removing the brake shoes, etc. When replacing the wheel it is only necessary to connect up the chain stays by placing their slotted ends over the connecting bolt and then to tighten up the nut, and the wheel is again secure in place, and is perfectly true and in correct alignment.



Elevation of the engine shown in part section.
A. Oil pump.

The tank allows the rider to carry two and a half gallons of petrol and three pints of oil, so that, when it becomes necessary to replenish, a whole tin of oil or petrol can be taken.

The engine and gear box are bolted, one on the under side and the other on the upper side of a special engine plate forming part of the frame, and engine and gear box can be removed as a single unit, by disconnecting the petrol and oil pipes and removing two bolts, or the engine and gear box can be removed separately. The engine is of the twin-cylinder horizontally opposed type, 68 × 68 mm. The crankshaft is vertical and the flywheel is underneath, revolving in a horizontal plane, consequently no gyroscopic action can be set up and the axis of the flywheel is not deflected by the steering. The valves are large, being 1½in. in diameter, and are so arranged that if the valve head breaks it remains in the valve pocket and cannot get into the cylinder. The valve gear and tappets are all contained in the timing gear case, bolted to the under side of the crank case. The timing gear case also acts as an oil sump, and in it is situated a positively driven gear pump, delivering a constant stream of oil through an oil pipe to the top of the hollow crankshaft. This is drilled to supply the proper quantity of oil to each of the main bearings, to the gear box, the big ends, and the cylinders, through the radial distributing passages in the crank webs. The crankshaft projects into the gear box, and is supported in a third end bearing. The crankshaft drives the layshaft through a worm and wheel reducing gear, giving a reduction of 3 to 1. On the layshaft is mounted the two-speed gear, which is of strong and simple design, and a multiple plate clutch, so arranged that end thrust is not communicated to the bearings. Outside is an 8in. pulley mounted on the layshaft, driving the back wheel through a 1in. belt, or a chain and sprocket may be used if desired. The latest type of engine has both cylinders dead opposed, so that one piston has a double connecting rod.



Sectional Plan of Gear Box
(A) Flate Clutch.
(B) Extension of Engine Shaft (driving through worm and worm wheel)
(C) Two-speed gear.

The magneto is mounted forward of the gear box, and is driven direct from the engine through a train of gear wheels.

All the control wires pass through the handle-bar and hollow steering column, giving a very neat appearance. The clutch is either hand or foot controlled The change speed lever is mounted on the longitudinal struts of the frame.

Mr. Rayner has also designed a special two-stroke double opposed engine, working on a semi-Diesel principle, and capable of being run on paraffin.

SECOND DAY (continued): 164 miles. Carlisle, Wreay, Penrith, Orton, Grayrigg, Kendal, Sedbergh, WHITE SHAW MOSS, Ingleton (lunch), NEWBY HEAD, Hawes, BUTTER TUBS PASS, STONESDALE HILL, TAN HILL INN, Brough, Appleby, Skirwith, Glassonby, Kirkoswald, Gumwhitton, Warwick, Carlisle.

Our description of the first two days' runs published in the last issue left off with the report of some of the chief incidents on Gastack Beck Hill and the signing of a protest by 120 competitors against this hill being included in the trials. The feeling of those who protested was that the A.C.U. had gone too far in including a hill with such an abominable surface, a genuine "freak" hill if ever there was one, though the conditions assured all and sundry that hill roads having an abnormal surface would not be selected.

Among other incidents which we noted on this hill was that Longfield (Scott) fell, and afterwards found he could not get going properly, though just what had happened he could not at first trace. At length he found a sprocket loose, and he lost much time before reaching Ingleton.

On the lower bend the following made excellent performances: Featherstonehaugh (Rover), Little (Premier), Holroyd (Motosacoche), Sproule (P. and M.), May (A.J.S.), and North (Ariel). Though a non-competing J.B.S. cycle car succeeded, the one in the trial had to be assisted. The two G.W.K.'s, however, made very neat climbs. Teeton's performance on a James is worthy of praise for he had to pick a track around two fallen competitors, which was a most risky proceeding on the shoal of loose stones.

The Gastack Beck Terror.

Lee's big Zenith slewed from one side to the other and eventually stopped. De la Hay just got up on his Sunbeam with a little foot assistance. After all had gone by we remounted our machine, and came upon Gabriel and his Clément not many yards from Philip Grout (A.J.S. sc.) The French representative simply could not look at the Gastack Beck terror, so elected to retire. He had previously been delayed by tyre troubles. So with Guilloreau's retirement, owing to his inability to climb hills with his high gear, the whole of the French International team were out of the trial by Tuesday midday.

A. D. Arter, who was mentioned as being overdue in the last issue, had now retired, due, it appears, to timing gear trouble. P. Grout, whose retirement was mentioned in the last issue, was riding an A.J.S. sc. and not a Douglas.

After Ingleton the going was excellent past Newby Head to Hawes. The road ascended for miles over the Fells, and in many places the long line of competitors could be seen extending for some distance ahead. At times the road could hardly be called good, but it was a racing track compared to what was experienced later.

The ascent of Butter Tubs Pass was long and winding, while the surface was very rough; the gradient, however, did not appear to exceed 1 in 5, and troubled few of the competitors. On the summit there was a large crowd of spectators, nearly all of whom had come on motor cycles. On remarking on the poor surface to a local rider he replied that it was excellent in comparison to its usual condition as it had been swept. Roberts (Blackburn), Keyte (Enfield), and Cocks (Connaught), whom we had seen cleaning a plug on the moors a few miles back, all came up well. Lea (Lea-Francis) made a good ascent, while Applebee, sen. (B.S.A.) made an exceedingly good climb, which was heartily applauded. Dover (Premier), Platt (Bradbury), Longfield (Scott), Drake (P. and M.), Brittain (Bradbury), and Catt (Triumph) were all travelling well, and while we remained at the summit only one machine, a sidecar combination, failed.

Dangerous Descent.

The descent from the summit of Butter Tubs was frightfully rough, in fact dangerously so, and how the men managed to keep up their twenty miles an hour average no one knows.

After Butter Tubs Pass there was much undulating moorland road, still with stony surfaces, but nothing to

A.C.U. Six Days' Reliability Trials.—

what was in store. According to the official maps, Tan Hill Inn was the next test, but in the non-stop section preceding we came upon a little surprise hill, with a right and left-hand hairpin, which accounted for many failures. Again the surface at the bends was a mass of loose stones. The climb is known as Silver Hill, and on our arrival, after forty or fifty riders had passed, we discovered there was no observer taking notes, though the crowd of locals told us of several failures.

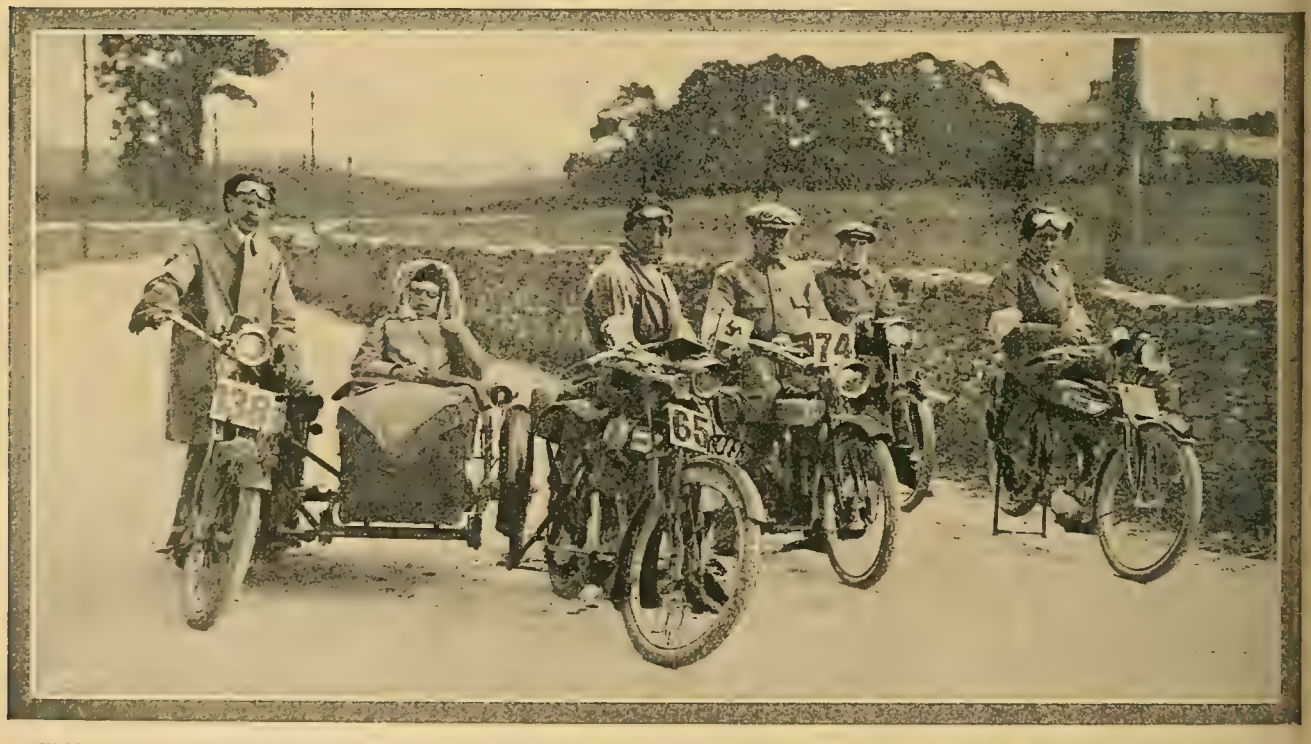
Silver Hill.

Catt (Triumph) punctured at the foot, but restarted easily enough. Ashley (L.M.C.) skidded. The Sunbeams got up very well, Steel in particular, also the P. and M.'s. Chater-Lea came to a standstill, and Phillips (Douglas), who had a clean sheet, fell on the loose stones. Morgan, too, had ill-luck, which, in fact, haunted him all the afternoon. One of the valves of his engine stuck up occasionally, and, as luck would have it, it occurred on the hill. The silencer of Jesse Baker's Scott had got damaged by a boulder on Gastack Beck during the morning, and in climbing Silver Hill the pipe dug into the ground and brought the rider down so heavily that the footboard was broken off; later a sprocket came loose. C. E. Murphy and F. G. Ball failed, though Gibb made a fine performance. As Greaves's Enfield passed we noticed his passenger carrying the sidecar mudguard. He with Alexander (Williamson) were easily the best of the sidecarists observed. Applebee (Scott) made a fine climb, whilst his father on the B.S.A. was as fast as anybody. The L.M.C.'s were doing exceedingly well.

S. Tubb (3½ h.p. Humber) passing through a water-splash on the way to Penrith.

When Charlie Collier appeared he had to work his way past Crosthwaite on a similar machine, who had stopped on the corner. Of the Humbers, Sydney Hine's climb was the best.

Just before we scurried along again the experimental Douglas cycle car, which W. W. Douglas is using to follow the trial, appeared on the scene. It stopped with a choked jet at the first attempt, but A. H. Alexander, who drove, then gave an exhibition climb, the car revelling in the gradient. The engine is water-cooled, and placed across the frame, and a three-speed and reverse gear box is provided, this being



Waiting outside the Penrith control on the second day of the trials. Among the riders may be seen W. H. Egglington (6 h.p. Enfield sidecar), D. M. Brown (3½ h.p. Rover), C. Lester (3½ h.p. P. and M.), F. C. North (3½ h.p. Ariel) and one of "The Motor Cycle" representatives.

A.C.U. Six Days' Reliability Trials.—

designed with the engine on the unit system. The final transmission is by shaft.

The Tan Hill Climb.

The first part of the climb was up a short sharp pitch of 1 in 5, fearfully loose as usual, and here was collected a fair number of spectators. The amount of interest taken in the trial is really extraordinary, and the people in the North are certainly keener adherents of the pastime than those in the West. At the end of the non-stop section one is in sight of the highest inn in England. The surface was awful, and the descent on the other side for many miles was as bad as any road we have seen, and here as in the other rough places it was difficult to stay in the saddle.

For five miles this sort of thing continued, until we felt sorry for those who had to average 20 m.p.h., for such a speed was almost suicidal. However, the surface improved gradually, and after a sharp bend the competitors passed under a railway bridge where the beginning of another non-stop section was marked.

Here Chater-Lea, jun., whose sidecar stay was broken, and several others halted before entering the section where no stopping was allowed. The road was good for a stretch, and then a rough byroad was taken. Why this was made a non-stop section was hard at first to understand, when on rounding a bend in the road a watersplash was suddenly encountered. It was not a very bad one, but it accounted for no little belt-slipping, which was awkward, as a fairly stiff ascent ensued shortly after. May (A.J.S.) dismounted, which was surprising, as one would have thought a chain-driven machine would have successfully negotiated a watersplash. Chater-Lea took it well, Baker (Scott) came through very fast and nearly skidded over. De la Hay (Sunbeam) and Hands (Williamson) negotiated the ford satisfactorily; Scoon (N.U.T.) suffered belt slip, but did not dismount; Browne (James) came through particularly well; and Hine (Humber) although he was in a non-stop section pulled up and looked to the ford before attempting to go through it.

The Harding and Summers cycle car, driven by P. D. Walker, taking the water-splash near Penrith.

Sproston (Clement), Mills (Zenith-Green), Hawkes (Rudge), Keel (N.U.T.), Brittain (Bradbury), and Marston (Triumph sc.) all dismounted. C. R. Collier (Matchless sc.) came through carefully. Vale (Rover) suffered from belt slip but proceeded.

Once the main road was joined the going was splendid through Brough and Appleby. The writer was now well in the rear of the procession and began to pick up the stragglers. Chater-Lea, now out of the competition, was seen in a blacksmith's shop at Long Marton, where the smith was forging up a piece of iron to repair the broken stay. Tamplin's G.W.K. was also out of the running and left in a stable in this village. A little farther on Lees (Zenith) was repairing a puncture, one of many, which eventually caused his retirement. Townshend (Trump) was also noticed repairing a tyre.

Shortly after this the final non-stop section was entered. Here another watersplash was encountered, which was the worst of the three met with in the day's run. Kerr (N.S.U.) dismounted. Townshend (Trump) got off, and, walking over the stepping stones, pushed his machine through the water. Walker (Harding and Summers cycle car) got through, but one of the belts came off afterwards. Altogether this ford, which was near Glassonby, accounted for over sixty failures.

The day's run has provoked much discontent owing to the execrable surface of the roads on the course and the inclusion of watersplashes in the trial. While it is just possible for the solo machines to cover the course and keep up the required average speed, it is very hard for the passenger machines to do so, and the ruts in the grass grown tracks render it particularly difficult for the three-track machines. To-night there was a general meeting of the competitors, when a general "strike" was discussed as a protest to the A.C.U. Between thirty and forty offered to retire, but as a majority was needed it was decided that the trade riders should wire to their firms asking whether they might withdraw.

It has certainly been a terribly stiff day, and most agree that the conditions are worse than in the Scottish Trials.

A. W. Walden (3½ h.p. Premier) and J. Hoult 3½ h.p. Matchless) climbing Greyhound Hill, Kendal.

THIRD DAY: 147 miles. Carlisle, Dalston, WARNELL FELL, (flexibility test), Caldbeck, Mungrisdale, Threlkeld, Dunmail Raise, Grasmere, RED BANK, Skelwith Br., Coniston, KIRKBY MOOR, Ulverston (lunch), HIGHER LATH, Broughton-in-Furness, KILN BANK, Broughton-in-Furness, Ulpha, THE SEAT, Eskdale Gn., Gosforth, Calder Br., COLD FELL, CROSSDALE, Cockermouth, Mealsgate, Thursby, and Carlisle.

This day's run was generally regarded as the fairest test so far. Instead of the bitter feeling against the A.C.U., such as existed after Tuesday's journey, one and all were generally agreed that there was really nothing to grumble at except, perhaps, the hairpins. The chief event of the morning was the slow speed and acceleration test on Warnell Fell, a gradient of about 1 in 12 to 1 in 8. Competitors first crawled over a distance of fifty yards at slow speed (minimum time 12s.), and immediately accelerated to the top of the hill.

It would be impossible to mention each performance individually, but we considered the following especially good: Oliphant (Premier), Kerr (N.S.U.), Newey (Levis), Little (Premier), Morrison and Tessier (Bats), Newsome (Rover), Keiller (G.W.K.), Stanton (Bradbury), Hardee (Triumph), Hunt (Campion), Drake (P. and M.), Haslam (Zenith), Applebee (Scott), and Gibson (Bradbury).

Percival (Douglas) stopped his engine in the slow test. A further attempt was allowed with the same result. Taylor (B.S.A.) either misread the conditions or his clutch slipped, for he was a long time getting up speed. It was very obvious to the onlookers that the three-speeders were at a distinct advantage. Several of the smaller two-speed machines had to utilise their low gears for the slow and fast sections, relying upon engine revolutions alone. An intermediate ratio was badly wanted in some cases.

On the whole the performances were good, though the majority appeared to enter the slow section too fast. Macdonald (Norton), Westwood (Triumph), and Gray (Rudge) travelled well on the slow section and fast on the fast section. Ashley (L.M.C.) and Milner (Levis) did not appear to be moving very rapidly on the fast section. Mundy (Triumph travelled very slowly but zigzagged about the road so as to extend the time. De la Hay (Sunbeam) travelled very slowly, but slipped his clutch a good deal, and then fairly fast for the rest of the distance. Morgan performed particularly well, but made rather a noise changing up after the slow test. That fine old sportsman, Applebee, sen. (B.S.A.), travelled slowly and then accelerated well. Sumner (Zenith), May (A.J.S.), Francis (Lea-Francis), and Cooke (A.J.S.) had to slow down by cutting out. Slater (J.B.S. cycle car) made a capital performance as the 90° J.A.P. engine showed excellent flexibility. He was foolish enough to change up too quickly, and stopped. Another try was allowed, when he travelled rather slowly up the fast section. C. R. Collier (Matchless sc.) was impeded by this cycle car and also was allowed another try; he then performed in excellent style. Several competitors followed Mundy's example of not keeping a straight course. Morrison (Bat), Colliver (Indian) who slipped his clutch, Pearson (Clyno sc.), Alexander (Indian), though not quite so slow as Colliver, did not slip his clutch and travelled more steadily, Moffat (Douglas), and Gibb (Douglas) all performed most satisfactorily, while North (Ariel) was quite one of the best. Walker (Harding and Summers cycle car) did not attempt to travel slowly. Bassett (Sun-Villiers) retired at the flexibility test owing to tyre trouble.

B. Alan Hill (7 h.p. Indian) and D. H. Noble (3½ h.p. Rover) ascending Gastack Beck.

A. V. Sumner (Zenith) passing fallen competitors on Gastack Beck.

A Friendly Lift.

Here mention must be made of the extreme kindness shown to one of our staff who was stranded through an ill-fitting cover. First Mr. Chater-Lea took the unfortunate on his cycle car to the foot of Warnell Fell, and then Messrs. Martin and Selwyn on the Singer cycle car drove

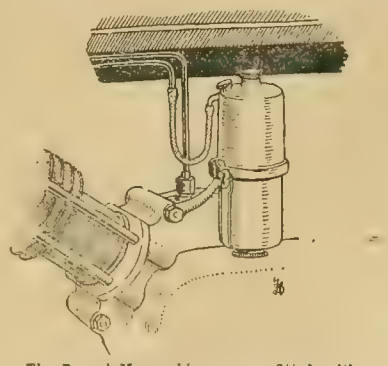
Gastack Beck, the hill which was included in Tuesday's route, and which was ultimately ruled out. E. H. Lees (8 h.p. Zenith) is seen passing stranded competitors just past the second bend.

him round the course. The little vehicle performed magnificently and took every gradient in splendid style. On our way towards Ulverston we passed Percival (Douglas) in trouble with his tyres and Pollock (James) whose chain had broken and damaged the sprocket and clutch, in consequence of which he retired.

On Higher Lath Hill, near Ulverston, Jepson (Zenith) ran off the road, stopped, and restarted, Blamire (Hazlewood) went on to the grass but made a clever recovery, Kerr (N.S.U.) fell, Marston (Triumph) dismounted, Baker (Scott) ran into the side but made a marvellous recovery, and Blackburn (Morgan) nearly upset but managed to right the vehicle. Lower down Steel (Sunbeam) skidded on the loose stones, shaved the wall, but, owing to his excellent clutch, got away again; Bradbury (Norton) turned to the side to let a sidecar pass, ran up the bank, and, though he kept his balance, stopped his engine and had difficulty in re-starting.

Kiln Bank.

Our next point of vantage was Kiln Bank, a mountain pass amidst some of the most lovely scenery we have yet seen in this beautiful district. The hill ascended from the valley with many a turn, the gradient was not much worse than 1 in 5½, and the surface was very fair. While we were posted at this point we noticed the following excellent climbs: Little (Premier), Keiller (G.W.K. cycle car), Gibson (Bradbury sc.), Applebee, sen. (B.S.A.), Silver (Quadrant sc.), Morrison (Bat), Newsome (Rover), Jepson (Zenith), and Stanton (Bradbury). Five competitors, however, were unsuccessful, most of them failing at the worst corner about two-thirds of the way up the hill. Far away in the distance the competitors could be seen ascending the first stages of The Seat, a stiff climb which mounted up the hillside in *lacets*. At the foot of Kiln Bank Neumann (Rudge) was in serious trouble with his tyres. The Douglas experimental cycle car ascended in excellent form. Here Murphy (Douglas) retired owing to losing his way and other causes. Good climbs were made by Mundy (Triumph), Fenn (B.S.A.), Andrews (Ariel), Garland (Chater-Lea sc.), Teeton (James) de la Hay (Sunbeam), the two Scott machines, Colliver and Alexander (Indians), D. Alexander (Williamson sc.), Heyte (Enfield), Morgan (Morgan runabout), Sawer (Premier), Lester (P. and M.), North (Rover), Milner (Levis), Collier (Matchless sc.), and Gibb (Douglas), who had suffered a puncture earlier in the day. Taylor (B.S.A.) and Steel (Sunbeam) both assisted with their feet; Applebee (B.S.A.) ran into the bank; Hands (Williamson) skidded and almost stopped; Dixon (James) came up well, skidded, but saved himself. Ritchie (Rudge) dismounted.



The P. and M. machines were fitted with generators on the crank case and plated pipes to lead the gas to the lamps.

On the Wrong Road.

Numerous riders went wrong at the foot of The Seat and had to ascend it twice. Notices clearly indicated that it had to be taken after the loop, which included Kiln Bank, but some busy-body at the corner sent every competitor up this way irrespective of whether it was his first or second round.

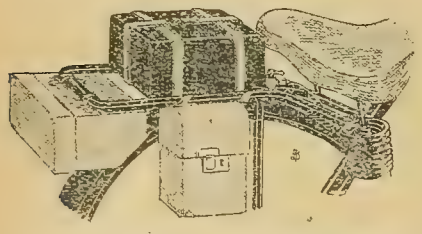
The afternoon run was full of incident. F. W. Applebee, sen., skidded on a bend and damaged his leg, and, before he had realised it, most of the petrol ran out of his tank; he had perforce to obtain paraffin at a cottage. Edmond (Humber) fell on one of the numerous hairpin bends and damaged his footrest, and Steel (Sunbeam), in avoiding some mountain sheep, grazed a rock, which broke his footrest bar in half. He continued with his legs dangling down, so that he and Jesse Baker, who fell on Tuesday, are in the same predicament. Sproule had another puncture outside Ulpha to-day in a non-stop section, which is very unluckly for the P. and M. team. In descending the Seat, Holroyd (Moto-accoche) unfortunately got a stone between the mudguard and the tyre, which locked the front wheel and threw him, hurting his wrist. He continued steering one-handed, but came off again on one of the right angle bends.

Hereabouts, George King, a familiar figure in these trials, turned up with a huge bunch of bananas and handed one

A.C.U. Six Days' Reliability Trials.—

to each of the competitors as he passed.

Near Gosforth, the Harding and Summers cycle car was withdrawn, the driver having lost his way and being generally "fed up" as he put it, and, later, near Cockermouth, Blackburn had to retire with his Morgan, the piston and cylinder having broken. This leaves but three cycle cars of the twelve which started two days previously, viz., Morgan, G.W.K., and J.B.S.



Arrangement of spare petrol tank and tool bags on Hugh Gibson's 3½ h.p. Bradbury.

There was a goodly crowd at Crossdale Hill, which was included in the last of Wednesday's non-stop sections. The gradient was, however, easy compared with what had been encountered, but three acute bends rendered the climb more difficult than it would otherwise have been. While waiting for the competitors to come along we tried the experiment of two up on the 2¾ h.p. Sunbeam we were riding, and this healthy little mount took its extra load up the hill with the greatest ease. There were no real failures though Guest (Matchless) was unlucky enough to have the change-speed lever jump out of engagement and bring his machine to a standstill before he could right matters. The Stevens brothers on the A.J.S.s took the hill very quietly, and Newey's Levis went up on the middle gear. Richards (Sun-Precision) evidently expected something bad when he saw the crowd for he smiled knowingly when he got round the top bend. Macdonald (Singer) was one of many who never used their lowest gear.

Corners Galore!

There was no hill worthy the name on the run to Carlisle, but the corners! Really, 20 m.p.h. is asking too much on such a tortuous route, yet by taking advantage of their opportunities when main roads were met with, the riders usually had a few minutes to clean their machines down. H. F. Edwards (B.S.A.) retired with loose flywheels, and Mills (Green-Precision) suffered timing gear trouble, and was towed to a station.

The casualty list was a long one on Thursday, for on arrival back at Carlisle we learned that Andrews (Ariel), who had started late owing to tyre troubles, skidded on the watered tramlines in Carlisle, and a motor lorry ran over his rear stays and wheel. Teeton (3½ James) charged a bank and burst a tyre on a bad corner near Carlisle, whilst Baker (Scott) punctured and rode two miles on the rim to get in to time. The crowds along the route cheered the riders on. At every lane, village, and street corner there was an interested group, and the police were most useful, but still one or two lurked behind bushes and gave the riders a fright now and then. News came in that Brittain (Bradbury) had retired near Bothel.

On Wednesday evening the adjourned protest meeting of competitors was held, and telegrams from the trade riders' employers were read. It was resolved to report the matter to the Motor Cycle Manufacturers' Union, and request that body to appoint a representative to inspect the course and decide whether it was fair and according to the regulations issued.

Oiling arrangement on the new Matchless. The oil is led to the back of the front cylinder and the surplus passes to the clutch mechanism.

The same evening the Auto Cycle Union announced that after due consideration it had been decided to rule out Gastack Beck and the watersplash, and no marks would be deducted for failures under these heads. This decision has naturally pleased many competitors as it means restoring gold medals to a large percentage.

H. Greaves (6 h.p. Enfield sidecar) at first bad bend on Gastack Beck.

OFFICIAL RESULTS OF FLEXIBILITY TRIALS.

DIVISION I.—MOTOR BICYCLES.

No.	Rider and Machine.	Slow. m.p.h.	Fast. m.p.h.	Mks.
1.	C. Pascall (2¾ Douglas)	Failed.		
2.	J. B. Spurston (2¾ Sunbeam)	7.43	17.92	24
3.	A. G. Cocks (2¾ Connaught)	5.28	15.51	18
4.	F. Phillips (3½ Diamond) ..	7.35	16.82	25
5.	G. Edmond (2¾ Humber) ..	4.80	10.45	19
6.	J. Gutteridge (3½ Velocette)	6.01	17.14	24
7.	T. C. Hall (2¾ Sunbeam) ..	5.84	18.51	25
8.	W. R. Stott (2¾ Scott)	5.82	17.01	28
9.	[illegible] (2¾ Scott)	6.11	17.88	25
10.	[illegible] Knowles (2¾ Humber) ..	5.05	18.89	21
11.	[illegible] Wilmot (2¾ Lewis)	6.40	13.51	21
12.	[illegible] Newey (2¾ Lewis) ..	6.30	16.54	25
13.	F. W. Morrat (2¾ Douglas) ..	4.75	16.01	25
14.	W. B. Gibb (2¾ Douglas) ...	5.85	18.17	25
15.	A. J. Spurston (3½ Clement) ..	4.83	10.79	25
16.	W. J. Sproulle (3½ P. & M.) ..	5.28	21.05	25
17.	C. D. Harlock (3½ Triumph) ..	5.15	19.14	25
18.	J. L. Rees (3½ Triumph)	5.88	17.85	25
19.	H. Kerr (3½ N.S.U.)	8.33	20.00	24
20.	A. E. Catt (3½ Triumph)	7.43	17.92	24
21.	S. Sauer (3½ Premier)	5.62	22.22	25
22.	J. W. Applebee (3½ B.S.A.)..	3.12	17.50	25
23.	W. C. Drake (3½ P. & M.) ...	6.5	19.48	25
24.	P. Shaw (3½ P. & M.)	5.83	18.75	25
25.	Maurice C. Breese (3½ B.S.A.)	6.92	17.64	25
26.	H. V. Colver (3 Enfield)	7.20	17.24	23
27.	F. Kevte (3 Enfield)	7.50	20.00	25
28.	H. G. Dixon (3½ James)	5.82	18.51	25
29.	J. Ingham (3½ Velocette)	4.84	17.64	25
30.	S. Tubb (3½ Humber)	5.32	20.93	25
31.	T. B. G. Vale (3½ Rover)	5.32	18.75	25
32.	G. E. Cutte (3½ Premier)	5.85	17.85	25
33.	W. E. Cooke (3½ A.S.L.)	5.28	20.93	25
34.	S. Browne (3½ James)	5.69	19.73	25
35.	E. Hawkes (5-6 Rudge)	5.83	22.22	25
36.	F. C. North (3½ Arc el)	6.29	20.00	25
37.	J. M. Ritchie (3½ Rudge)	3.75	19.14	25
38.	Herbert Ball (3½ Triumph) ..	5.83	21.05	25
39.	J. Oliphant (3½ Premier)	7.3	20.93	25
40.	J. S. Holroyd (3½ Motosacoche)	6.47	19.74	25
41.	W. B. Little (3½ Premier) ...	6.91	21.95	25
42.	C. O. Roberts (3½ Blackburn)	5.88	16.66	25
43.	W. H. Longton (3½ Alldays)..	5.83	14.15	24
44.	H. F. Edwards (3½ B.S.A.) ..	8.65	23.53	23
45.	L. Newey (3½ Ariel)	6.40	19.56	25
46.	R. A. MacDonald (3½ Singer)	7.75	21.05	25
47.	H. Taylor, jun. (3½ B.S.A.)..	4.43	17.78	25
	A. C. F. Andrews (3½ Ariel)..	5.14	15.85	25
48.	Vernon Busby (3½ Ariel)	4.84	17.64	25
49.	R. S. Sesson (3 N.U.T.)	6.21	20.22	25
50.	G. F. Reed (3 N.U.T.)	7.89	15.79	19
51.	James Robinson (3 N.U.T.)..	6.47	17.92	18
52.	J. Heath (3½ Matchless)	5.32	19.14	25
53.	F. Westcoat-Hall (3½ Premier)	7.75	14.03	18
54.	H. C. Mills (3½ Zenith-Gradua)	7.02	21.95	25
55.	Sydney J. Hole (3½ Humber)	5.45	15.79	25
56.	D. M. Brown (3½ Rover)	5.45	23.84	25
57.	Norman Lea (3½ Lea-Francis)	6.71	21.05	25
58.	L. Sealey (3½ B.S.A.)	6.11	15.51	25
59.	A. G. Frith (3½ B.S.A.)	5.11	24.19	25
60.	D. H. Noble (3½ Rover)	4.37	17.64	25
61.	G. Featherstonhaugh (3½ Rover)	5.99	19.82	25
62.	C. T. Newsome (3½ Rover) ..	6.97	22.93	25
63.	T. Pollock (3½ James)	6.38	22.93	25
64.	C. Lester (3½ P. & M.)	6.33	19.82	25
65.	Rex G. Mandy (3½ Triumph)	3.52	21.05	25
66.	G. J. Shemans (3½ Triumph)	6.5	19.82	25
67.	W. Westwood (3½ Triumph)..	6.33	18.51	25
68.	C. E. Murphy (2¾ Douglas) ..	7.62	18.51	25
69.	A. W. Walden (3½ Premier),.	6.47	20.00	25
70.	J. A. Neumann (5-6 Rudge)..	5.69	16.01	25
71.	Ian P. Macdonald (4½ Norton)	6.07	21.55	25
72.	G. T. Gray (5-6 Rudge)	6.91	22.78	25
73.	H. W. Tecton (3½ James)	5.88	20.93	25
74.	H. E. Ashley (4 L.M.C.)	6.40	11.30	17
75.	Dan Bradbury (4 Norton) ..	5.73	18.17	25
76.	Ray. Drinkall (4½ Quadrant)	7.75	18.51	23
77.	Gordon Castognoli (4 L.M.C.)	7.62	14.24	18
78.	L. A. Bees (4 L.M.C.)	6.40	15.10	23
79.	Fred W. Roberts (5-6 Rudge)	10.66	23.22	18
80.	H. Blamire (5-6 Hazlewood)..	6.66	19.95	25
81.	F. H. May (5 A.J.S.)	7.30	16.91	23
82.	A. W. Brittain (3½ Bradbury)	5.42	16.66	25
83.	G. W. Braithwaite (5-6 Rudge)	3.11	14.85	25
84.	P. Platt (3½ Bradbury)	5.32	20.45	25
85.	H. E. Haswell (3½ Bradbury)	5.55	17.24	25
86.	George Hunt (5-6 Campion)..	4.36	21.55	25
87.	H. J. Beal (4 L.M.C.)	7.62	15.10	19
88.	J. Richard (4½ Sun-Precision)	6.11	17.92	25
89.	J. Drysdale (5-6 Hazlewood)	6.71	19.11	25
90.	A. T. Stanton (3½ Bradbury)	5.42	14.23	25
91.	J. Douglas-Mann (3½ Bat) ..	5.11	14.85	25
92.	J. A. Gilmour (6 Bat)	5.69	20.00	25
93.	B. Alan Hyde (7 Indian)	5.28	21.05	25
94.	J. R. Alexander (7 Indian) ..	4.54	20.22	25
95.	G. V. Greeson (6 Bat)	5.2	15.5	25
96.	A. Sumner (8 Zenith)	5.5	29.26	25
97.	J. Hatton (6 Zenith)	7.01	22.93	25
98.	H. Jepson (8 Zenith)	7.02	22.93	25
99.	C. W. Smith (5-6 Bat)	6.81	21.05	25
100.	J. F. Morrison (5-6 Bat)	7.82	22.78	25
101.	M. Hanks (8 Williamson) ..	4.4	19.82	25
102.	Jesse Baker (3¾ Scott)	5.85	21.05	25
103.	F. A. Applebee (3¾ Scott) ...	5.11	20.57	25
104.	J. N. Longfield (3¾ Scott) ...	5.11	17.64	25

DIVISION II.—SIDECAR COMBINATIONS OR THREE-WHEELED CYCLE CARS.

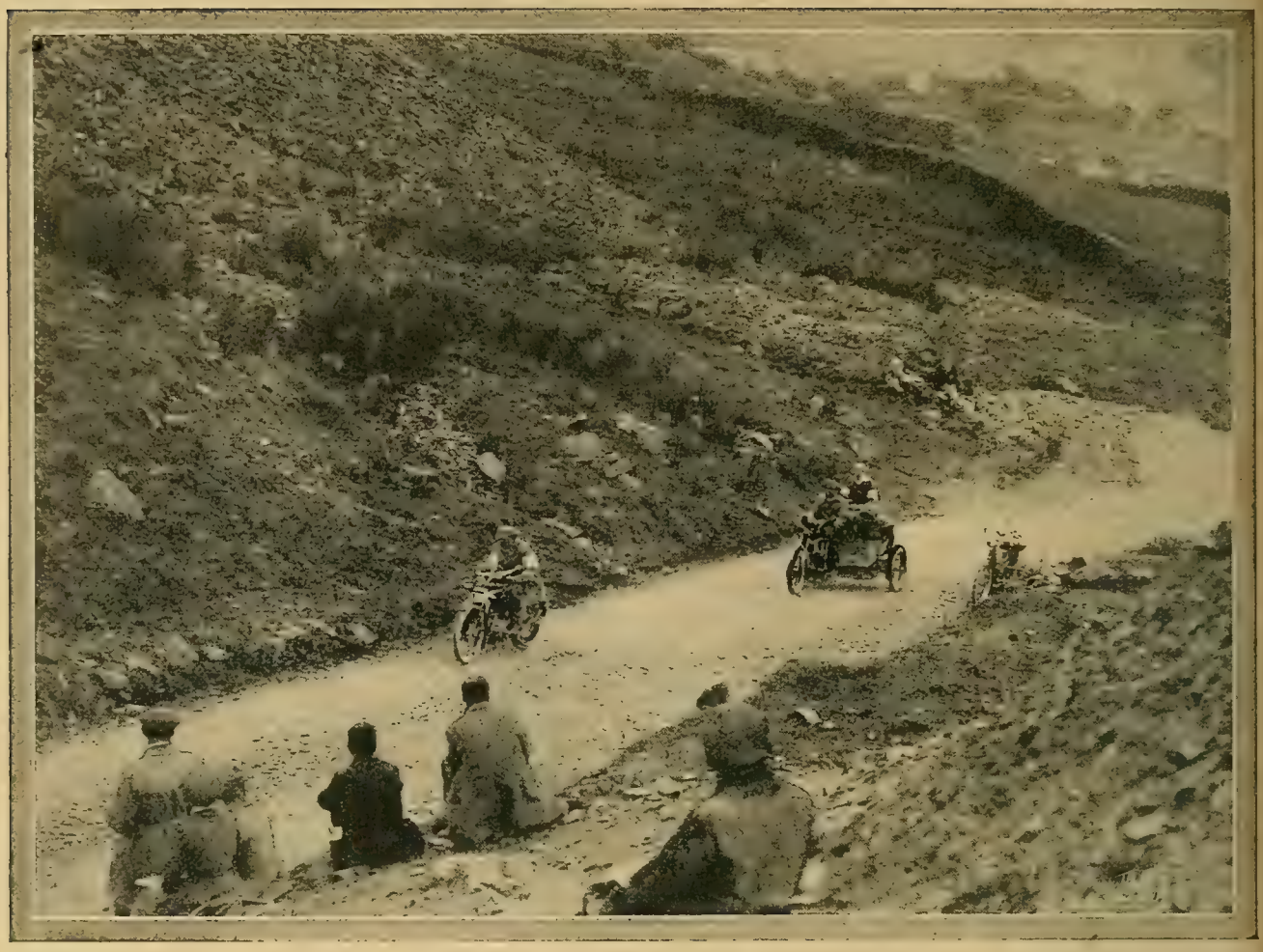
No.	Rider and Machine.	Slow. m.p.h.	Fast. m.p.h.	Mks.
110.	H. C. Marston (3½ Triumph)	7.3	15.25	20
121.	Hugh Gibson (3½ Bradbury)..	5.45	18.17	25
122.	A. J. Stevens (6 A.J.S.)	9.27	14.42	15
123.	D. Bell (6 A.J.S.)	6.47	14.95	23
130.	Rex Pearson (5-6 Clyno)	4.68	16.54	25
131.	Claude Freeman (5-6 Clyno)..	5.32	12.96	24
133.	George Wray (5-6 Clyno) ...	Failed.		
134.	George Nott (5-6 Clyno)	5.76	14.85	25
137.	H. Greaves (6 Enfield)	5.69	16.21	25
138.	W. H. Eggington (6 Enfield)	4.20	12.96	25
139.	F. Crosthwaite (8 Matchless)	7.13	12.16	10
143.	Fred Turvey, jun. (6 Enfield)	4.63	18.36	25
144.	V. Garland (8 Chater-Lea) ..	5.42	13.16	24
145.	T. Silver (7 Quadrant)	5.42	14.23	24
147.	C. R. Collier (7-8 Matchless)..	3.9	19.73	25
148.	R. E. Guest (7-8 Matchless)..	5.52	20.11	25
150.	H. F. S. Morgan (8 Morgan)..	2.80	17.92	25
151.	D. Alexander (8 Williamson)	5.32	15.10	25
152.	J. B. Blackburn (8 Morgan)..	7.43	12.43	17

DIVISION III.—CYCLE CARS.

No.	Rider and Machine.	Slow. m.p.h.	Fast. m.p.h.	Mks.
155.	P. D. Walker (10 Harding and Summers)	10.46	16.54	15
156.	C. M. Keiller (8 G.W.K.)	4.83	15.79	25
160.	E. B. Slater (8 J.B.S.)	3.46	9.37	18

The average gradients of Warnell Fell are 50 yards of 1 in 11 (slow), 200 yards of 1 in 7.9 (fast).

R. S. Sesson (3 h.p. N.U.T.) and A. V. Sumner (8 h.p. Zenith) on the hairpin on Silver Hill.



J. B. Westmorland (3½ h.p. Fremier) and J. Rutherford (8 h.p. Matchless sidecar) ascending Eutter Tubs Pass.

FOURTH DAY: 170 miles. Carlisle, Warwick, Carlatton, HARTSIDE, SLATE HILL, Wear Head, Westgate, WHITE EDGE, HORSESHOE HILL, Edmundbyers, Lanchester, Durham (lunch), Brancepeth, Wolsingham, Eggleshope, Middleton-in-Teesdale, Newbiggin, GRASS HILL, Knarsdale, Hallbank Gate, Talkin, Warwick, detour to Wetheral, and Carlisle.

Those who had borne the discomfort of wearing oilskins in the broiling sun of the three days previously, had cause to be thankful to-day, for the morning was dull and rain beat on the window panes as the unwilling competitors were roused from their slumbers. The gruelling nature of the trial was telling its tale, for many could not be pulled out of bed, and, as a result, we heard of quite a number who had to forego breakfast to start to time. Interest in the trial increased daily, especially seeing that the severity of the test had weeded out so many and the teams of three were considerably reduced in numbers. The Ariel team are most fancied, probably as a result of their striking success in the Scottish Trials. The L.M.C. riders had been doing exceptionally well until Ashley was put out on Wednesday with engine trouble, and another team had depleted ranks this morning when Noble (Rover) discovered a crack in the handle-bar attachment of his mount and elected not to start.

A Severe Route.

Thursday's run to Durham took the riders over indifferent roads, mostly by-lanes and moorland tracks, and it was considered by Mr. Loughborough, who selected the routes, the most severe of the five. At Renwick, the commencement of the first non-stop section, quite a crowd of riders availed themselves of the opportunity to effect adjustments. Then followed a long trying climb up Hartside, a left-hand turning on to the main road proving very troublesome, and again the right-hand turning to Alston. The roads were very slippery and treacherous, the grease vying with the Derbyshire quality, with the result that several stopped. Curiously enough, the rises on Thursday seemed particularly to favour three or four speeders. The gradients were not severe except in isolated cases, though too steep for top gear. The main road through Alston is paved with large cobbles and the rain had given them a greasy coating, which troubled the riders not a little, especially so in a non-stop section. In all eight came down and lost marks. Near Alston we encountered Browne (James), who had suffered exactly the same trouble as Pollock, the engine chain breaking and damaging the gear. We can only suppose that the absence of a slipping clutch caused the chains to snap.

The Highest Point in the Trial.

Catt (Triumph) and Hawkes (Rudge) had further doses of tyre trouble. The roads were very potholey to-day, and, together with the damp, caused great discomfiture. After Alston, the climb up Nenthead, the highest point reached in the trial, 2,056 feet, was commenced. The summit was obscured by clouds. Nenthead rises in stages, but it was not sufficiently steep to trouble the now well-tested machines. Two unmarked watersplashes after a bend had the effect of testing frames to the limit. Among those we have noticed riding very consistently may be mentioned Cook on the A.S.L. He is delighted with his Precision engine, and fears no hills, taking them all in his stride. The same remarks apply to S. T. Tessier and his twin Bat.

Fortunately the rain, which had left us on the summit of the pass from Nenthead, held off for some time, consequently the first real hill-climb of the day fortunately took place on dry roads. The

A.C.U. Six Days' Reliability Trials.—

hill, which is known locally as Peat Hill, rises abruptly from the village of Westgate, where a turn to the left is taken. It possesses many bends and has a maximum gradient of about 1 in 5, but the surface is very good, though a trifle loose. The machines performed very well, and only about nine or ten failures have to be recorded. Among the early arrivals was Applebee *père*, who has done some excellent hill-climbing during this trial. The hill ends with a sharp turn to the left, on which the surface is somewhat loose, followed by a sharp pitch of about 1 in 6 or worse. Just at the bend there is a by-road, up which Applebee stated he thought the course lay; anyhow he came to a standstill, and after this incident Mr. J. R. Nisbet, one of the stewards, had the arrow moved to a more conspicuous spot. To-day there seemed to be a marked improvement in the driving of the competitors, the corners were taken more steadily and more neatly, and it appears that the more inexperienced of the drivers are beginning to improve by experience. The Scotts, as usual, were beautifully driven and glided gracefully round the corners to the summit.

A. J. Stevens (6 h.p. A.J.S. sidecar) on Butter Tubs Pass, which was included in Tuesday's run.

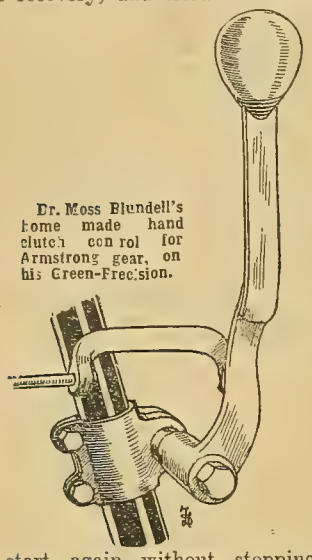
Some Good Performances.

Excellent climbs were made by Sproston (Sunbeam) and his colleague, De la Hay, Castognoli (L.M.C.), Gray (Rudge), Silver (Quadrant sc.), Greaves (Enfield sc.), Newey (Ariel), Freeman (Clyno sc.), Fenn (B.S.A.), Ball (Triumph), Mundy (Triumph), who is a particularly clever exponent of this make, Vale (Rover), Westwood (Triumph), Macdonald (Norton), the other Rover riders, Newsome and Featherstonhaugh, Scoon (N.U.T.), the P. and M.s, Collier (Matchless sc.), Cook (A.S.L.), the Douglas riders, the Indian team, and, in fact, the majority. Those who appeared to shine conspicuously above their fellow riders, both by the manner in which their machines ran and the way in which they were handled, were Turvey (Enfield sc.), Little (Premier), and Keiller (G.W.K. cycle car), while another cycle car which performed in good style was the J.B.S. Morgan came up splendidly on top to the last corner, the negotiation of which brought him down to first. As the driver opened the throttle on on engaging the low gear the cack wheel made the stones fly. Certainly Morgan knows how to get the best out of this handy little runabout. Alexander (Williamson sc.) and Applebee, junior (Scott) both climbed with water boiling. Neumann (Rudge) came up with his engine knocking. Stevens (A.J.S. sc.)

Wednesday's third non-stop section. D. Bradbury (4 h.p. Norton) and a P. and M. rider on the first corner of Crossdale Hill.

A.C.U. Six Days' Reliability Trials.—

made a good ascent but his machine appeared to be leaning outwards from the sidecar. Nott (Clyno sc.) came up with his right foot in an awkward position pressed up against the change-speed lever. Ritchie (Rudge) approached the last corner too fast, skidded, fell, made a quick recovery, and tried to turn round



Dr. Moss Blundell's home made hand clutch control for Armstrong gear, on his Green-Precision.

and start again without stopping his engine, but he failed to do so. Breeze (B.S.A.) came up knocking. Just short of Stanhope the competitors turned to the left and proceeded towards Edmundbyers. After climbing Horseshoe Hill the non-stop section came to an end.

There is a useful rise out of Stanhope known as Crawleyside, and, having observed the performances on previous steep hills, we halted here to note particularly which competitors could take a long twisty ascent of about 1 in 8 on top gear. The big Zeniths, of course, were very fleet, likewise the three 7 h.p. Indians. Others who never had to resort to their low gears included Hands (Williamson), Scoon (Nut-Jap), Applebee (Scott), de la Hay (Sunbeam), Cuffe and Walden (Premiers), May (A.J.S.), Tubb (Humber), Mundy (Triumph), Fessier (Bat), Newsome (Rover) and Little (Premier).

We noticed, too, many footrests bent, and other machines with no rests at all, which tells its own tale. Several of those who retired earlier in the week were out again to-day watching the competitors. Among them Murphy (Douglas), Cooper (Humberette), and Grout (A.J.S.) S. J. Hine, riding a 3½ Humber, wears no overalls, but just an ordinary overcoat; he was soaked when he got back on Thursday. In all, 111 riders climbed Crawleyside whilst we were observing two, Garland (Chater-Lea) and Hawkes (Rudge), passed very late.

But *the* hill of Thursday's route was encountered a mile or two from Durham. It is termed "a little Honister." First the riders were directed up a narrow roadway around farm buildings, through a chicken run, one rider said, while another thought he was being directed to the ash-pit. Then a sudden twist, and an appalling gradient was struck—probably the steepest in the whole trial, and to make matters worse it was greasy. Fully 50% failed. Two hardened riders, Fenn (B.S.A.) and Mundy (Triumph) confessed they were frightened. The grumbling as to what constitutes an "abnormal surface" and freak hill was reopened, and at lunch time there was talk of another protest to the A.C.U.

The Return Trip.

The first twenty miles from Durham was easy, and after lunch there was no non-stop section till just after Stanhope. Here a turn was made to the left; the road doubled back on itself over a stream, and then a turn to the right was taken. Next a level crossing was traversed, and the competitors found themselves at the foot of a hill known as Softly Bank. The surface was much the same as on Peat Hill, but the gradient seemed a trifle less severe. As on Peat Hill, there are many corners, but on Softly Bank these appeared to be more acute. As on other hills along the course, there was a large crowd of spectators. To return to the hill-climb, Busby (Ariel), who climbed well, together with other riders of that make, was the first to arrive. Gutgemann (Veloce) and Francis (Lea-Francis) made good ascents. Hunt (Campion) hugged the off side of the top corner rather too closely, but got up fairly well. Particularly good ascents were made by Macdonald (Singer), who rode magnificently, Greaves (Enfield sc.), who passed Ross (Triumph) after rounding the corner, Newey (Ariel), Fenn (B.S.A.), Westwood (Triumph), Ball and Gibb (Douglases), Baker (Scott), Mundy (Triumph), and the J.B.S. cycle car. Crosthwaite (Matchless) came up without his passenger, Ritchie (Rudge) skidded and nearly fell, and Bees (L.M.C.) narrowly missed a spill. Morgan, as usual, made a fine climb, and the same may be said of the performance of C. R. Collier. Longfield (Scott) and Haslam (Zenith) also made performances which deserve mention.

Rough Weather.

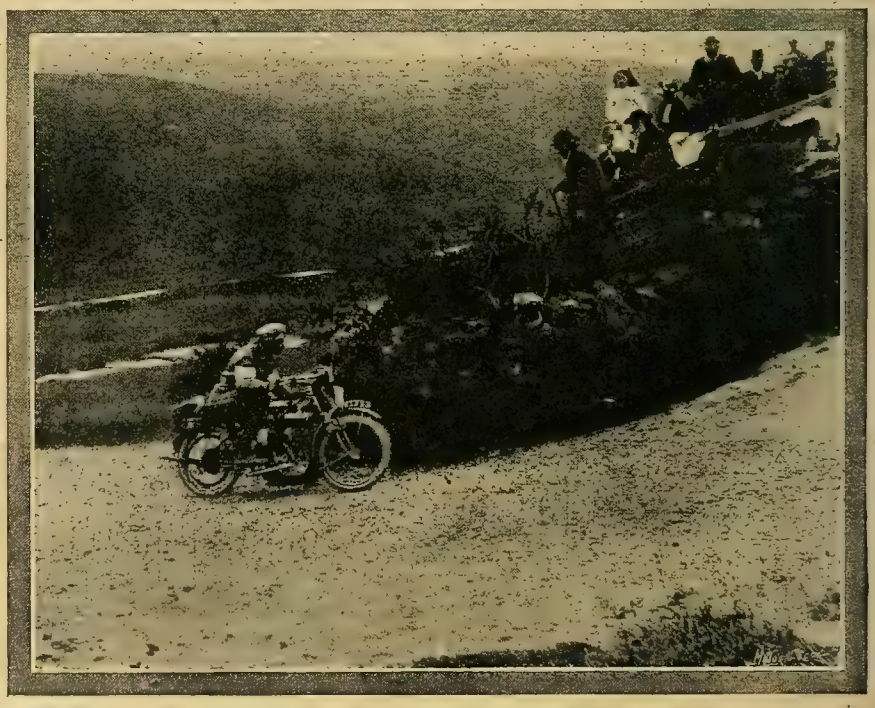
The long climbs over the moors against a howling wind will long be remembered. Two-speeders were obliged to crawl for a mile or two at a stretch, the surface being rough in addition. One hairpin following a watersplash required extreme care. We rode with Norman Lea for several miles. His Lea-Francis has improved every day since Monday when he stopped on the test hills due to overheating, and he is now thoroughly happy. He told us he was averaging 115 m.p.g. with the Everest carburetter.

Drake (P. and M.) had an involuntary stop to-day, due to such a simple thing as the high-tension wire touching the tank. Anyway, he loses four marks, and four more for charging the bank on Holmside Hill, though he restarted immediately on the clutch. Keyte damaged his silencer on the same hill, and one of his exhaust pipes is missing.

Once again competitors had the pleasure of sampling those Alston cobbles, some slithering down the hill crabwise. It had been drizzling for some time, and it now developed to real rain. The last non-stop section was from Hallbank Gate to Carlisle (15¼ miles). It commenced with the ascent of High Fell, a rough grass-grown track of 1 in 5 gradient.

High Fell.

The belt drive users knew what was in store, and stopped to shorten and dry belts. As soon as Greaves (Enfield sc.) struck the gradient, water ran down the tank and dripped on to the plug and stopped him, though he kept the engine running and rectified matters immediately. This was a case of genuine ill luck, for Greaves's sidecar has gone wonderfully well. He was one of the few passenger machine drivers to climb



A. G. Fenn (3½ h.p. B.S.A.) at the top bend of Silver Hill, Keld.

Group of competitors at the bottom of Warnell Fell waiting for the flexibility test. J. B. Sproston (2¾ h.p. Sunbeam) is seen starting.

Little Honister Hill this morning F. W. Applebee, sen., stopped with a slipping belt. After this last climb of the day there was a stretch of the worst type of Colonial road which continually jolted the riders out of the saddle. Big stretches of unrolled stones too prevented the maintenance of the 20 m.p.h. schedule. Gibb (Douglas) drove the last fourteen miles on a flat tyre, but, despite this, finished to schedule.

FIFTH DAY: 178 miles. Carlisle, Carleton, Plumpton Wall, Penrith, Hackthorpe, Shap, Forest Hall, Kendal, BRIGSTEER BROW, Underley Hall (speed trials), Staveley, GUMMER'S HOW, Winster, Bowness (lunch), Low Wood Hotel, HOLLIN BANK, Thwaite Head, DEVIL'S GALLOP, Satterthwaithe, Hawkeshead, Ambleside, KIRKSTONE PASS, Patterdale, Ullswater, DACRE BANK, Greystoke, Ivegill, and Carlisle.

It was still windy and dull when, at 7 a.m., the competitors were despatched on their last day's run. The chief event of the morning was the speed test in the grounds of Underley Hall, Kirkby Lonsdale.

On Friday morning Keiller's passenger never turned up at the start. Martin, the driver of the Singer cycle car, sent on his friend to take the missing man's place; then waited for the latter, drove out, caught up the G.W.K., and exchanged passengers—a truly sportsmanlike action.

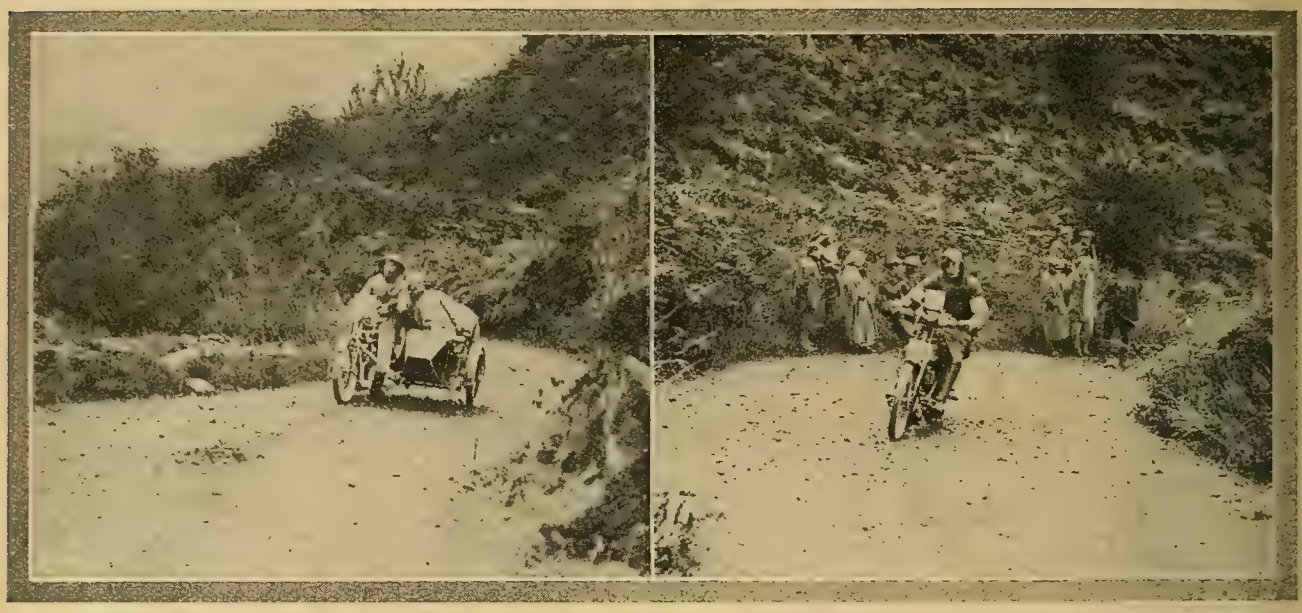
Last night we learned of the withdrawal of the Williamsons on the day previous. Hands suffered a broken engine chain, which damaged his gear, and D. S. Alexander, in passing another rider, hit a boulder at the roadside and hopelessly damaged his gear box. Cocks charged a culvert at speed and broke the frame of his Connaught, and water penetrated to the armature of Knowles's Humber and caused his retirement.

The route was to Penrith over the easy side of Shap, but so strong was the wind that only with difficulty, and by means of lying flat on their machines, were the riders able to keep on top gear. The descent of the steep side even had to be accomplished under engine power.

The hill leading out of Kendal caused one or two failures. Before the commencement of the non-stop section, including the speed tests, most of the riders availed themselves of the opportunity to shorten belts, raise gears, and generally make hurried adjustments.

The speed attained by some of the riders was splendid, especially in view of the fact that the trial was held on the last day. About forty-five miles per hour was the speed of the 3½ h.p.'s; several larger machines delighted the many spectators by exceeding 50 m.p.h.

F. H. May (5 h.p. A.J.S.) and H. Greaves (6 h.p. Enfield sidecar) climbing Tow Top.



C. R. Collier (8 h.p. Matchless sidecar) ascending Tow Top in the rain.

W. E. Cook (A.S.L.) nearing the top of the hill.

DIVISION I.—MOTOR BICYCLES. SPEED TRIAL RESULTS.

CLASS B.—Up to 350 c.c.

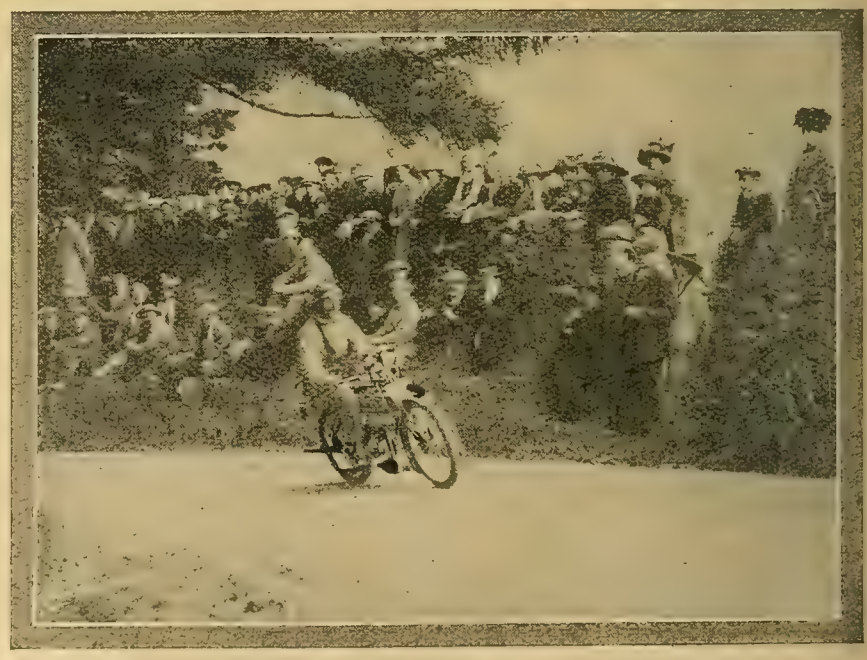
Rider and Machine.	m.p.h.	Fig. merit.
Jas. B. Sproston (2¾ Sunbeam)	39.52	29.64
P. Phillips (2¾ Douglas)	43.69	32.76
T. C. de la Hay (2¾ Sunbeam)	44.74	33.55
W. R. Steel (2¾ Sunbeam)	41.43	31.07
F. G. Ball (2¾ Douglas)	44.03	33.02
Howard Newey (2½ Levis)	33.29	24.96
P. W. Moffat (2¾ Douglas)	42.69	32.01
W. B. Gibb (2¾ Douglas)	43.18	32.38
A. J. Sproston (2¾ Clément)	32.99	24.74

CLASS C.—Up to 500 c.c.

W. J. M. Sproulle (3½ P. and M.)	44.38	31.06
G. D. Hardee (3½ Triumph)	41.27	28.88
T. J. Ross (3½ Triumph)	38.70	27.09
J. H. Kerr (3½ N.S.U.)	45.84	32.08
Albert E. Catt (3½ Triumph)	39.80	27.86
S. Sawer (3½ Premier)	45.10	31.57
F. W. Applebee (3½ B.S.A.)	38.43	26.90
W. C. Drake (3½ P. and M.)	44.03	28.02
P. Shaw (3½ P. and M.)	28.83	20.18
Maurice C. Breese (3½ B.S.A.)	41.73	29.21
H. V. Colver (3 Enfield)	31.33	21.93
E. Keyte (3 Enfield)	38.30	26.81
H. Graham Dixon (3½ James)	48.21	33.74
J. Ingham (3½ Veloce)	36.55	25.58
S. Tubb (3½ Humber)	45.28	31.69
T. B. G. Vale (3½ Rover)	47.39	33.17
G. E. Cuffe (3½ Premier)	47.80	32.06
W. E. Cook (3½ A.S.L.)	49.71	34.79
F. C. North (3½ Ariel)	44.21	30.94
J. M. Ritchie (3½ Rudge)	42.69	29.88
Herbert Ball (3½ Triumph)	43.35	30.34
J. Oliphant (3½ Premier)	45.28	31.69
J. S. Holroyd (3½ Motosacoche)	48.63	34.04
W. B. Little (3½ Premier)	44.38	31.06
C. Q. Roberts (3½ Blackburn)	40.82	28.57
W. H. Longton (3½ Alldays)	42.53	29.77
L. Newey (3½ Ariel)	43.69	30.58
K. A. Macdonald (3½ Singer)	43.35	30.34
A. C. F. Andrews (3½ Ariel)	36.67	25.66
Vernon Busby (3½ Ariel)	40.82	28.56
R. S. Scoon (3 N.U.T.)	47.80	33.46
G. E. Keel (3 N.U.T.)	37.53	26.27
James Robinson (3 N.U.T.)	44.74	31.31
J. Hoult (3½ Matchless)	44.21	30.94
T. B. Westmoreland (3½ Premier)	44.92	31.44
Sydney J. Hine (3½ Humber)	33.89	23.73
D. M. Brown (3½ Rover)	47.59	33.31
G. J. Francis (3½ Lea-Francis)	53.26	37.28
Norman Lea (3½ Lea-Francis)	43.18	30.22
A. G. Fenn (3½ B.S.A.)	46.69	32.62
G. Featherstonhaugh (3½ Rover)	46.99	32.89
C. T. Newsome (3½ Rover)	51.29	35.90
C. Lester (3½ P. and M.)	40.82	28.57
Rex G. Mundy (3½ Triumph)	45.10	31.51
G. J. Shemans (3½ Triumph)	41.12	28.78
W. Westwood (3½ Triumph)	41.27	28.88
A. W. Walden (3½ Premier)	42.69	29.83

CLASS D.—Up to 750 c.c.

Rider and Machine.	m.p.h.	Fig. merit.
E. Hawkes (5-6 Rudge)	45.28	29.43
J. A. Neumann (5-6 Rudge)	43.52	28.28
Ian P. Macdonald (4½ Norton)	44.74	29.08
G. T. Gray (5-6 Rudge)	48.42	31.47
H. W. Teeton (3½ James)	40.82	26.53
Ray. Drinkall (4½ Quadrant)	42.20	27.43
Gordon Castognoli (4 L.M.C.)	38.70	25.17
L. A. Bees (4 L.M.C.)	41.73	27.12
H. Blamire (5-6 Hazlewood)	44.56	28.96
F. H. May (5 A.J.S.)	39.24	25.50
G. W. Braithwaite (5-6 Rudge)	46.80	30.42
P. Platt (3½ Bradbury)	38.57	25.07
H. E. Haswell (3½ Bradbury)	41.73	27.12
George Hunt (5-6 Campion)	43.02	27.96
H. J. Beal (4 L.M.C.)	35.62	23.15
J. Richard (4½ Sun-Precision)	41.27	26.82
J. D. Drysdale (5-6 Hazlewood)	43.86	28.50
Jesse Baker (3¾ Scott)	43.18	28.06
F. A. Applebee (3¾ Scott)	46.41	30.16
J. Norman Longfield (3¾ Scott)	33.79	21.96



K. A. Macdonald (3½ h.p. Singer) on one of the bends of Softley Bank, near Stanhope, on Thursday's run. There was a big crowd of spectators.

A.C.U. Six Days' Reliability Trials.—

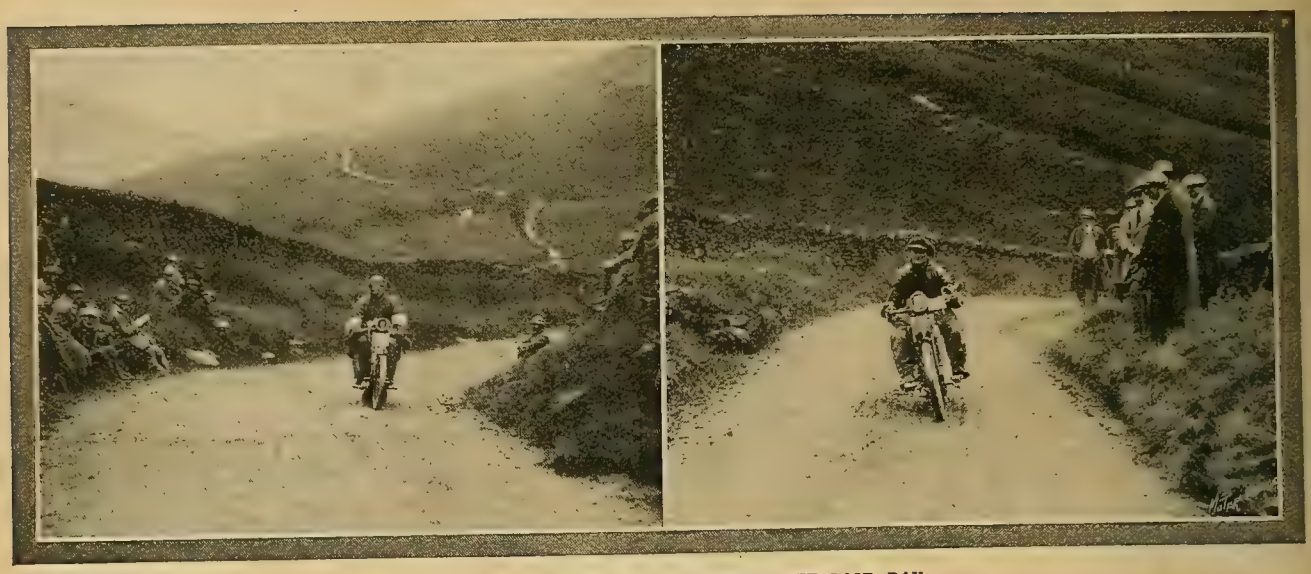
Rider and Machine.	m.p.h.	Fig. merit
CLASS E.—Up to 1,000 c.c.		
E. A. Colliver (7 Indian)	48.42	29.05
B. Alan Hill (7 Indian)	47.50	28.55
S. T. Fessier (5-6 Bat)	52.27	31.36
J. R. Alexander, jun (7 Indian)	47.50	28.56
J. A. Gregson (6 Bat)	44.56	26.73
A. Sumner (8 Zenith)	54.83	32.9
J. Haslam (6 Zenith)	52.27	31.36
H. Jepson (8 Zenith)	51.31	30.79
C. W. Smith (5-6 Bat)	42.20	—
J. F. Morrison (5-6 Bat)	46.22	27.73
DIVISION II.—SIDECAR COMBINATIONS OR THREE-WHEELED CYCLE CARS		
CLASS H.—Up to 750 c.c.		
Hugh Gibson (3½ Bradbury)	36.91	29.52
A. J. Stevens (6 A.J.S.)	36.20	28.96
D. Bell (6 A.J.S.)	34.84	27.87
Rex Pearson (5-6 Clyno)	38.43	30.74
Claude Freeman (5-6 Clyno)	34.74	27.79
George Wray (5-6 Clyno)	35.28	28.22
George Nott (5-6 Clyno)	33.19	26.55
CLASS I.—Up to 1,000 c.c.		
H. Greaves (6 Enfield)	38.70	—
W. H. Eggington (6 Enfield)	36.55	25.58
Fred Crosthwaite (8 Matchless)	29.43	20.39
Fred Turvey, jun. (6 Enfield)	40.23	28.16
C. R. Collier (7-8 Matchless)	43.02	30.11
R. E. Guest (7-8 Matchless)	44.92	31.44
H. F. S. Morgan (8 Morgan)	38.30	26.81
DIVISION III.—CYCLE CARS.		
CLASS K.—Up to 1,100 c.c.		
F. K. Portway (9 Paragon)	39.52	29.64
E. B. Slater (8 J.B.S.)	34.52	25.89

W. Westwood (3½ h.p. Triumph) at the S bend on Brigsteer Brow.

During the speed trial the rain fell heavily, but, fortunately, the roads were not very greasy. The route lay through Casterton and Kirkby Lonsdale, and just after leaving Underley Park we followed the J.B.S. cycle car, which was running very well; then, pushing on, we passed it and followed a group of competitors towards Sampool Bridge. About this point the main road was left and a bad piece of by-road followed to a point where the main road was again joined. Then ensued a straight and easy run along the Ulverston Road till the beginning of the first non-stop section of the day was reached. Here, as usual, the competitors had a few minutes in hand and enjoyed a short rest. Soon Tow Top Hill, the first of the two climbs in this section, was reached. The approach is excellent and the surface, though still rough, has been much improved. No less than a dozen corners have to be negotiated before the summit is reached, and the worst gradient is about 1 in 4. On reaching our observation point we met Stanton, who had had to withdraw at Brigsteer through a stone breaking the pulley flange on his 3½ h.p. Bradbury, having done well up to this point. He had reached Tow Top on the carrier of an A.J.S. sidecar combination. As usual the P. and M.s performed remarkably well, and Morgan's runabout came up so fast that he actually succeeded in overhauling a 3½ h.p. solo machine. Newey (Levis), Cuffe (Premier), Dixon (James), and Colver (Enfield) all came up well in a group. This bunching is most regrettable, as it causes the men to impede one another on a narrow road

C. M. Keller (8 h.p. G.W.K.) and W. H. Eggington (6 h.p. Enfield sidecar) ascending Gummers How on Friday.

A. J. Stevens (6 h.p A.J.S. sidecar) and F. C. North (one of the winning Ariel team) on the same stretch.



SCENES ON KIRKSTONE PASS ON FRIDAY, THE LAST DAY.

A. C. F. Andrews (3½ h.p. Ariel) on one of the bad corners. W. H. Longton (3½ h.p. Alldays) higher up the hill.

where there is no room to pass. However, it is their own fault, and with a little care it might be quite well avoided.

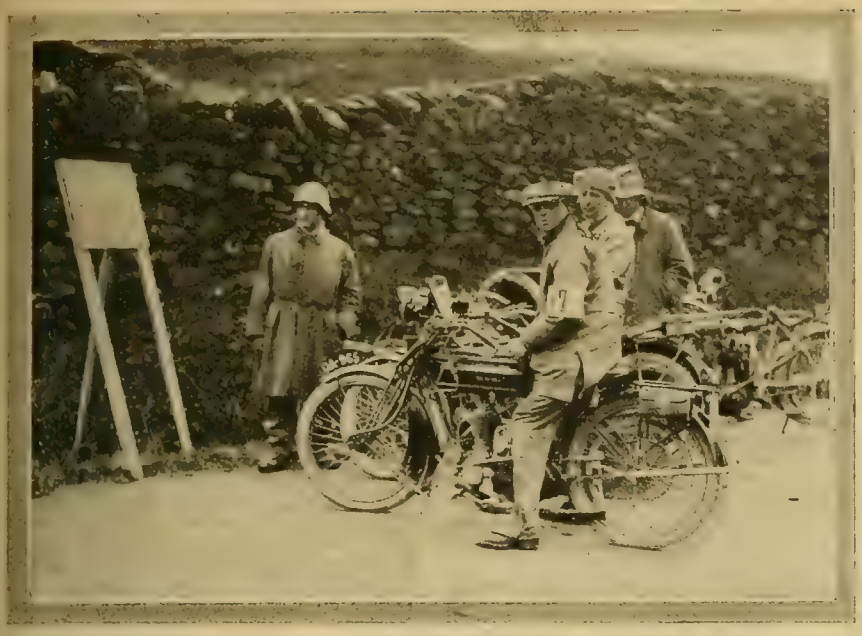
Here, as on other hills, observers who had undertaken to help the A.C.U. failed to turn up, with the result that Mr. Greenhill, one of the stewards, who arrived on his Premier, had to press several spectators into service. It is a pity that people who offer their services should let down the Union in this way, presumably because it was a wet morning. Sawer (Premier), Hawkes (Rudge), who was very noisy, Nott (Clyno), Moffat (Douglas), and Egginton (Enfield sc.), came up very well, while Keiller (G.W.K. cycle car) made a particularly fine ascent. Other specially good climbs were made by Stevens (A.J.S. sc.), Morrison (Bat), Westmoreland (Premier), Guest (Matchless), Drinkall (Quadrant), Little (Premier), Tessier (Bat), Hardee and Catt (Triumphs), and Gibson (Bradbury sc.) Other good climbs were made by Haswell (Bradbury), Haslam (Zenith), Roberts (Blackburn), and Sproston (Sunbeam). Failures were fortunately few and far between. The J.B.S. was travelling particularly well when it suddenly pulled up near the summit, and on the bonnet being opened it was found the carburetter was loose. After tightening it a good restart was made, but it failed again just above the last corner for the same reason. Sproston, on his too highly geared Clément, dismounted and ran. His was a really plucky exhibition, as while the other Clements have been withdrawn, he is determined to get his through this strenuous trial at all costs. Sealey (B.S.A.) failed on several hills to-day owing to his having broken the operating spindle of his gear through a fall early in the morning, which left him with the top gear only in operation. Ritchie (Rudge) stopped on the summit with a broken valve rocker. Both these men subsequently withdrew on Friday. Breese (B.S.A.) assisted with his feet. One of the Scott machines was noticed to have a broken footboard. From the top to the main road the surface was very rough, but, fortunately, this condition did not last long.

Cleaning and tuning up at Kirkstone Pass ready for the finish at Carlisle. Among the riders may be seen H. V. Colver (Enfield), B. Alan Hill (Indian), G. E. Cuffe (Premier), and another.

Observations on Gummer's How.

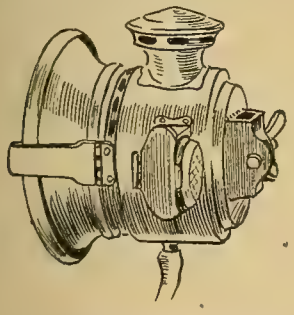
The next item of interest was Gummer's How Hill, also included in the non-stop section. Both these hills, it may be remembered, were included in the A.C.U. One-day Trial held in the autumn. Gummer's How, we may remind our readers, is a fairly straight ascent, though the surface is rough. It rises 550 feet in a mile, and has a 1 in 5 gradient at the beginning.

Keiller (G.W.K. cycle car), Westmoreland, and Little (Premier), and the J.B.S. cycle car made conspicuously good ascents. Crosthwaite (Matchless sc.) stopped owing to a burnt out brake band which had previously caused him trouble. Hine (Humber) failed on the very last yard of the gradient. A good ascent was made by a Clyno sidecar combination belonging to one of *The Motor Cycle* staff, which had been driven from London by road and has followed the trials in excellent form. Lunch was served at the Stag's Head Hotel, Bowness. After the usual luncheon interval, the lake side road was followed and at Waterhead a turn to the left was taken. Here an A.C.U. notice board was fixed which read as here depicted so that no mistake could be made. As we have mentioned previously, the arrowing was splendidly done.

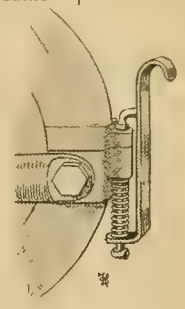


T. C. de la Hay (2¾ h.p. Sunbeam) and A. V. Sumner (8 h.p. Zenith) at the top of Kirkstone Pass, the end of the non-stop section.

The first climb of interest after lunch was down in the programme as Hollin Bank, but it was known locally as Tarn Hause. It was approached from the main road by an acute angle bend which caused several stops, and was fairly steep and very rough. Some distance up a very sharp hairpin had to be negotiated, at which several exciting incidents took place. Here Gibb (Douglas) gave a beautiful exhibition of driving, Collier (Matchless sc.) and Little (Premier), all members of the British (the sole surviving international team), came up splendidly. Truly the A.C.U. selection of a team to represent England was a very wise one. Wray (Clyno sc.) also shone conspicuously, while equally good performances were made by Eggington (Enfield), Newey (Levis), and Gibson (Bradbury), who is really an artist in handling a single-cylinder sidecar combination. Colliver (Indian) came up well but used his clutch freely; Alexander (Indian) made a good ascent; Hill (Indian) fell. He is lame in his left leg, and, trying to steady himself with this, it gave under him and he came over. Admiral Sir R. K. Arbuthnot—an interested spectator—offered him a bandage for his cut finger, which Hill said was not sufficiently injured to require it. The bandage, however, came in useful for Breese (B.S.A.), who fell and also damaged his right hand. His tank was leaking and he carried three oil tins full of petrol slung round his waist. Breese and also Applebee (B.S.A.) both suffered a tumble owing to taking the corner too fast, and, curiously enough, Applebee's tank was also leaking badly. Later in the day the leaking petrol caught fire, and Applebee told us that he put out the flames by accelerating and making the wind blow them out. Colver (Enfield) assisted with his feet at the acute corner. Smith (Bat) came up with his front stand down. Keiller (G.W.K. cycle car) made a good ascent, but had only just sufficient luck to get round. His cooling water was boiling. Guest (Matchless sc.) made quite a sensational ascent. He took the corner much too fast and upset. The engine, of course, buzzed round merrily, and though he tried hard he could not stop it. Meanwhile Admiral Arbuthnot and several others righted the fallen combination, which, as the engine was still running, and the low gear was in engagement, started off up the road. Quick as thought the plucky driver leaped into the saddle and was away. This he claimed as a non-stop, but as others assisted him the stewards thought otherwise. Jepson (Zenith) dismounted, and Castagnoli (L.M.C.) assisted with his feet. After Tarn Hause came Bessie Brow, which accounted for several failures. Here the road was so narrow that the spectators had to stand behind the hedges, and the passenger machines were sent by a different route.

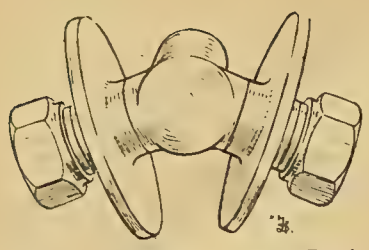


A neat Lucas sidecar lamp with rear green light, noticed on one of the competing sidecars.



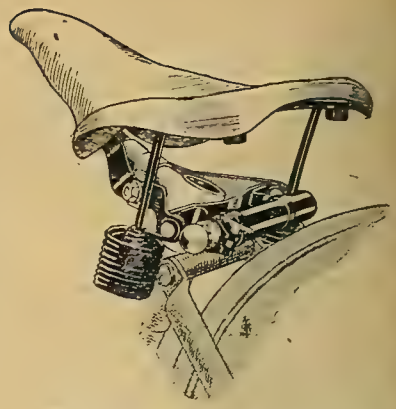
A simple quickly detachable clip for the chain guards is a recent refinement on the Lea-Francis machines.

F. A. Applebee (3½ h.p. Scott) and C. R. Collier (8 h.p. Matchless sidecar) ascending the last portion of Kirkstone Pass from Ambleside.



Novel design of inlet pipes on the Lea-Francis ridden by Norman Lea. Each branch is fitted with a flexible expanding diaphragm on the aneroid principle.

The competitors then looped back to Ambleside through Hawkshead. Here began the ascent of the worst side of the famous Kirkstone Pass, which ascends 1,300ft. in nearly three miles. It was in excellent condition, and though the maximum gradient is 1 in 4½, there were few failures, probably because there was a strong wind aiding the machines. The summit, where we watched the ascent, was occasionally obscured by clouds, and at this point there was a greater gathering of motor bicycles than we have ever seen before. Though Ambleside was left in rain after lunch, the weather fortunately cleared and continued fine for the rest of the afternoon. It is a long, tiring climb for the first half of the ascent. This is followed by a slight ease, consisting of a short pitch down hill, while the pass terminates with a series of sharp bends and stiff gradients. The 2¾ Douglas on which one of our staff has followed the trials made an excellent ascent. The star ascent was made by Sumner (Zenith), who has won both the flexibility and speed tests, to the figures of which we would especially draw our readers' attention. Among the good performances we may mention the Ariels, Triumphs, Rudges, P. and M.s, Scotts, and Bats. Keiller (G.W.K. cycle car) came up well, but the water was boiling. Crosthwaite (Matchless sc.) came up without his passenger, Macdonald (Singer) dismounted and ran, Keel (N.U.T.) assisted with his feet, and Kerr (N.S.U.) failed. Other very good performances were made by Gibb (Douglas), Ball (Douglas), Morgan (Morgan) runabout, C. R. Collier (Matchless sc.), Gibson (Bradbury sc.), and the Clyno sidecar combinations. Greaves (Enfield sc.) came up with his passenger abnormally seated on the carrier.



The oil gun on the Lea-Francis is now carried in a case fixed to the saddle frame, in which position it is out of the way, but readily accessible.

Norman Lea (3½ h.p. Lea-Francis) and H. Blamire (5-6 h.p. Hazlewood) on Kirkstone Pass.

Incidents en Route.

After travelling along the shores of Ullswater the competitors took Dacre Bank, a rise of 400 feet in nearly three-quarters of a mile, of which, however, they made light work. Thereafter, the run to Carlisle was over an easy and fairly straight road—a relief after the difficult route followed throughout the week. Among the incidents of the day's run may be mentioned Francis (Lea-Francis), who suffered a choked petrol pipe thirteen miles from the finish. Hoult (Matchless) was knocked over by a runaway horse during the afternoon's run. He was flung head first into a ditch, and when he extricated himself he found his machine standing wrong side up on the saddle and handle-bars, and though it was pretty well knocked about, he succeeded in finishing. May (A.J.S.) had a narrow escape while on the road running alongside Ullswater. A big car coming in the opposite direction passed him so closely that the front wing brushed his hand and bruised it. Macdonald (Singer) arrived in Carlisle twenty minutes before time, giving as an excuse he did not realise he was there. Little, who had performed so well throughout the trial, lost marks through arriving too early, as he thought that the extra allowance of time, which was granted by the A.C.U. officials owing to the severity of the course, referred to men ahead of as well as behind schedule time.

List of Awards.

We append the complete list of awards to date, though one or two amendments may be made. The method of awarding medals is as follows:

In Div. I.	Marks	90% or over	= gold medals.
	,,	75% ,,	= silver ,,
In Div. II.	,,	85% ,,	= gold ,,
	,,	70% ,,	= silver ,,
In Div. III.	,,	80% ,,	= gold ,,
	,,	65% ,,	= silver ,,

TABLE OF OFFICIAL RESULTS SHOWING MARKS LOST AND AWARDS.

DIVISION I.—CLASS B.: 350 c.c.

Rider and Machine.	Fig. of Merit for Whole Trial.	Total Marks, including Bonus.	Marks Lost.	Nett Marks Obtained.	Award.
J. B. Sproston (2¾ Sunbeam)	102.04	99.4	17	82	Silver medal
P. Phillips (2¾ Douglas)	104.86	96.6	28	68.6	Bronze medal
T. C. de la Hay (2¾ Sunbeam)	142.55	102	0	100	Gold medal
W. R. Steel (2¾ Sunbeam)	138.07	102	34	68	Bronze medal
F. G. Ball (2¾ Douglas)	120.82	100	24	76	Silver medal
H. Newey (2¾ Levis)	105.66	101.96	38	63.96	Bronze medal
P. W. Moffat (2¾ Douglas)	144.01	102	0	100	Gold medal
W. B. Gibb (2¾ Douglas)	124.78	100	0	100	Gold medal
A. J. Sproston (3½ Clément)	129.14	99.74	124	0	Bronze medal

DIVISION I.—CLASS C.: 500 c.c.

W. J. M. Sproulle (3½ P. & M.)	137.06	104	5	99	Gold medal
G. D. Hardee (3½ Triumph)	129.88	104	0	100	Gold medal
T. J. Ross (3½ Triumph)	114.89	100	0	100	Gold medal
J. H. Kerr (3½ N.S.U.)	99.28	99.2	128	0	Bronze medal
A. E. Catt (3½ Triumph)	100.26	99.4	67	32.4	Bronze medal
S. Sawer (3½ Premier)	130.57	100	53	47	Bronze medal
F. W. Applebee (3½ B.S.A.)	133.9	102	89	13	Bronze medal
W. C. Drake (3½ P. & M.)	111.22	104	4	100	Gold medal
P. Shaw (3½ P. & M.)	97.18	92.8	1	89.18	Silver medal
M. C. Breeze (3½ B.S.A.)	106.21	100	56	44	Bronze medal
H. V. Colver (3 Enfield)	86.03	88.03	14	74.03	Bronze medal
E. Keyte (3 Enfield)	97.6	99.6	25	74.6	Bronze medal
H. G. Dixon (3½ James)	127.54	102	6	96	Gold medal
J. Ingham (3½ Veloce)	132.58	102	6	96	Gold medal
S. Tubb (3½ Humber)	137.29	100	55	45	Bronze medal
T. B. G. Vale (3½ Rover)	135.77	100	21	81	Silver medal
G. E. Cuffe (3½ Premier)	126.46	102	32	72	Bronze medal
W. E. Cook (3½ A.S.L.)	140.79	100	0	100	Gold medal
F. C. North (3½ Ariel)	120.14	104	0	100	Gold medal
H. Ball (3½ Triumph)	125.94	102	0	100	Gold medal
J. Oliphant (3½ Premier)	107.89	103.2	4	99.2	Gold medal
J. S. Holroyd (3½ Motosacoche)	119.84	102	8	94	Gold medal
W. B. Little (3½ Premier)	112.06	102	11	91	Gold medal
C. Q. Roberts (3½ Blackburn)	117.77	102	7	95	Gold medal
W. H. Longton (3½ Alldays)	115.37	101	2	100	Gold medal
L. Newey (3½ Ariel)	116.78	102	0	100	Gold medal
K. A. Macdonald (3½ Singer)	102.74	98.4	55	43.4	Bronze medal
A. C. F. Andrews (3½ Ariel)	123.56	100	43	57	Bronze medal
V. Busby (3½ Ariel)	135.56	100	4	96	Gold medal
R. S. Scoon (3 N.U.T.)	114.46	100	24	76	Silver medal
G. E. Keel (3 N.U.T.)	90.87	89.6	40	49.6	Bronze medal
J. Robinson (3 N.U.T.)	87.31	81	7	76	Silver medal
J. Hoult (3½ Matchless)	134.54	102	13	91	Gold medal
T. B. Westmoreland (3½ Premier)	95.84	91.4	0	91.4	Gold medal
D. M. Brown (3½ Rover)	135.35	104	20	84	Silver medal
G. J. Francis (3½ Lea-Francis)	131.08	102	4	98	Gold medal
N. Lea (3½ Lea-Francis)	113.82	100	25	77	Silver medal
A. G. Fenn (3½ B.S.A.)	142.02	100	0	100	Gold medal
G. Featherstonhaugh (3½ Rover)	131.09	102	4	98	Gold medal
C. T. Newsome (3½ Rover)	118.6	104	2	100	Gold medal
C. Lester (3½ P. & M.)	116.27	100	12	88	Silver medal
R. G. Mundy (3½ Triumph)	143.51	100	3	97	Gold medal
G. J. Shemans (3½ Triumph)	114.18	102	82	20	Bronze medal
W. Westwood (3½ Triumph)	114.68	104	0	100	Gold medal
A. W. Walden (3½ Premier)	116.48	100	9	91	Gold medal

E. B. Slater (8 h.p. J.B.S. cycle car) taking an acute corner on Bollihope Common (Thursday afternoon.)

NOTES BY THE WAY.

One can sympathise especially with those who were obliged to withdraw on the last day.

The rain on the last two days rendered the trial much more severe, and was the direct cause of more than one retirement.

Tuesday, Thursday, and Friday have variously been given as the worst days of the test. It is curious that most retired on the easiest day—Wednesday—when thirteen withdrew.

At last Scottish Trials riders agree that a course in England can be made more severe than any Scottish Trial held up to the present.

It was generally remarked that the competing machines retained their power remarkably well. In the case of some engines, for instance, one could stand on the pedal or foot starter against compression almost indefinitely.

The Ariel team have done wonderfully well in carrying off the team prizes in both the six days' trials of 1913, viz., the Scottish and English tests. It is a long time since belt-driven machines asserted themselves in such gruelling competitions.

The cycle cars were frankly disappointing, only three getting through, and only one gaining the coveted gold medal. The success of the G.W.K. has been very complete in this year's big trials. H. F. S. Morgan drove with wonderful dash, and his ascent of Tow Top was amazing; he even passed solo mounts on his way up. The J.B.S. is a new comer among cycle cars in big trials, and its success in finishing must have been very encouraging to its makers.

Having become thoroughly accustomed to climbing stony mountain tracks, the Lea-Francis riders—Lea and Francis, sons of the principals of their firm—made a detour to Honister on the way home, and succeeded in climbing the pass from the Buttermere or steepest side. This test is the more noteworthy, following, as it does, upon five days of constant hill-climbing under observation.

As usual there was a good deal of very second rate driving. A large proportion of the failures on hills were due to sheer bad driving—rushing at bad corners being the most pronounced vice. "Dogged does it" is a good motto, and if only the more dashing riders would take the bad corners more carefully the A.C.U. would undoubtedly have had to hand out more gold medals.

Those competitors who did so much grumbling about the severity of the course and the strenuous conditions did not seem to realise that they were all the time adding further testimony to the performances of the forty odd who carried out the test satisfactorily. True there were good reasons for grumbling, but some riders who failed complained at anything and everything.

TABLE OF OFFICIAL RESULTS (continued).

Rider and Machine.	Fig. of Merit for Whole Trial.	Total Marks, including Bonus.	Marks Lost.	Nett Marks Obtained.	Award.
DIVISION I.—750 c.c.					
E. Hawkes (5-6 Rudge)	125.03	102	83	19	Bronze medal
J. A. Neumann (5-6 Rudge)	119.48	102			
J. P. Macdonald (4½ Norton)	109.68	104	17	87	Silver medal
G. T. Gray (5-6 Rudge)	112.47	100	18	82	Silver medal
H. W. Tweedon (3½ James)	121.73	100	90	10	Bronze medal
R. Drinkall (4½ Quadrant)	96.83	96.4	8	88.4	Silver medal
G. Castagnoli (4 L.M.C.)	90.37	90.2	12	80.2	Silver medal
L. A. Bees (4 L.M.C.)	106.32	100	5	95	Gold medal
H. Blamire (5-6 Hazlewood)	112.96	100	9	91	Gold medal
F. H. May (5-6 A.J.S.)	97.7	99.2	48	51.2	—
G. W. Braithwaite (5-6 Rudge)	129.82	100	14	86	Silver medal
P. Platt (3½ Bradbury)	133.47	102	0	100	Gold medal
H. E. Haswell (3½ Bradbury)	122.92	100	22	78	Silver medal
G. Hunt (5-6 Campion)	139.6	100	25	75	Silver medal
H. J. Beal (4 L.M.C.)	83.35	83.35	71	12.35	Bronze medal
J. Richard (4½ Sun-Precision)	114.62	102	39	63	Bronze medal
J. D. Drysdale (5-6 Hazlewood)	110.1	102	22	80	Silver medal
J. Baker (3½ Scott)	123.46	102	67	35	—
F. A. Applebee (3½ Scott)	135.96	104	0	100	Gold medal
J. N. Longfield (3½ Scott)	118.76	98.96	25	71.96	Bronze medal
CLASS E.—1,000 c.c.					
E. A. Colliver (7 Indian)	141.05	102	6	96	Gold medal
B. A. Hill (7 Indian)	134.55	102	8	94	Gold medal
S. T. Tessier (5-6 Bat)	107.96	103.6	0	100	Gold medal
J. R. Alexander (7 Indian)	140.56	104	19	85	Silver medal
G. A. Gregson (6 Bat)	131.33	104	0	100	Gold medal
A. Sumner (8 Zenith)	133.7	102	9	93	Gold medal
J. Haslam (6 Zenith)	112.36	100	10	90	Gold medal
H. Jepson (8 Zenith)	103.99	97.2	16	81.2	Silver medal
J. F. Morrison (5-6 Bat)	99.73	100	38	58	Bronze medal
DIVISION II.—CLASS H: SIDECARS AND THREE-WHEELED CYCLE CARS, 750 c.c.					
H. Gibson (3½ Bradbury)	128.52	100	9	91	Gold medal
A. J. Stevens (5-6 A.J.S.)	82.76	82.8	1	81.8	Silver medal
D. Bell (6 A.J.S.)	106.47	100	4	96	Gold medal
R. Pearson (5-6 Clyno)	135.74	104	5	99	Gold medal
C. Freeman (5-6 Clyno)	119.39	103	14	89	Gold medal
G. Wray (5-6 Clyno)	None	82	10	72	Silver medal
G. Nott (5-6 Clyno)	114.05	104	54	50	Bronze medal
DIVISION II.—CLASS I: SIDECARS AND THREE-WHEELED CYCLE CARS, 1000 c.c.					
W. H. Egginton (6 Enfield)	123.58	102	32	70	Silver medal
F. Crosthwaite (8 Matchless)	74.13	75.39	110	75.39	Silver medal
F. Turvey, jun. (6 Enfield)	137.16	102	25	77	Silver medal
C. R. Collier (7-8 Match ess)	141.11	104	24	80	Silver medal
R. E. Guest (7-8 Matchless)	132.64	104	42	62	Bronze medal
H. F. S. Morgan (8 Morgan)	134.81	102	12	90	Gold medal
DIVISION III.—CLASS K: CYCLE CARS, 1100 c.c.					
C. M. Keiller (8 G.W.K.)	133.64	104	0	100	Gold medal
E. B. Slater (8 J.B.S.)	115.89	95	37	58	Bronze medal

L. A. Bees (3½ h.p. L.M.C.) climbing Dacre Bank on the last day. He was one of the most consistent riders in the trial.

The speed of the G.W.K. in the speed test was 39.52 m.p.h.

The 8 h.p. Zenith-Gradua, on which A. V. Sumner accomplished such a fine performance in the flexibility hill-climbing test, was geared 3½ to 6 to 1. F. A. Applebee (Scott) came out top on the formula.

The retirements on the various days were as follows:

Monday	9
Tuesday	13
Wednesday	13
Thursday	10
Friday	9

De la Hay's success on the Sunbeam was well deserved. Throughout the trial we never saw him make a single adjustment, and the way his 2¾ h.p. machine climbed hills was an eye-opener to many.

Shemans, the Triumph rider, had ill-luck with tyres on the second day of the trial. He had used up two spare tubes, badly damaged his cover, and only got to Carlisle by stuffing the cover with grass by the aid of village boys. Next morning he changed the cover, and for the next three days never had the slightest trouble. Such is luck!

SPECIAL AWARDS.

WINNERS OF INTERNATIONAL TRIAL.

Great Britain.

Team.—W. B. Gibb (2¾ h.p. two-speed chain and belt driven Douglas), figure of merit 124.78; W. B. Little (3½ h.p. three-speed belt driven Premier), figure of merit 112.06; and C. R. Collier (8 h.p. three-speed chain driven Matchless sc.), figure of merit 141.11.

PRIZE PRESENTED BY THE CUMBERLAND COUNTY M.C.C. FOR BEST PERFORMANCE IN DIVISION I. (MOTOR BICYCLES).

T. C. de la Hay (2¾ h.p. two-speed chain driven Sunbeam); figure of merit, 142.55.

PRIZE PRESENTED BY MR. J. WHEATLEY FOR THE BEST PERFORMANCE IN DIVISION II. (SIDECARS AND THREE-WHEELED CYCLE CARS).

Rex Pearson (5-6 h.p. three-speed chain driven Clyno sc.); figure of merit, 135.74.

PRIZE OFFERED BY THE ELECTRICAL ENGINEERING AND MOTORING CO., CARLISLE, FOR THE BEST PERFORMANCE IN DIVISION III. (FOUR-WHEELED CYCLE CARS).

C. M. Keiller (8 h.p. friction-driven G.W.K.); figure of merit, 133.64.

BEST PERFORMANCE BY A TEAM OF THREE NOMINATED BY A MANUFACTURER.

The Ariel Team.—F. C. North (figure of merit 120.14), L. Newey (figure of merit 116.78), and V. Busby (figure of merit 135.56), all on three-speed belt driven machines.

A PRIZE OFFERED BY HIS WORSHIP THE MAYOR OF CARLISLE FOR THE BEST PERFORMANCE BY AN AFFILIATED CLUB TEAM.

The Westmorland M.C.C. Team.—W. Westwood (3½ h.p. Triumph), G. W. Braithwaite (5-6 h.p. Rudge), and Hugh Gibson (3½ h.p. Bradbury sc.)

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IN A.C.U. SIX DAYS' TRIALS,

INGHAM, on 3½ h.p., awarded GOLD MEDAL,

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LMC
The Motor Cycle of *PROVED* Greatest Reliability

WINS
GOLD MEDAL
(L. A. Bees),
SILVER MEDAL
(G. Castognoli),
AND BRONZE MEDAL
(H. J. Beale).

4 L.M.C.'s started—3 Gained Awards
as above.

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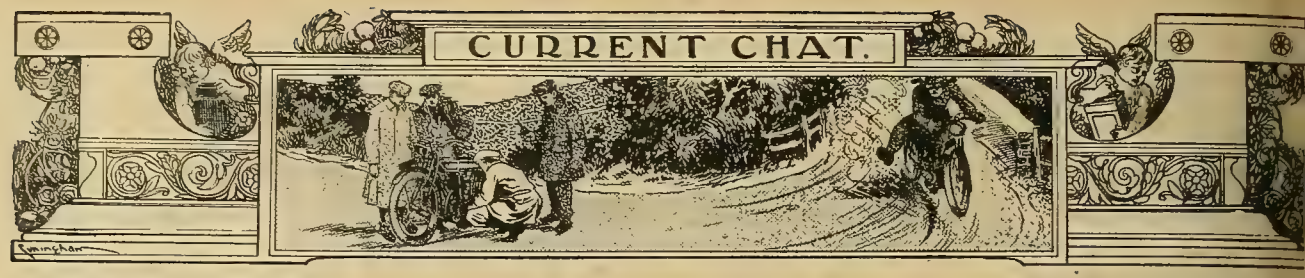


TIME TO LIGHT LAMPS.

Aug. 28th	... ...	7.55 p.m.
,, 30th	... ...	7.51 ,,
Sept. 1st	... ...	7.46 ,,
,, 3rd	... ...	7.42 ,,

Coventry Open Hill-climb.

To avoid clashing with other events, the Coventry and Warwickshire M.C. has postponed its eighth annual hill-climb to Saturday, October 11th.

A Rumour Dispelled.

Auto-Carriers (1911), Ltd., inform us that rumours have reached them that they contemplate giving up the manufacture of the A.C. three-wheeled cycle car, and that in consequence there may be a difficulty in securing spares for this type of machine. The company ask us to announce that this rumour has no foundation in fact.

Speed Trials at Wimborne.

By the kind permission of Lady Wimborne, the Bournemouth and District M.C.C. are able to hold their open speed trials in Canford Park Wimborne, where a three-quarter of a mile stretch of road is available. The trial is already being well supported, and thirty-eight individual entries have been received. These include many well-known riders.

Military Motor Cyclists.

Midland readers who are contemplating serving in the Special Motor Cyclists' Reserve, South Midland Division, should communicate with Captain J. Huxley, secretary of the S.M. Division, 132, Greenfield Road, Harborne, Birmingham.

Manchester M.C. Reliability Test.

The result of the two-days motor and cycle car reliability trial to Colwyn Bay and back was as follows: Solo: 1, W. W. Heaton (2¾ A.J.S.). Passenger: W. Rolison (G.W.K.)

The Wolseley-Vickers Voiturette.

This new machine, which is described on pages 1134 and 5, will be known as the Stellite cycle car. The designing and all experimental work in connection with the establishment of the model have been undertaken by the Wolseley Tool and Motor Car Co., Ltd., but the manufacture and sale will be in the hands of the Electric and Ordnance Accessories Co., Cheston Road, Aston, Birmingham. Both this company and the Wolseley Co. are branches of the great firm of Vickers, Ltd., hence their collaboration in the matter. A preliminary batch of one thousand has been put in hand, and the price is one hundred and fifty guineas, which includes hood, screen, three paraffin lamps, horn, and a suitable equipment of tools.

SIX DAYS' TRIALS. The final stretch (known as "The Struggle") on Kirkstone Pass. Ellison Hawkes (5-6 h.p. Rudge) is seen nearing the summit, gradient 1 in 5.

SPECIAL FEATURES:

THE NEW STELLITE CYCLE CAR.
Described and Illustrated.

CONTINUATION OF A.C.U. SIX DAYS' TRIALS REPORT.
Many Striking Photographs.

TEST OF A NEW THREE-SPEED HUB GEAR

Miss A. H. Neville, a Worthing lady who has established a motor garage—a new departure for her sex. In the photograph Miss Neville is seen starting off for a run on her 2¾ h.p. Douglas with a lady passenger on the carrier.

Mont Ventoux Hill-climb.

The important feature of this French event was the beating of Lamberjack's 1905 record for the hill by Lavanchy on a Motosacoche, whose time was 23m. 30⅘s. Lamberjack's time was 25m. 48⅕s. on a very much larger engined Griffon machine. The only British competitor this year was Frank Smith, who drove his Clyno and sidecar up the hill in 31m. 5⅕s.

The winner of the lightweight motor cycle class rode a Terrot, the lightweight sidecar class a Motosacoche, and the first in the cycle car class drove a Baby Peugeot. The car record for the hill made by Boillot (Peugeot) on the 24th inst., is 17m. 38s.

isit to the States.

Mr. W. H. Wells sailed for America n Saturday last to pay his annual visit o the works of the Hendee Manufacuring Co., Springfield, Mass. He is xpected back in this country towards he end of September.

A Home-made Featherweight.

A Beckenham motor cyclist, named A. . Preston, has just completed a 2 h.p. eatherweight of his own design and uild throughout, weighing 85 lbs. The ingle-cylinder engine develops 2 h.p., eighs 20 lbs., and has overhead valves, he tappets being enclosed in a dust roof cover. A Brampton variable pulley ear is fitted with B. and B. carburetter nd Ruthardt magneto. The wheels are 26in. × 2in.

The Cape to Cairo Expeditionary Reforce.

The Survey and Scientific Research Expeditionary Reforce, which will shortly undertake the journey from the Cape to Cairo under the command of Capt. R. N. Kelsey, has decided to take a motor bicycle, which will be used mainly for the carrying of despatches, letters, etc., to the nearest point of communication, and for bringing in supplies in case of emergency. The machine Capt. Kelsey has selected is a Triumph. The object of the expedition is general exploration, big game hunting, and photography. After touching the principal towns in South Africa, the expedition will proceed straight through Khartoum to Cairo.

A Flying Meeting for Motor Cyclists.

In addition to other flights at the special motor cyclists' flying meeting at the London Aerodrome, Hendon, to be held to-day (Thursday) at 3 p.m., particulars of which have already been published in *The Motor Cycle*, a grand speed handicap has been arranged for a valuable trophy and cash prizes. Many of the pilots who have entered for the Aerial Derby will take part in this event, including G. W. Beatty, the famous American airman, P. Verrier, Lieut. Porte, R.N., Louis Noel, Robert Slack, E. Marty, and C. Grahame-White. All the coupons given up at the entrance gates will be collected, and the motor cyclist whose name and address are on the winning coupon will be entitled to a free passenger flight. It is anticipated that some remarkably high speeds will be attained at this meeting, as several new machines have already arrived, which are intended for the Aerial Derby, including an 80 h.p. Morane-Saulnier monoplane.

A.A. and M.U. Notes.

Territorial Manœuvres: Important Warning.—As Territorial manœuvres will commence on the Coventry Road to-day (Thursday), with a base at Daventry, the A.A. and M.U. advises motorists to use the roads in this neighbourhood, and particularly those around Daventry and Weedon, with caution, especially after dark.

Hill Signs indicating Gradients.—Quite a new departure in road signs has just been instituted by the Association in connection with danger signs. Gradients alone are not necessarily dangerous, but where there are dangerous corners, or hidden roads leading on to the hill, a warning sign is often necessary, and several such signs have been put up by the A.A. and M.U. The first of the new A.A. and M.U. warning signs on hills has just been erected on Beggars' Roost Hill, in North Devon, and its warning to motorists and road users is that the gradient is 3 in 10.

Bridge Closed.—The Widnes transport bridge will be closed to traffic from September 15th until further notice for the purpose of alterations and improvements.

FUTURE EVENTS.

Aug. 30.—Streatham and District M.C.C. Annual Open Hill-climb.
" 30.—Hertfordshire M.C.C. Open Half Day Trial.
Sept. 3.—Bournemouth & District M.C.C. Open Speed Trials.
" 6.—Scottish A.C.U. Speed Championships at St. Andrews.
" 6.—A.C.U. East Midland Centre Speed Trials.
" 13.—B.M.C.R.C. Race Meeting.
" 20.—Streatham M.C.C. Open Speed Trials at Brighton.
" 24.—A.C.U. Open One Day Trial.
" 27.—B.A.R.C. Brooklands Meeting.
Oct. 11.—Coventry and Warwickshire M.C. Annual Open Hill-climb.

Cycle Car Taxes in France.

The question of taxation of cycle cars has, up to the present, been rather a vexed one in France, as there does not appear to be any definite ruling as to what constitutes a cycle car. Motor bicycles and sidecars pay 24 francs, whereas small cars pay 5 francs per horse-power, in addition to the ordinary taxes. An owner of a Super tandem cycle car has, however, received an official intimation that his vehicle comes under the heading of a "moto cycle à deux places." This type of vehicle at any rate, irrespective of the number of wheels, is taxed as a motor cycle in France. The ruling appears to be discretionary.

Open Cut-outs.

Several motor cyclists were summoned at Chepstow last week for using cut-outs of an illegal form. It was, however, pointed out that the gases first passed into the expansion chamber, and, consequently, the summonses were dismissed.

Harry Martin in Hospital

We are sorry to hear that Harry Martin is still in the Weybridge Cottage Hospital as a result of the accident he sustained at the Brooklands track on the 9th inst. He has sustained a ruptured muscle of the right thigh, which, together with a damaged nerve centre, will prevent him racing for some time, and may possibly prevent him competing again.

Motor Traffic.

A question was recently asked in the House of Commons by Mr. C. Money with reference to the use of the highways that carried with it the imputation that motor cyclists as a whole were addicted to dangerous driving and to making an unnecessary noise, and that, in consequence, the roads were rendered unsafe for pedestrians. Mr. McKenna replied that he did not think that these offences were so common as was suggested, and that he considered the existing powers of the magistrates quite sufficient. In this matter we agree with Mr. McKenna, though we must admit that there are many inconsiderate motor cyclists on the road who, by their thoughtless and selfish conduct, do their best to stir up the authorities.

Standardisation of Screw Threads.

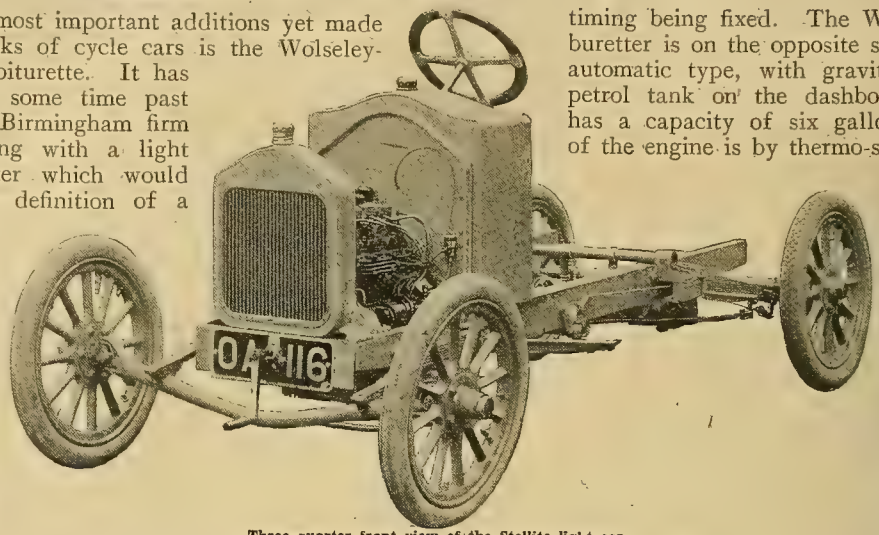
The Engineering Standards Committee, of which society Mr. Leslie S. Robertson, M.I.C.E., 28, Victoria Street, Westminster, S.W., is the secretary, is dealing with the question of standardisation of automobile parts. In reply to our enquiry as to whether standards for cycle cars and motor cycles will be dealt with by the committee, we are informed that the standardisation of details, such as the threads on screws and nuts and screw threads generally, would affect them, but no standardisation of design would be contemplated.

A confetti carnival was held at Sea View, Isle of Wight, on Saturday last, when all passing motor cyclists were surrounded and covered with confetti as shown in the above photograph.

The New Wolseley-Vickers Voiturette.

To be known as the Stellite Cycle Car, and made by the Electric and Ordnance Accessories Co., Birmingham, another Vickers firm.

ONE of the most important additions yet made to the ranks of cycle cars is the Wolseley-Vickers Voiturette. It has been known for some time past that the famous Birmingham firm were experimenting with a light type of two-seater which would come within the definition of a cycle car; and, in fact, it is now some weeks ago since representatives of this journal were favoured with a trial run on this new car. Its advent will be hailed with delight by those who lean towards the light two-seater type of vehicle, as, coming from such a world-renowned concern, it may be taken for granted that the workmanship will be of the best, and the quality of materials of the finest. The Wolseley Co. are amongst the oldest manufacturers of motor cars, and their experience is bound to stand them in good stead. The Stellite light car is to be made in quantities, and, although the details are being made public for the first time this week, in less than twelve months hence its design is bound to be familiar to everyone, and its name will be on the lips of all motorists.

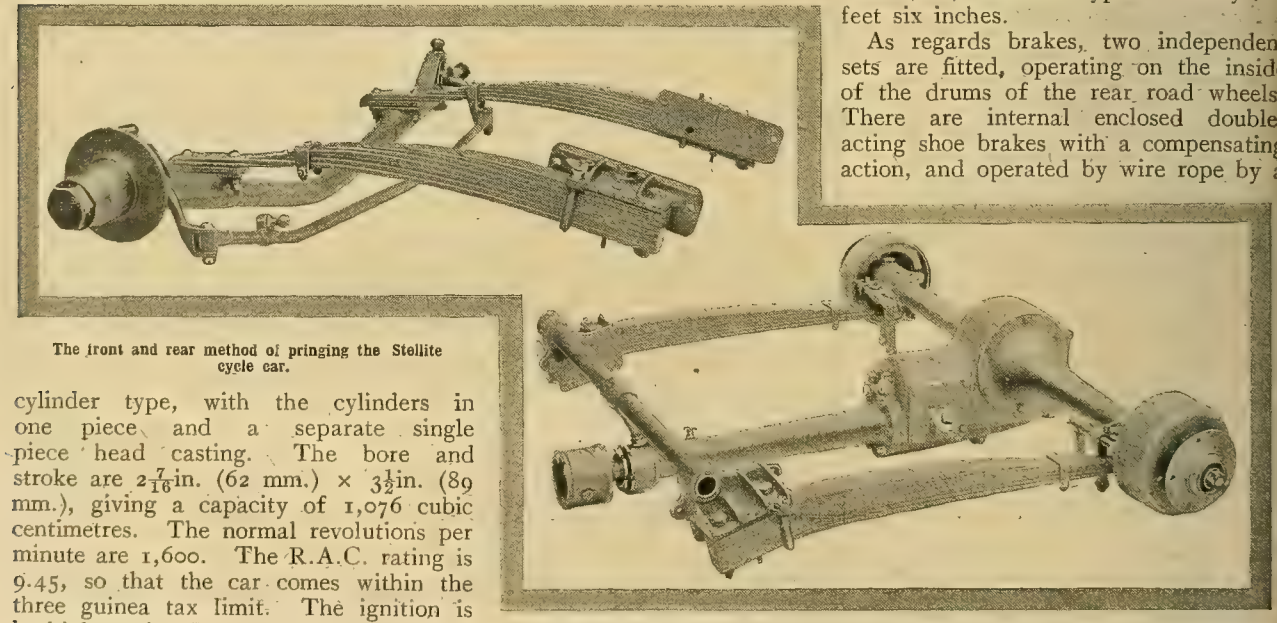


Three-quarter front view of the Stellite light car.

Dealing first with the engine: it is of the four-cylinder type, with the cylinders in one piece and a separate single piece head casting. The bore and stroke are $2\frac{7}{16}$in. (62 mm.) × $3\frac{1}{2}$in. (89 mm.), giving a capacity of 1,076 cubic centimetres. The normal revolutions per minute are 1,600. The R.A.C. rating is 9·45, so that the car comes within the three guinea tax limit. The ignition is by high-tension Bosch magneto, the spark timing being fixed. The Wolseley S.U. carburetter is on the opposite side, and is of the automatic type, with gravity feed from the petrol tank on the dashboard, which latter has a capacity of six gallons. The cooling of the engine is by thermo-syphon circulation, the radiator adopted being of large capacity and of exceedingly handsome design. The clutch is of the leather cone type, and the transmission by a universally-jointed shaft to the combined gear box and live axle. At normal engine speed, with the standard two-speed gear box (7/38 worm ratio), the road speeds are: First gear, $9\frac{1}{2}$ m.p.h.; second gear, 24 m.p.h.; reverse, $8\frac{1}{2}$ m.p.h. The range of speed on the top gear on the level is from 8 to 35 m.p.h. As is usually the case, a single lever operates all changes of speed.

The frame is of armoured wood, suspended at each end on long leaf springs. The front axle is of tubular construction, the hubs running on compound roller bearings. The rear axle, as already mentioned, is of the live type, driven by worm gear, and has ball and roller bearings throughout. The steering is irreversible through rack and pinion, and the minimum turning circle with standard types is thirty-two feet six inches.

As regards brakes, two independent sets are fitted, operating on the inside of the drums of the rear road wheels. There are internal enclosed double-acting shoe brakes with a compensating action, and operated by wire rope by a


The front and rear method of pringing the Stellite cycle car.

In the second illustration may also be seen the two-speed and reverse gear and back axle unit.

he New Wolseley-Vickers Voiturette.—

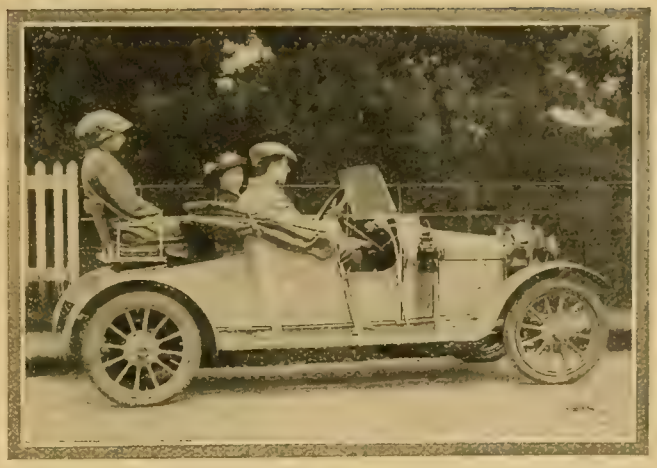
and lever and pedal respectively. The front and ear portions of the chassis are assembled separately nd then built up with the frame. By this method f construction the working parts should be readily ccessible in case of trouble.

Some measurements of the car will prove of interest. he wheelbase is 8ft.; track, 3ft. 10in.; overall ngth of chassis, 10ft. 4in.; overall width of chassis, ft. 8in.; minimum road clearance, 6½in.

The road wheels, as will be seen from the photo-raphs, are of the wood artillery pattern, approxi-nately 28½in. diameter, and the tyres fitted are of 00 × 80 mm. section.

The Stellite will be sold in more than one type, nd the chassis may be ordered specially sprung to uit the weight of a three-seater body.

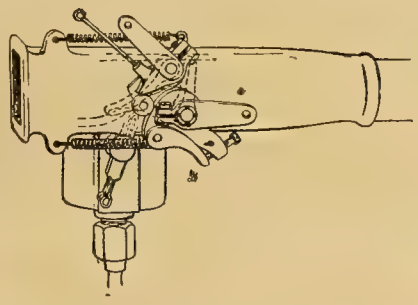
The control is by an auxiliary pedal placed midway etween the clutch and brake pedals in the usual way, nd hand adjustment to the carburetter is provided on he dash.



The 8-10 h.p. Stellite, as will be seen, is fitted with a neat folding dick y seat for a third passenger.

A VARIABLE CHOKE CARBURETTER.

A new carburetter is shortly to be narketed, the feature of which consists of a choke tube which is variable with the hrottle lever. The main body of the arburetter consists of a rectangular tube n which two jets are mounted, side by ide, the size of both being adjustable. The two jets are mounted on a slight ngle, and their orifices project through a slight hump in the casting which forms he lower part of the choke. The upper art of the choke consists of a slightly urved flap which is pivoted at the top of the tube and shuts down until its urved edge rests on the hump before



mentioned. A flap throttle is fitted on the engine side of the jets. The carburetter may be used either as a two-lever or automatic device, a simple cam arrangement interconnecting the two flaps, the relative positions being instantly adjustable. The principle of the carburetter may be easily followed with reference to the sketches. The construction is simple and there is nothing to get out of order. We dealt with the forerunner of this type a couple of months ago. The designer is F. A. Burgess, Cranleigh, Surrey.

SIX DAYS' TRIALS. C. T. Newsome (3½ h.p. Rover) and L. Sealey (3½ h.p. B.S.A.) on Crossdale Hill on the third day.

LIEGE-PARIS-LIEGE TRIAL.

English Machines Conspicuous Successes.

ON Friday, the 15th inst., at 2 a.m., the competitors were started from Liège at one minute intervals on the journey of 525 miles. There were sixty-five starters in all. The first part of the course was very severe on account of the wretched *pavé* through Liège and its outskirts. After leaving Liège the riders were treated to some fine scenery. The French frontier was crossed at Givet, and by special arrangement the competitors were passed through very quickly upon payment of 50 centimes to secure a permit to enter France. The principal troubles on the outward journey were punctures.

Lunch was taken at Laon, at which point the machines were deposited in the *Parc fermé*. The section between Meaux and Chelles was remarkable for its very bad road surface, and those who had trouble were practically out of the competition, for there was no time to do repairs.

The average pace set for the 500 c.c. class was 25 m.p.h., but over the bad surfaces, bends, and villages the average was very difficult to maintain. A very excellent system of timing the competitors by sealed watches had been arranged.

Liefeldt, a Coventry amateur on a Rudge, punctured twenty-eight kilometres from Chelles, found his back tyre was beyond repair, and rode in on the rim. Arriving at Paris he wired to Coventry for another wheel, which he fitted before starting on Sunday morning. After going to all this trouble he had to retire through further tyre trouble. Out of sixty-five starters forty-two reached Paris.

The return journey was commenced at 3.30 a.m. Sunday, the small machines being sent off first.

After reaching Soissons, the route branched southward through charming country. In all the towns the utmost enthusiasm was displayed by the inhabitants. Near Sedan one of the Sarolea riders (Dewale) had a bad fall, and was taken to hospital suffering from concussion

The lunch control was at Bouillon, and after passing the Customs, the riders were once more in Belgium.

At Spa there was a speed trial and hill-climb. These are treated as different events, and special prizes are awarded. Both the events were exceedingly dangerous. The kilometre over which the speed trial was run consisted of a stretch of *pavé* between an avenue of trees, and, as it had rained immediately before the speed trial commenced, the riders declared it was far too dangerous and did not force their machines. The hill-climb was held on a road which was not closed to other traffic, and Rowlandson, cutting in on his wrong side to take the bend, was met by a huge automobile; he had no other alternative but to take to the hedge, luckily without damage.

The control at Liège was on one of the central Boulevards, and the thousands of people were kept back by policemen. As the Englishmen arrived, the band struck up "God Save the King"; in fact, as each competitor arrived the National Anthem of his country was played.

Of the forty-two that started on the return journey, thirty-five reached home. The winners of first-class awards are as follows:

S. A. Rowlandson (3½ Rudge-Multi)
A. J. Dixon (3½ Singer)
Conriamont (3½ three-speed Premier)
Milhoux (5-6 Rudge-Multi)
Erodue (8 Matchless)
Spedwell (3½ Sarolea)
Janssens (3½ Rudge-Multi)
Dehaybe (3½ Sarolea)
Paquay (3½ Singer)

CLUB NEWS.

Foleshill and North Warwickshire M.C.C.

There will be two open classes at the annual hill-climb. Chief award, the Bettmann Cup. Entries to Mr. W. H. Broad, Foleshill Road, Coventry, by September 13th.

Mersey (Liverpool) M.C.

An expert-barred open hill-climb will take place on September 13th at Pen-y-Ball. There will be classes for motor cycles of 350 c.c., 500 c.c., 750 c.c., and 1,000 c.c., and passenger machines of 500 c.c., 750 c.c., and 1,100 c.c. Entries must reach Mr. S. W. Carty, 5, Redcross Street, Liverpool, not later than September 6th.

East Essex M.C.C.

On the 16th inst. a hill-climb was held at Fiddler's Hill, Fordham. Results:

OPEN CLIMB.

	Formula.	Time.
J. C. Bland, junr. (Douglas)	31.5	31s.
E. Garland (Rudge-Multi)	38	30s.
Ashton Hill (Rudge)	38.6	26s.

UNDER 500 C.C.

Clifford Cant (Rudge-Multi)	31.8	25s.
J. C. Bland, junr. (Douglas)	32.3	32s.
E. Garland (Rudge-Multi)	38	30s.

The hill, which was an excellent one, comprised two bad bends. Clifford Cant won the Worthington-Evans Challenge Cup for the fastest time of the day.

Glasgow M.C.C.

A 100 mile non-stop trial took place on the 23rd inst. The route was as follows: Strathblane, Lennoxtown, Fintry, Killearn, Blanefield, Cult Brae, Drymen Road, Kyber Pass, Strathblane, the hills being Lennoxtown, Cult Brae, and the Kyber Pass, a long ascent with two hairpin bends; this had to be covered three times. The performances of the various riders on Cult Brae were all good, but special mention must be made of W. Carlaw (6 Enfield sc.), who took both bends in fine style. The appearance of the 8 Henderson for the first time in competition in Scotland was watched with interest, and both the silence and power of the machine greatly impressed those present. The three 5-6 F.N.'s also performed well, while the 6 A.J.S. combinations went up in their usual good style. In taking an awkward turn on joining the main road near Strathblane, A. Shaw (5-6 A.J.S. sc.), who was travelling rather fast, ran into the ditch, without, however, seriously damaging either machine or passenger. Belt slip caused the retirement of H. W. Ballardie (5-6 Hazlewood sc.), and a broken belt also accounted for A. R. Fraser (3½ Rudge). W. Hood (3½ Rudge Multi) hung on to his high gear too long, with the result that he conked out on the Kyber Pass. W. S. Pellew (8 Henderson) also came to grief here. J. E. Chisholm (3½ Ariel) had carburetter trouble, water accounting for this, while F. Galbraith (7 Indian) had plug trouble. J. McComb (3½ Edmund) was most unfortunate, a stone getting into the belt rim and throwing off his belt. G. Taylor (3½ Rudge) was baulked by another competitor and came off, but re-started. The following riders finished the course, but have not necessarily made non-stop runs: W. Hood (3½ Rudge-Multi), W. Deans (3½ Ariel), W. Dickie (5-6 F.N.), W. S. Pellew (8 Henderson), R. Black (5-6 F.N.), W. B. Cramb (3½ Elswick), J. E. Chisholm (3½ Ariel), A. McCulloch (6 A.J.S. sc.), W. Carlaw (6 Enfield sc.), J. R. Bell (6 A.J.S. sc.), R. G. McGibbon (3½ Edmund), G. Taylor (3½ Rudge-Multi), A. D. Morrison (3½ Ariel), and T. S. V. Phillips (5-6 A.J.S. sc.)

Motor Cycling Club.

The following are the official results of the standard reliability and hill-climbing competition held on the 2nd and 4th inst.

M.C.C. Cup for best performance on a solo mount.—H. Karslake (Rover).

Gold Medals.—G. T. Gray (Rudge), B. Alan Hill (Indian), D. W. Popplewell (Triumph), H. A. Cooper (Bradbury), A. T. Stanton (Bradbury), H. F. Edwards (Enfield), E. Kickham (Douglas), R. C. Davis (Clyno sc.), H. G. R. Slingo (Clyno sc.), A. J. Dixon (Singer), and L. Martin (Singer cycle car).

Silver Medals.—L. A. Baddeley (P. and M.), S. Tharp (Triumph), K. A. MacDonald (Singer), E. A. Colliver (Indian), C. Percival (Douglas) C. Macbeth (Douglas), S. G. Frost (Douglas), J. D. Drysdale (Hazlewood) M. C. Breese (B.S.A.), R. M. Marians (P. and M.), L. A. Bees (L.M.C.), and W. P. Tippett (Humber).

Club News.—

Manchester M.C.

A gymkhana was held on the 16th inst. This was so successful that another will be held in September.

Bradford M.C.C.

The results of the Bradford-Edinburgh-Bradford reliability trials, run August 9th and 10th, were as follows:

Class 1, for teams.—The Dewsbury M.C.C. were the winners, the riders being J. H. Dunstan (3½ h.p. Rudge), J. F. Rispin (3½ h.p. Triumph), and H. Hartley (3½ h.p. Rudge), who were awarded club standard gold medals.

Class 2, for the best performance of the day, solo or sidecar.—The P. and M. Cup was awarded outright to F. Harrison (6 h.p. A.J.S. sc.)

Class 3, for the best sidecar performance, independent of Class 2, the award being the Merrick Trophy, to be won outright.—G. Riddiough (7 h.p. Indian sc.)

Dublin and District M.C.C.

A slow hill-climb was held on the 16th inst. on the steep and twisty hill leading from Glencullen Bridge. The weather was ideal, and a large number of spectators turned out to watch the event. Results:

Class A.—Engines not exceeding 500 c.c., gear ratio 6 to 1.

		Time.
1.	T. E. Greene (3½ Rudge)	2m. 8⅘s.

All the other competitors, in their efforts to travel very slowly, failed to climb the hill.

Class B.—Unrestricted as to engine size or gear ratio.

1.	J. Doleman (2¾ Douglas)	4m. 23s.
2.	G. Roche (3½ Rover)	4m. 8⅗s.
3.	W. J. Corbet (3½ Ariel)	3m. 13s.

Class C.—Sidecars, unrestricted.

1.	G. Roche (3½ Rover sc.)	3m. 45⅖s.
2.	T. D. Rollins (6 Clyno sc.)	2m. 24⅕s.

Results of Glengariffe and Back Trial, 460 Miles.

Silver Cup and Gold Medal.—G. Roche (3½ Rover), 200 marks (maximum 200).

Gold Medals.—J. Doleman (3½ Rudge), 197; D. J. Farrell (3½ Triumph), 197; R. Walsh (3½ Bradbury), 197; J. Healy (3½ Rudge), 196; and T. Wrench (7 Indian), 193.

Silver Medals.—P. O'Sullivan (3½ Humber), 193; M. Carson (3½ Rudge), 190; and T. E. Greene (3½ Rudge), 189.

Bronze Medals.—T. Woods (3½ P. and M.), G. Tyson (3½ Triumph), J. Browne (3½ Rudge), and W. J. Henderson (3½ Rudge).

Roche already holds the Club Cup since last season, and by his second win he makes it his own property.

The club is holding a reliability trial on Saturday next, in connection with which the tie for the White Cup is to be run off.

Burton-on-Trent M.C.C. and Ashby M.C.C.

A combined hill-climb was held on the 20th inst. at Draycott Cliff. Results:

500 c.c. Touring Class.—1, F. Lamb (3½ Premier); 2, S. Poyser (3½ Ivy).

500 c.c. T.T. Models.—1, E. Folwell (3½ B.S.A.); 2, F. Lamb (3½ Premier).

Unlimited Cubical Capacity.—1, E. Folwell (3½ B.S.A.); 2, F. Lamb (3½ Premier).

An informal competition on the knock-out system was held subsequently, competitors racing in pairs. Final: Jones (3½ Ivy) beat S. S. Poyser (3½ Ivy).

Malvern and District M.C.C.

The results of the hill-climb held at Hipton Hill are as follows. *The Motor Cycle* formula was used:

Class I.—Up to 500 c.c., Touring Machines on Time.

	Rider and machine.	Time.
1.	G. H. Skirrow (3½ Rudge)	19⅖s.
2.	B. Bladder (3½ Rudge)	20s.
3.	F. Nickson (3½ Rudge) ... ... / H. D. Wynn (3½ Rudge)	21⅕s.

Class II.—500 c.c., T.T Machines on Time.

1.	F. Giles (3½ Triumph)	19s.
2.	N. Smith (3½ Triumph)	19⅖s.
3.	F. Nickson (3½ Rudge)	20s.

Class III.—Up to 1,000 c.c., on Time.

1.	R. Surman (5 Matchless)	17s.
2.	G. H. Skirrow (3½ Rudge) ... ... / B. Bladder (3½ Rudge)	19⅕s.
4.—F. Nickson (3½ Rudge)		20s.

Class IV.—Up to 1,000 c.c., on Formula.

	Rider and machine.	Fig. of merit.
1.	B. Bladder (3½ Rudge)	459
2.	R. Surman (5 Matchless)	471
3.	G. H. Skirrow (3½ Rudge)	517

Class V.—Up to 1,000 c.c., Handicap Race in Pairs.

	Rider and machine.	Time.
1.	R. Surman (5 Matchless)	16⅕s.
2.	F. Nickson (3½ Rudge)	19s.
3.	H. D. Wynn (3½ Rudge)	21½s.

"The Motor Cycle" Diary of Week-end Club Events.

Aug. 29th and 30th.—Essex M.C. 400 miles reliability trial to York and back.

Aug. 30th.—Birmingham M.C.C. captain's annual twelve hours' ride.

,, 30th.—Bradford A.C. gymkhana.

,, 30th.—Bristol B. and M.C. run to Frome.

,, 30th.—South Birmingham M.C.C. "old crock" hill-climb.

,, 30th.—Walthamstow M.C.C run to Much Hadham.

A.C.U. TRIALS. Group of competitors and spectators motor cycles at the top of Kirkstone Pass on Friday

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

A.C.U. Six Days' Trials.

Sir,—As a competitor in the above, I was pleased to read your comments with regard to White Shaw Moss, and consider that you might have included several other portions of the routes under the same heading as having abnormal surfaces. It is evident to me that the A.C.U. are aware that the present day variably geared motor cycles are so good and so reliable that it is almost impossible to prevent them winning the highest award unless freak hills and surfaces and roads are included, but they should state in their conditions that such roads are to be included, and not make statements to the opposite effect. What the competitors as a whole think of the routes can be judged by the unanimous protests that were handed in to the secretary almost every day. I have been a supporter of the A.C.U. up to the present, but I cannot write words strong enough to express my opinion of their methods of conducting the 1913 Six Days' Trials.

JOSHUA J. DAY, No. 88.

Sir,—I enclose for publication a copy of the letter written by me to the Secretary of the A.C.U., setting forth my reasons for retiring from last week's trials.

C. B. MOSS-BLUNDELL.

[Copy.]

Dear Loughborough,—I beg to inform you that after due consideration I have withdrawn my machine, No. 31, from the trial.

I have taken this step as a protest against the character of the course, for it is impossible to keep up an average of 20 m.p.h. without either risking one's neck in the by-ways or breaking the law on the highways. I do not intend to do either. I would specially call your attention to non-stop section No. 6 of the 18th inst., and to the watersplash lane near Crosby Ravensworth of the 19th inst. Enquiries from the villagers elicited the information that this narrow lane is only occasionally used by farmers for muck carting, and that it is not considered suitable for other vehicles.

In the "General Conditions," page 2, a specific assurance is given as to surface, width, and safety of the roads selected for the trial, and I believe that I am only voicing the opinion of the majority when I state that these conditions have not been fulfilled. I feel that the A.C.U. would have no alternative other than to return the entrance fee to any competitor who desired it, on the grounds that the nature of the trial had been misrepresented in the printed conditions.

Yours truly,

C. B. MOSS-BLUNDELL.

Benzol.

Sir,—In view of the benzole question, which is attracting so much notice nowadays, my experience may be of interest. The benzole I use is 90% obtained from the Gas Light and Coke Co. at Beckton. I test this myself occasionally, and have always found it to be good spirit.

I use it on my 1913 Triumph, and have not altered the jevel or jet in any way. In my carburetter, which is of the standard Triumph pattern, I find that it takes less air than petrol, which is not remarkable. In no case, I suppose, does complete combustion take place, and the air it will take is chiefly a matter for empirical determination.

I took the engine down for the first time after 1,849 miles and found very little carbon. During this period I used about three gallons of petrol. I was emboldened by this to let the engine run for a considerable time longer, an when this was done—it was not done because of knockin or overheating, but simply because I found certain hill which I could climb on top—required a reduction to secon over the steep bits. After 2,629 miles, the amount of carbo taken off the piston and cylinder walls scarcely covered th dial of my speedometer. The carbon was so soft as to b easily removed with a penknife. These figures compare ver well with those of a recent contributor who found it neces sary, on a mixture of paraffin and petrol, to take down hi engine about every 500 miles. I searched the cylinder fc signs of scoring, owing to the acid produced by the burnin of the sulphur, but was unable to detect anything seriou after 4,500 miles. It may be that after all the sulphu compounds do not get completely burnt, but are just swep away through the exhaust.

The benzole I use shows under tests less than 100 grains c sulphur per gallon, which is under .16% by weight. Thi of course, is exceedingly good.

I am pleased to say that I have converted several motorist to the use of this spirit, and always use it when procurabl even when, as sometimes, I have to pay 1s. 6d. a gallo for it. Through traffic I average about 100 m.p.g., and o the open road, at an average speed of 20-25 m.p.h., 12 m.p.g.

F. E. THOMAS.

Re-opening of Roman Roads.

Sir,—I was much interested in your description of th re-opening of a portion of the Fosseway.

No doubt there are many similar stretches of old Roma roads which could be re-opened, with considerable advantag to all road users. Of course finance will have the last wor in the matter, but I should like to direct attention to particular example.

The main road between London and North Wales leave Watling Street at Weedon (Northamptonshire), and passe through Birmingham and Wolverhampton, joining Watlin Street again near Wellington (Shropshire). Most motorist however, in order to avoid the Black Country, leave th main road at Stonebridge and travel along the Old Chest Road, joining Watling Street at Brownhills (route 936 Contour Road Book).

The road between Stonebridge and Brownhills is narro and the surface is in very bad condition; there are al many dangerous cross roads.

I would venture to suggest that the question of re-openin Watling Street between Weedon and Brownhills should b considered. If this were done motorists would be able t follow the old Roman road all the way from St. Albans t within a few miles of Shrewsbury, and would not pas through a single large town *en route*.

The task is not so formidable as might first appear, becaus I believe that some parts of the route are in quite goo condition.

A SOUTHALL.

[By turning off the main road at Daventry and continuin to Kilsby, Watling Street is picked up again just beyon the latter place, and the road to Holyhead is sign-poste all the way by R.A.C. signs. This route misse Brownhills. It is true that the portion from Weedon t Watford Gap might be widened, and the section betwee Watford Gap and Kilsby re-opened—which would give straight run through except for one diversion at Weeford near Lichfield.—ED.]

A 91 year old passenger in a 6 h.p. Enfield sidecar. (See letter from CX1151.)

An Aged Passenger.

Sir,—I am sending you a photograph of myself and my passenger. He is my grandfather, and is ninety-one years of age. It was his first experience of a sidecar, and the old man travelled about thirty miles. We varied from 5 to 50 m.p.h., and no matter whether cornering, traffic dodging, or exceeding the limit, the old man enjoyed it immensely. He simply put his faith in the driver, and then everything came right with him as a matter of course. The machine is a 6 h.p. Enfield, and would tackle anything. Can any of your readers boast of an older passenger than this? CX 1151.

Carburetters and Flexibility.

Sir,—Referring to your leading article of some few weeks ago, I think it would be a most useful thing if the A.C.U. were to hold a proper flexibility and power test for carburetters, and impose such conditions at the test that any "faking" of carburetters would be immediately unmasked. We occasionally see people writing to papers saying they can do 150 miles to the gallon; even if true, this misleads a great number of people who think that with the 150 miles they get everything they should do, whereas probably they get nothing except 150 miles, and no flexibility whatever. One of your correspondents last week calmly talks about his engine turning over at 80 revs. per minute when the clutch is taken out. The same correspondent also alludes to his getting 142 miles to the gallon. The inaccuracy as to the number of revs. he got rather tends to discount his statement as to consumption. I have been conducting recently some exhaustive tests with different carburetters as to fuel consumption, and it is very easy to get big mileage without flexibility, and easy to get flexibility with a heavy petrol consumption. The best carburetter is the one that will give the very slowest running with any variation up to the very highest speed at the lowest petrol consumption.

The conditions which, in my opinion, would be suitable for a carburetter test are as follows:

(1.) Machine to be put on stand and petrol turned on and left like this for half an hour; no petrol to leak from nuts or jets.

(2.) Start engine on stand and let it "tick" over at slowest for fifteen minutes without touching levers.

(3.) Machine to be lifted from stand and started. Easiest starting to count; no flooding permitted.

(4.) The clutch to be engaged and the demonstrator to walk alongside the machine whilst the engine is running with clutch in for fifty yards.

(5.) Machine now to be ridden on top gear as slowly as possible without misfiring, or without any manipulation of the clutch, brake, or valve lifter.

(6.) Machine now to be ridden at speed of twenty-five miles per hour for one hundred yards, and then easing down to seven miles per hour. This to be repeated twenty times.

(7.) Machine to be driven at full speed for five miles.

(8.) Machine then to be ridden up a hill one mile long with a gradient in parts of 1 in 6.

(9.) Machine to be ridden down the hill.

(10.) Petrol consumption to be then measured off.

(11.) No adjustment to be made to the carburetter from start to finish and the h.p. and gear of the machine to be the same in all cases.

I should be very pleased to enter one of my carburetters for such a test. CHAS. BINKS.

Hub and Counter-shaft Gears.

Sir, -I must protest against the remark made by "AN 1231" that "hub gears will not stand the kick of a healthy 3½ h.p."

I am a commercial traveller, and during the last eighteen months I have ridden a 3½-4 h.p. New Hudson, Armstrong three-speed hub, with sidecar attached. This machine has done over 20,000 miles to date, and puts me very much in mind of "Tennyson's Brook." The gears and clutch have never given any trouble whatever, and when dismantled for cleaning a month ago there was barely a trace of wear visible. A brother commercial has a 1911 model of the same make, which has given equal satisfaction. Both clutch and gears are as good as ever after more than two years' hard work.

If the hub is fitted correctly in the first place, and systematically oiled and kept in adjustment, which latter is a very simple matter, it will be found perfectly reliable and give no trouble at all.

In conclusion, I beg to say I have no interest in Messrs. Armstrong or the New Hudson Co., except my complete satisfaction with their goods. H. T. SANDERS.

Sir,—In reply to Sturmey-Archer Gears, Ltd., I should like to ask whether their remarks apply to two-speed countershaft gears? If so, their statements are certainly incorrect.

The chain on my last year's Douglas lasted 7,500 without breaking; the chain on my 1913 model has run 4,750, and has been tightened once. The letter says nothing about belt wear and adjustment. The Pedley belt on my present machine has been shortened three times and has not pulled through once; it shows practically no sign of wear after 4,500 miles. I might add that the engine has not yet been taken down for cleaning, or the valves ground in, and it is still running well. F.R.C.S., O 7692.

Sir,—As one whose business occupation renders him entirely dependent upon his motor cycle, I feel that I must comment upon a statement that appears in Mr. Harold Bowden's letter in your issue of August 14th.

I am obliged to consider reliability above all things in my mount, and this leads me to watch carefully all improvements, and to satisfy myself that they can be relied upon before adopting them. I am perfectly satisfied as to the reliability of the hub gear, but have not yet adopted it because I consider it means increased delay in the case of removal of the back wheel. Mr. Bowden somewhat airily dismisses this objection to the hub gear by saying that this advantage (of the counter-shaft gear), of course, only applies to the novice. But I believe I am voicing the opinion of many other business riders when I say that this objection has a much wider application. As a "novice" I revelled in tinkering and adjustment, but I prefer as little as possible nowadays. And I want to be able to execute any necessary repairs in the shortest possible time and with the least possible trouble. That is my sole reason for not adopting the hub gear, and why I await the counter-shaft three-speed gear and the "clean back wheel." TAURUS.

Sir,—Upon the advent of the counter-shaft gear some years ago, much correspondence filled the pages of your valuable paper as to the merits of the counter-shaft gear as compared with its rival the hub gear, and now that some knowledge has been obtained, a further interchange of ideas is to be welcomed. I have since had some experience with both, and, although the counter-shaft gear is my favourite, I will admit that it is far from being perfect. A most surprising fact is that practically no development has taken place in the counter-shaft gear beyond the method of control; the original crude pattern being to a great extent copied by every manufacturer to adopt it.

Many of the objections in connection with counter-shaft gears as summarised by Mr. Bowden are most certainly due to faulty design, and not to the position of the gear.

The noise occasioned by high speed should be overcome as it has been in motor cars. The driving shaft in a

car gear box runs at engine speeds, but the driving shaft of a motor cycle gear box is geared down, hence the difficulty is not insurmountable.

The fierce drive is a matter of clutch, not gears. If the clutch is adjusted to give a relative amount of slip, as is unavoidable in a hub gear, any fierceness will disappear.

Vibration in the gear box can only be attributable to either badly cut and ill meshing gear wheels or to shafts being out of truth.

I can hardly agree that the advantage of simplicity of removing a back wheel applies to novices only. Surely it is the desire of even the most experienced rider to be able to change tyres or effect any repair with the greatest saving of time and trouble to himself either in the workshop or on the road. Is it only the novice, who, when choosing a mount, looks to see whether he will have to drop the crank case out of the frame before removing the cylinder?

In conclusion, I should like to state that I have no interest in the subject from a business point of view, as I am an ordinary "half-holiday" sidecarist who owns a machine with a hub gear and a happy nack of keeping his temper under trying circumstances. F. L. PARSONS.

Sir,—I was very interested to read Mr. Bowden's letter on hub and counter-shaft gears. My experience with counter-shaft gears has been entirely different from his.

My counter-shaft gear is a two-speed 4 h.p. Jardine, gear ratios of 4:8 and 9.6 to 1 respectively. It has a cork clutch and two very efficient shock absorbers, one being fitted on the engine-shaft. The gear has been in use since November 1st, 1912, and has covered almost 9,000 miles. I do 150 miles weekly, in all weathers, in course of my business, besides much running in trials and for pleasure purposes. I have never, on a single occasion, been "hung up" with gear or transmission trouble during the last eleven months.

I am highly pleased with the gear, which is quite free from noise or vibration, the slight whirr of the chains is far from objectionable.

The original chains are still on, the front chain is in better condition than the rear chain, owing, no doubt, to its being better protected. The chains will soon need renewing as both begin to show signs of stretching. They have had, nevertheless, a good "innings."

I have only had to replace a tyre—the original rear tyre, a 2½×26 Dunlop rubber-studded, having run 7,000 approximately from November to May. When I took it off the tread had worn right down to the canvas in two places only, and the bead was in a fair condition. The rubber studs of my present rear tyre, a 26×2½ Hutchinson Brooklands, are only just worn down after 2,000 odd miles.

The transmission is not in the least harsh. It is silky—even smoother than belt transmission. This is due to the two shock absorbers. I am able to start from a standstill with sidecar and passenger on top gear on a slight up grade by means of the clutch. I have even stopped and restarted on Matlock Bank. The effect is like gliding off in a Rolls-Royce. No replacements of corks have been made as I am free from clutch slip even after 9,000 miles. After the first 1,000 miles I had to adjust the clutch tensioning device and also the throw-out pedal. These have not needed adjustment since. My machine is a pleasure to ride in traffic. I move along at a crawl without any jerkiness whatever.

As regards the accessibility of the back wheel the counter-shaft gear scores over the hub gear. Who—whether expert or novice—when attacked with tyre trouble, when it becomes necessary to change a tyre or a tube on the road, wants to do the work demanded by some of the present two or three-speed hub gears before the wheel can be removed.

In 1911 I rode a machine fitted with a very heavy two-speed hub gear. Unaided, it required at least well over one hour to remove and replace the wheel alone. I also had several skids on greasy sets and on wood blocks, caused almost solely by the tremendously heavy rear member of the machine. Most of my most expensive tyres were scrap at 1,500 to 2,000 miles, and some barely reached 1,000 miles with careful riding solo. I do not see how one can get normal tyre wear with a heavy hub gear. As there is quite sufficient work for the rear tyre to do I do not believe in piling on extra in the form of heavy gears in the hub.

With my two-speed hub gear frequent adjustment was necessary to the bands and rods. There was also considerable noise caused by the gear when the engine was runni free on stand or was shut off when going downhill.

Mr. Bowden's gear has no chains to lubricate that certain, but what about the care of the belts, their adjus ment, slipping in wet weather, and such defects? Wit chains that is a thing of the past. No motor cyclist, who a motor cyclist, minds lubricating and properly adjusti his chains. The latter is seldom necessary, and giv intelligent care and usage chains will give next to no troubl

In my experience a counter-shaft gear box and cha transmission, with efficient clutch and shock absorbers, the thing for a motor cycle engine—single or multi-cylinde

In conclusion, I beg to be excused for the length of n letter, but at the same time I think it will be of interes I would also like to state that I have no connection wi Jardine's, of Nottingham, but am one of those who like speak of an article as I find it. JAMES A. HARDY.

Fair Treatment.

Sir,—Some little time ago, a friend and I, bo riding Rudge machines, were proceeding to Bristol, wh upon reaching Evesham, my friend's machine gave out wi a cracked piston. After many suggestions as to what do for the best, I telephoned to the Rudge-Whitwor Works at Coventry asking if they could suggest anything.

Mr. Holroyd, the works manager, gave us every sympat and said he would see what could be done, which he did in a most practical form, viz., sent a smart mechanic, ful equipped, with tools and a new piston, at express speed a Tourist Trophy machine, a distance of thirty-three mil to us at Evesham. The rapidity with which the new pist was fitted and the machine overhauled and tested was real a marvellous piece of smart workmanship, inasmuch th only twenty minutes was occupied to complete the wh repair. When asked the cost of repairs we were inform that there was no charge, and that the company were pleas to be of service to us in our troubles. BOB HARRIS.

Sir,—Perhaps the following details of my experience wi a Sturmey-Archer hub may be found of interest to th of your readers who are contemplating the addition of three-speed gear to their motor cycle.

I had the gear fitted to my machine by a local firm, b found it did not run satisfactorily. I took the machi back three or four times, and was disappointed each tin Finally, I decided to take it to the makers of the gear, a did so. On the second day I received my machine ba and I was never asked to pay one penny piece. Since th I have run the machine with the greatest pleasure, and ha given it a good testing before sending this letter. I ha toured the Lake District and South Wales, and with p senger and sidecar have climbed each hill without troubl G. R. DREWERY.

SIX DAYS' TRIALS. Hugh Gibson (Bradbury) is seen rounding the acute bend on Crossdale Hill on the third day.

QUESTIONS & REPLIES

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Planning Tours.

Will you please give me a nice motor cycle tour through the Lake District and in Scotland. I have plenty of time.—F.M.R.

We regret we cannot undertake to work out tours. What you had better do is to become a member of the Auto Cycle Union (89, Pall Mall, S.W.), touring membership of which only costs 5s., or the A.A. and M.U., Fanum House, Whitcomb Street, Coventry Street), and apply to the Touring Department.

Birmingham to the West.

I shall be much obliged if you can tell me the best route from Birmingham to Plymouth, and back by another route. Also, do you know of any holiday camps near Plymouth?—A.W.

Your best route would be as follows: Birmingham, Alcester, Evesham, Cheltenham, Painswick, Stroud, Nailsworth, Bath, Radstock, Wells, Glastonbury, Taunton, Cullompton, Exeter, Chudleigh, Ashburton, Plympton, to Plymouth. We do not know of any holiday camps in this district. Return: Ivybridge, Totnes, Newton Abbot, Exeter, Taunton, Bridgwater, Bristol, Gloucester, Tewkesbury, Worcester, Bromsgrove, Birmingham.

Strangers and Taxation.

I am home from China, and should be glad if you can tell me if a local taxation licence taken out, say, in the London County Council, is sufficient anywhere in Great Britain? Also if facilities are given to non-residents of Great Britain, who may be touring here just for a month or six weeks, or does everyone, even a guest in England, have to pay the £1 tax for a motor cycle?—W.C.W.

Yes; one local taxation licence taken out at any Post Office in Great Britain is sufficient. We are under the impression that the local taxation licence has to be paid except in cases of foreign tourists entering the country under the International Touring regulations, which apply to those countries which have agreed to these regulations, *e.g.*, anyone coming from China, with which there is no agreement, would have to take out the local taxation licence, whereas a motor cyclist coming from France, under the auspices of the Automobile Club of France or the Touring Club of France, can enter under the International regulations for the sum of 7s. 6d., and be free to travel in this country without payment of further taxes

"Klipdam to Ecclefechan."

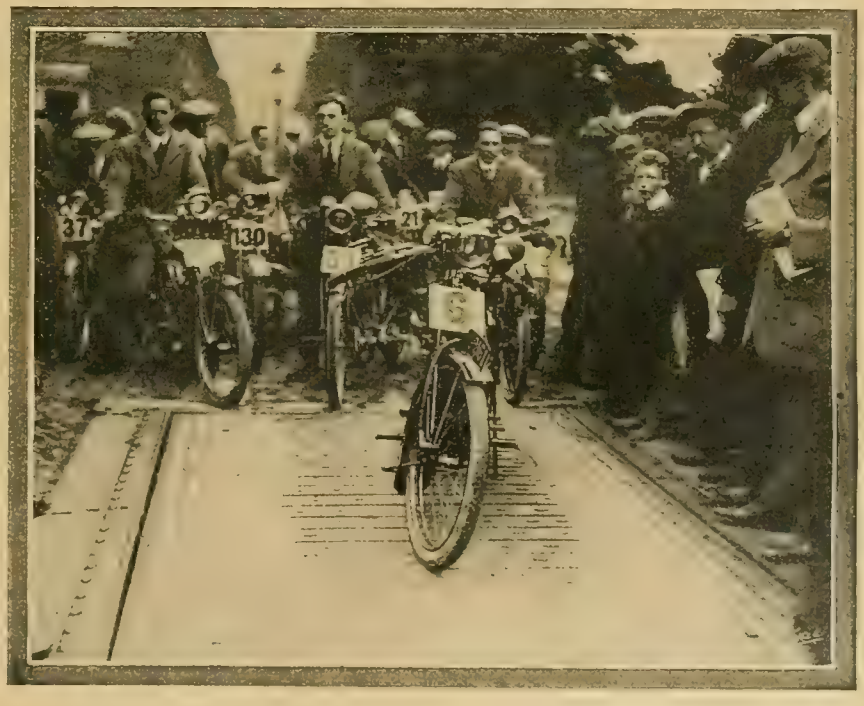
There's no limit to your usefulness. Please state best route for 3½ h.p. free model bike from "Klipdam Cape to Ecclefechan," embracing Jericho, Archangel, Greenland's Icy Mountains, The Grey Mare's Tail, and Wamphray Glen, enumerating cheapest petrol depots *en route*, also borough councils who are "dead nuts" on the speed limits. Guid luck to the world-wide known journal.—"TRIUMPH EXPONENT."

We recommend the following route: Klipdam Cape, Woolloomooloo, Madagascar (have the barnacle deposit scraped off the cylinder heads here), Tyre, Jericho (do not ride round the city near the walls, they are notoriously unsafe), Astrachan, Nijni Novgorod (rather crowded at fair time), Archangel (fit a warming device to the carburetter), Greenland's Icy Mountains (be careful of side-slip), The Back of Beyond, The Horsehoe Falls, The Grey Mare's Tail. 50° north and 40° west, Wamphray Glen, Ballybunion, Upper Tooting, Ecclefechan. to come recent trials routes.—ED.]

Petrel, the "Stormy" brand, is common in the Pacific Ocean, and any amount of Shell can be obtained quite cheaply at most seaside resorts. Any old fossil will direct you. Another well-known brand of spirit can be procured at the "Devil's Punch Bowl."

You will do well to remember that the speed limit is very strictly enforced in the Arctic regions, and that the descent of the Horsehoe Falls may be considered to be quite dangerous. In fact, we believe that this noted acclivity has never yet been climbed. On passing through any district ruled by a dusky potentate take care to placate the genial private secretary.

[We make no apologies for publishing the above route query, as the journey is of considerable interest to the touring public, and bears a striking similarity to some recent trials routes.—ED.]



Showing how the competing machines in the A.C.U. Trials were weighed. Some competitors thought the scales were inclined to err on the heavy side.

Cambridge to Brighton.

Will you please state the best route from Cambridge to Brighton, missing London and the largest towns.—O.J.

Your best route would be as follows: Cambridge, Royston, Baldock, Stevenage, Welwyn, Hatfield, St. Albans, Watford, Rickmansworth, Denham, Uxbridge, Staines, Chertsey, Weybridge, Cobham, Leatherhead, Dorking, Reigate, Crawley, Handcross, Piecombe, Brighton.

Engine Stops when Hot.

I have a 1911 Kerry-Abingdon fitted with free engine in rear wheel, and Brampton variable pulley, B. and B. carburetter, and coach-built sidecar. The engine overheats, and if I get on a long hill it will pull up suddenly, but if I wait a few minutes it will pick up and run well. If I run for ten miles on the level with the throttle well open, the result is the same. If I am on a switchback road, where I can keep lifting the exhaust, it will run very well and climb nearly anything. I have plenty of air to play with, and it is the same on petrol or benzole. I have cleaned the cylinder and piston head, fitted new rings, ground in the valves, and made fresh joint on the induction pipe, but still it is the same. It also exudes a lot of oil from the crank case.—J.C.

The symptoms you describe point to the piston being rather a tight fit in the cylinder. If this is the case a few hundred miles light running with plenty of lubrication and good oil should greatly improve matters. If this is not the case it is very probable that one or both of your valves tend to stick in the guides when the motor becomes hot. Take the valves out and examine the stems to see whether they are perfectly straight. Smooth them off slightly with emery paper and lubricate with some graphite before replacing. This should improve the running immensely. Also check the magneto timing.

Two Tours from London.

I should feel obliged if you will kindly inform me: (1.) The best route from London to Paignton (S. Devon), approximate distance, and condition of road surface encountered. (2.) Also the same information with regard to the route from London to Windermere.—J.P.

(1.) Your best route would be as follows: London, Staines, Bagshot, Blackwater, Basingstoke, Whitchurch, Andover, Salisbury, Shaftesbury, Yeovil, Chard, Honiton, Exeter, Chudleigh, Kingsteignton, Paignton. The distance is approximately 217 miles. The road is fair all the way. (2.) Your best route from London to the Lakes is *viâ* the Great North Road, through Barnet, Hatfield, Stevenage, Baldock, Eaton Socon, Stamford, Grantham, Newark, Tuxford, Retford, Doncaster, Ferrybridge, Aberford, two miles south of Wetherby turn left and go through Harewood, Otley, Ilkley, Skipton, Settle, Ingleton, Kirkby Lonsdale, Kendal, Windermere. The distance is approximately 272 miles. The condition of the road is fairly good throughout.

Cheshire to Devon.

Will you kindly give me particulars of the best route to Ilfracombe, avoiding towns as far as possible; also, say the distance, kind of roads, and where would be the best place to stay the night? I presume the journey could be done in two days with 3½ h.p. motor cycle and sidecar.—A.M.

Your best route would be as follows: Sandbach, Crewe, Nantwich, Market Drayton, Hodnet, Wellington, Bridgnorth, Kidderminster, Worcester, Tewkesbury, Gloucester, Stroud, Nailsworth, Bath, Chewton Mendip, Wells, Glastonbury, Durston, Taunton, Wiveliscombe, South Molton, Barnstaple, to Ilfracombe. The distance is approximately 300 miles. You had better stop the night at Gloucester.

Overheating Troubles.

I have a 3½ h.p. Bradbury motor cycle, and would like your opinion on the following difficulties. I can only get about 60 m.p.g. of petrol with a 33 jet, and the machine will not take extra air if a smaller one is fitted. After the engine gets heated up I find that it knocks when picking up after slowing down, and also when climbing, although I retard the spark and close extra air. The gear is 5 to 1, and the belt is not too tight. The engine has developed a crack in the exhaust valve seat. Can this be repaired, and, if so, could you give me the name of a reliable firm of repairers in the north.—J.K.

You might try if you can use the 32 jet, and then see if the consumption is going up through petrol being splashed about from the filler cap and leaking from the unions. An appreciable amount of petrol is sometimes lost in this way on a motor cycle. The knocking may be due to your using too weak a mixture when picking up speed, or to the engine requiring to be cleaned of carbon deposit. If you have a crack in the exhaust valve seating it would certainly cause loss of compression and loss of power. These cracks are difficult explain the position and size of the crack to repair. You had better write and to Messrs. Lea and Son, Runcorn.

Low Tension Magneto Difficulty.

I have a twin-cylinder Laurin and Klement 83 mm. × 96 mm. fitted with low tension magneto. I should be grateful for assistance on the following points with regard to the ignition. There are internal rocker arms actuated by a cam fitted to an extension of the half time shaft. These are both connected to a wire, which, by a single wire, is connected to the magneto. Is this correct? At what point does the spark occur, when the rockers strike or when they break? At what position of the piston should the rockers break? What is the correct gap between the rockers? Are the makers of this machine still in existence? If so, can you give me their address? Who made the magneto fitted to this machine?—B.G.

With the low tension magneto ignition fitted to the old twin-cylinder Laurin-Klement motor cycles the spark occurs when the make and break inside the cylinder separates. This should occur at approximately the top of the stroke of the piston—if anything a trifle before rather than after, but if it occurs at the top of the stroke it will be quite satisfactory. Within comparatively wide range the gap does not much matter. This form of ignition has the advantage of giving the largest spark at the highest speeds, and except to facilitate starting it is an advantage to have a fairly wide gap. Set it as wide as you can commensurate with easy starting. The makers of this machine are still in existence, and their address is Laurin and Klement, Jungblunzau, Austria. They made their own magneto as far as we are aware.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"C.F." (Worthing).—A.C. Sociable (two-seater). Best gear for hills; general information for novice.

"B.W.H." (Sutton Coldfield.)—5 h.p. twin Hazlewood (Jap) 1913 fitted with Armstrong gear. Reliability and wearing qualities.

THE CAMPION CYCLE CAR.

A neat cycle car is being marketed by the Campion Cycle Co. of Nottingham. The engine is an 8 h.p. J. A. P., the drive being transmitted through friction gear to a countershaft and thence by one inch belts to the rear wheels. Five speeds forward and one reverse are obtainable, and 650 × 65 tyres are fitted throughout. A Solex carburetter supplies the mixture.

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THE TRUE CYCLE CAR

Engine.
5-6 h.p., 76mm. × 85mm. Precision.

Ignition.
Magneto.

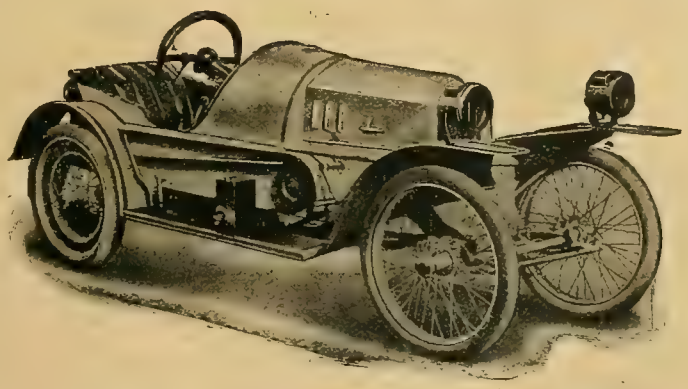
Speeds.
2 by chains through metal to metal clutches.

Carburetter.
A.M.A.C.

Wheels.
26in. × 2½in. Interchangeable.

Tyres.
Michelin.

Mudguards.
8½in. wide, with leather shields.



Brakes.
2. Footbrake acting on countershaft.
Side brake acting on belt rims compensated.

Belts.
⅞in. × 11ft. 6in. long.

Lubrication.
Sight drip and pump.

Petrol Tank.
3 gallons 1 quart.

Oil Tank.
3 quarts.

Clearance.
11ins.

Wheelbase.
7ft. 0ins.

Track.
2ft. 9ins.

Over all width.
3ft. 5ins.

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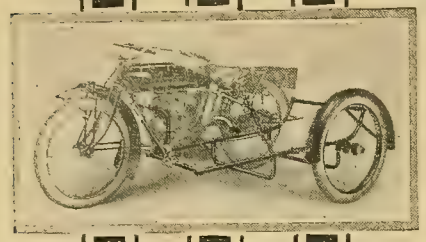
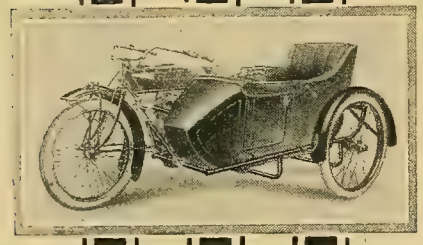
The First Practical Sidecar for the 1913 Spring Frame

Indian





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TYRE.—28 x 2¼in. Dunlop or Continental.

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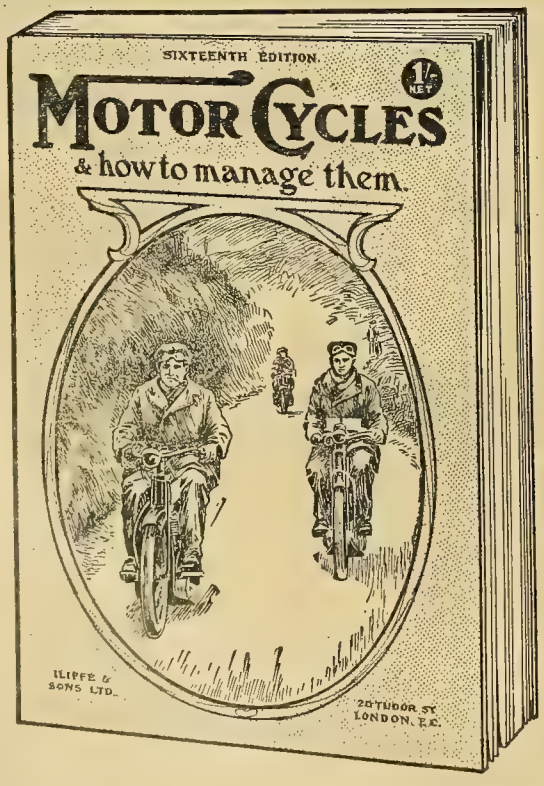

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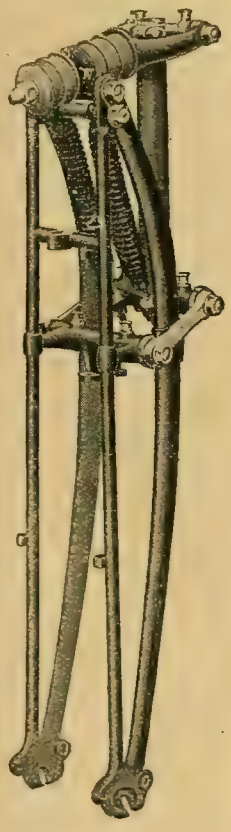
Other makes absorb shocks in one direction only—generally vertically.



In the Brampton Bi-flex Fork the girder is attached to the bottom of the steering column by links, and a pair of springs absorb vertical shocks. The top of the girder is not held by links, but cushioned between two sets of rubber buffers, and moves backwards or forwards under horizontal shocks. These two movements taking place simultaneously absorb all shocks, the buffers damping out any tendency to bounce.

The bearing surfaces are large, and adjustment is provided to take up wear in the links.

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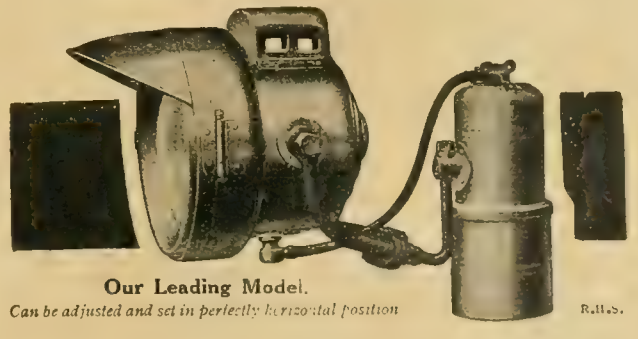

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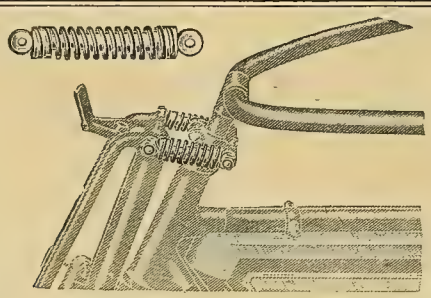

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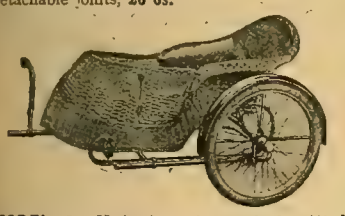

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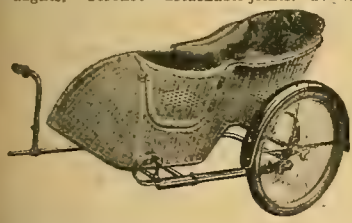

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1913 Clyno, 5-6h.p., unpacked; cannot take delivery; offers.—106, Ribbleton Lane, Preston. [X7398

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TRIUMPH, 1913 (April), and £5 spares, 3 speeds; bargain, £50.—Plowman, Sheriff-Hutton. [0928

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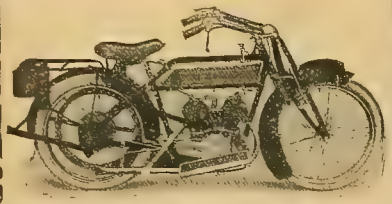

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The smartest combination on the road.

All on ready for taking away, including even registration. It will pay you to send for particulars.

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1911 **INDIAN,** 7 h.p., 2 speeds, Millford Sidecar, new body, horn, lamp, and speedometer, bargain **£42**

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REX, 3½h.p., £7; Buchet, 2½h.p., £5/5; Scott, £30; 6h.p. T.T. Rex, £45; belting, ⅝ and ¾, 6d. per foot, ⅞ and 1in. 8d. per foot.—The Bradford Motor Exchange, 4, Beldon Place, Bradford. [X6832

1913 Douglas, 2-speed, only done 1,000 miles, almost as new, tyres unpunctured, complete with lamp, Watford speedometer, watch, numerous unused spares, etc.; £46.—Procter Leighton, Lancaster. [X7276

SCOTT, 3¾h.p., 1912 engine, 2-speed, kick starter, 1913 improvements, drip lubricator, lamp, horn, watch, spare T.T. handle-bars, cover, tube, and chains, perfect condition, exceedingly fast; £52, with torpedo sidecar £60.—C. Emsley, Shaw House, Headingley, Leeds. [X7453

P. and M., 1913, Herald, Brownlow body, done under 3,000, £17 worth of accessories; cost £94, price £75: bike and sidecar alone £65; would accept single geared nearly new lightweight in part payment, Douglas or Humber.—Full particulars, Middleton, 138, Otley Rd., Leeds. [X7425

NORTHERN Depot, Ltd., Everything Motorish, Leece St., Liverpool.—Rex-Jap solo and sidecar combinations in stock; Millford Heralds, Corvettes, Premier sidecars in stock; D.A. cylinders. Biggest exhibition accessories in the north at popular prices. Northern special oilskin motor cycle suits, with belt, 30/6, as sold elsewhere 45/-. Call and examine stock without obligation to purchase. [X7386

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

LATE 1911 Douglas, just done up, £5 worth spares; £31 lot.—Lee, grocer, Belper. [X7371

MOTOR Cycle, less ignition and carburetter; £3/10.—41, Alexandra Rd., Stafford. [X7438

1911 Humber, 3½h.p., grand condition, 2-speed; £33; wanted, lightweight.—Judge, chemist, Derby. [X7476

1907 3½h.p. Triumph, sp'endid condition, many spares; £18.—Read, 122, Derby St., Burton-on-Trent. [X7468

2¾h.p. Forward, June, 1913, overhead valves, Brampton gear, very fast, only run 500 miles.—Harold Potts, Broseley. [X7267

TRIUMPH, 1912½, lamp, horn, speedometer, perfect order; trial any time; nearest £35.—Lander, Wellington, Salop [X7439

HUMBER, 3½h.p., 1913, 3-speed, kick start, new May, Lucas lamp and horn; £48.—Powell, ironmonger, Wrexham. [X7119

3½h.p. Phelon-Moore, September, 1911, pan seat, complete, perfect; £34; inspection.—Shone, 70, Watergate, Chester. [0925

TWIN Indian, red, absolutely it, remarkably fast; worth £40, take £29, or nearest offer.—Slater, Wood's Lane, Derby. [X7367

1913 Red Matchless, 3½h.p. T.T. overhead J.A.P., 75 m.p.h., perfect as new; £40.—Lees, Lunstead, Whaley-Bridge, Derby. [X7450

2¾h.p. Minerva, m.o.i.v., vertical, rubber belt, etc., complete, good running order; bargain, £6/10.—Barratt, Fairfield, Buxton. [X7489

A BARGAIN.—2-speed chain drive James, special engine, take 3 anywhere, 1912¾, good prize winner; £42, lowest.—Millard, Chesterfield. [X7310

TRIUMPH, late 1909, lamp, horn, whistle, re-bushed, mag., overhauled makers, spares; £25, offers.—Barker, 22, Garden Lane, Chester. [X7478

REX, 6h.p., 2-speed, free engine, new tyres and belt, heavy Kempshall back, connecting rods re-bushed; £30, or exchange 3½h.p.—W. Nash, Hulland Ward, Derby. [X6844

TRIUMPH, with free engine; Norton big 4, free engine, 2-speed, and sidecar; owner no further use.—H. Yeomans, Veterinary Surgeon, Cahill House, High St., Smethwick. [X6497

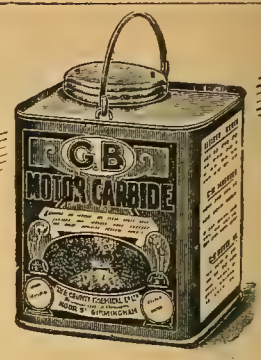
TRIUMPH, engine, magneto just overhauled, enamel, plating good condition, excellent running order, speedometer, watch, all accessories; £20, no offers.—T. Hugh Jones 3, Roslin Rd., Birkenhead. [0915

1913 Model N. Douglas, lamp, horn, spares, as new, ridden few miles only, perfect; £35, cost £46.—Reynolds, 3, Woodford Rd., Bramhall, Stockport. [X6833

2½h.p. Minerva, long handle-bar, low seat, stand, excellent order; £4.—Shepherd, Holly Bank, Nantwich. [X7122

IMMEDIATE Delivery, Phelon and Moore, Triumphs, B.S.A., Rudge Multi, Enfield 6h.p., Douglas; sidecars, torpedo, side door, £6/17/6, best value yet offered; also £5/5 models; Auto-Wheels; several second-hand machines; largest stock spare parts, tyres, belts, lamps, etc.—William Jones, Anglesey Motor Mart, Llanfairpwllgwyngyll. [9884

1913 Clearance Bargains of second-hand motor cycles. —1912 3½h.p. F.E. Rudge, guaranteed perfect, with Lucas lamp and horn, £36; 1911 3½h.p. Rudge, guaranteed in perfect order, new 1in. Dunlop, good tyres, Lucas lamp, horn, etc., £33; 1907 3½h.p. Triumph, new Dunlop belt, lamp, horn, heavy Kempshall tyres, only £16; Jenbro' sidecar, usual price £21, offers; 24 overall jackets, made by Dunlop, 22/6 each, 15/6 to clear; will send on approval; sidecars, Mills-Fulford, art cane £16/16 model, radial castor wheel, bargain, £8; one nearly new, cost £6/6, will accept £3/17/6.—J. H. Wedge and Co., New Rd. Willenhall. [1114



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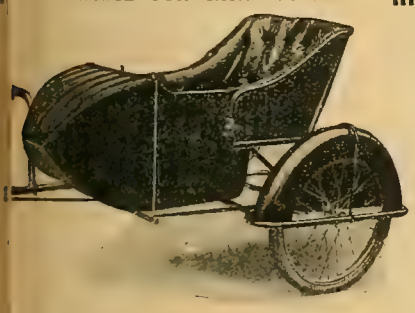

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CLYNO, 1912, 6h.p 2-speed, twin, excellent order; £39.—Robinson's, Green St., Cambridge. [1035

MATCHLESS, 3½h.p. 1910 engine and tyres excellent; £22.—Robinson's, Green St., Cambridge. [1036

PREMIER, 3½h.p., 1913, counter-shaft 2-speed model, soiled only; £47.—Robinson's, Green St. Cambridge. [1037

TWIN Humber, 2¾h.p., 1913 pattern, specially built for speed, used once only; £32/10.—Robinson's, Green St., Cambridge. [1038

OFFERS wanted for shop-soiled 1913 Matchless, 6 h.p., 2-speed; 1913 Rover, 3½h.p. T.T., free engine; 1913 Bradbury, 3½h.p., 3-speed; 1913 N.S.U., 3½h.p., 2-speed; 1913 torpedo, 2½h.p., free engine.—Willmott Bros., Norwich. [0329

1913 3½h.p. B.S.A., new July, fitted with Jones speedometer, with trip and maximum hands, horn, lamp, and generator, and set of tools, heavy Dunlop tyres in new condition, extremely fast, picked engine, enamel and plate like new; cost £56, accept £42, or near offer.—Fordham, 7, De Freville Av., Cambridge. [X7362

1912½ 3¾h.p. Scott, engine and gears fine condition, Palmer cord tyres, very little worn, speedometer, horn, and tools; accept £40.—Fordham, 7, De Freville Av., Cambridge. [X7363

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

TRIUMPH, 1909, lamp, horn, and tools, in sound condition; £22/10.—Colmans Garage, Stourport. [X7281

TRIUMPH, 1913, 3-speed, quite new; no reasonable offer refused.—Turner, Brook Rd., Oldswinford, Stourbridge. [X7463

MINERVA, 3½h.p., mag., detachable tubes, torpedo tank, good condition; £18.—Stephens, 34, Blue St., Carmarthen. [X7355

PREMIER, 2½h.p., 1912½, fine, £23; 3½h.p., inclined, mag., £10, cash needed.—Davies, 122, Colledge St., Ammanford. [X7449

3½h.p. N.S.U., F.E., mag., Mabon adjustable pulley, splendid condition; £22/10, or nearest secures.—T. G. Thomas, New Tredegar. [X7244

6h.p. Speed King Rex, 1912, Cowey speedometer, lamp, splendid condition, what offers? Also Millford sidecar, new.—Wright, Hallis Rd., Hirwain, Glamorganshire [X7280

SCOTT, 1913, just delivered, selected engine, 7-70 m.p.h. (certificate given), special carburetter, 80 m.p.g., touring and T.T. handle-bars, complete, head light, spare tubes, all accessories, guaranteed absolutely perfect; cost £79, nearest £69.—Willoughby-Cotton, Burtons, Ledbury. [0932

GREAT Bargain.—Quite new 1913 Triumph, 3¾h.p., 3-speed, Jones trip speedometer, horn, Lucas lamp, mirror, Jenbro' sidecar, Garner alarm, only purchased July 30th, only done few miles; cost £83/4, will accept £72/10; all above strictly genuine bargain; owner giving up riding.—Apply, Midlands, Box 3,947, *The Motor Cycle* Offices, Coventry. [X7279

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

SCOTT, 1913, brand new, shop-soiled; only £58, bargain.—Ginger, Motors, Banbury. [X6676

2¼h.p. Bradbury, fine condition; £10/10.—Vernon, 86, Oakridge Rd., High Wycombe, Bucks. [X7282

MATCHLESS, 1912, 6h.p., 2-speed, in perfect condition; £50.—Stanley Wilce, Cinderford. [X7352

TRIUMPH, 1912, F.E., good condition; £35; accessories, fully equipped.—Parsons, Currier, Salisbury. [X7116

MATCHLESS, 1913 models for immediate delivery.—Sole Oxfordshire agents, The Morris Garage, Oxford. [0313

PHELON and Moore, 1913 models for immediate delivery.—Sole district agent, The Morris Garages, Oxford. [0203

F.N., 2½h.p., 1913, 2-speed, free engine, not ridden 200 miles; bargain, £40.—Harris, High St., Slough. [1123

3½h.p. Rex, late 1911, handle starting, little used, accessories; £27.—Lane, Honeystreet, near Pewsey, Wilts. [1028

1911 Standard Triumph for sale, speedometer, tyres new, condition splendid.—Murray, Shirley H use, Basingstoke. [X7359

1911 Twin Moto-Reve, mag., just overhauled, lamp, horn, etc., complete; £12.—Chas. Sigge, Wolverton, Bucks. [1078

DOUGLAS, 2¾h.p., 1913 model, very little used, £33, no offers.—Clark and Newcombe, 26, East St., Farnham. [1111

£17/10.—3½h.p. Chater-Lea-Peugeot, Bosch, B.B., adjustable pulley, splendid condition.—12, Clarence Sq., Cheltenham. [0975

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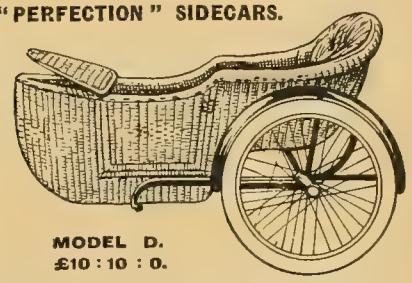

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1911 2 h.p. **SINGER** Lightweight	£19 19
1911 2 h.p. M.O.V. **MOTOSACOCHE**	£19 10
1912 4½ h.p. 2-speed **PRECISION**	£44 10
1912 4 h.p. Tourist **REX,** soiled	£31 10
1911 3½ h.p. F.E. **ROVER**	£32 10
1910 Magneto **MOTOSACOCHE**	£15 0
1909 3½ h.p. 2-speed **HUMBER**	£25 0
1909 3½ h.p. Magneto **REX**	£19 10
1908 3½ h.p. Magneto **REX.**	£17 10
1908 3½ h.p. Magneto **QUADRANT**	£17 10

NEW 1913 REX OR REX-J.A.P.

1913 6 h.p. 2-speed **REX**	£62 10
1913 6 h.p. 2-speed **REX,** chain drive	£67 15
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1913 8 h.p. 2-speed **REX-J.A.P.**	£73 10
1911-12 Twin 2-speed **REX** de Luxe, NEW	£46 10

Callers receive special Exchange quotations.

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1318.	1912 **ZENITH,** 3½ h.p.	£38
1327.	1912 **BRADBURY,** 3½ h.p.	£35
1332.	1911 **ZENITH,** 6 h.p.	£42
1334.	1912 **SINGER,** 4 h.p., 2-speed	£42
1338.	1912 **BRADBURY,** 3½ h.p., free engine	£38
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1408.	1912 **P. & M.,** 3½ h.p., 2-speed, and Sidecar	£49
1415.	1911 **DOUGLAS,** Model D	£25
1418.	1912 **BRADBURY,** 3½ h.p., F.E., and Sidecar	£40
1421.	1912 **N.S.U.,** 3 h.p., twin-cylinder, 2-speed	£32
1423.	1913 T.T. Free-engine **TRIUMPH,** as new	£45
1424.	1913 **REX-J.A.P.,** 5 h.p., overhead M.O.V., T.T. roadster	£35

We are open to consider reasonable offers for the following machines, which we are selling for various clients:

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1406.	1912 **A.J.S.,** 5-6 h.p., large P. & H. lamp, Jones' speedometer, post horn, watch, mirror, spares, and tools	£55
1410.	1912 **BRADBURY,** 3½ h.p., 2-speed, belt drive, and Bradbury wicker Sidecar	£45
1412.	1912 **HOBART,** 2¼ h.p., Miller lamp, serpentine horn, tools	£22
1416.	1912 **TRIUMPH,** 3½ h.p., free engine, Cowey speedometer, post horn, black 1,000ft. F.R.S., belt and tube case with spare belt and tube, tools	£42
1425.	1912 Standard **TRIUMPH,** with Cowey, lamp, horn, tools, and spares	£37
1426.	1912-1913 **F.N.,** 5-6 h.p., 4-cylinder	£36
1427.	1913 5 h.p. **RUDGE** Multi	£52
1428.	1912 **TRIUMPH,** F.E.	£39

BRAND NEW SHOP-SOILED MOTOR CYCLES and SIDECARS.

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MONTGOMERY Torpedo, sport	£12	10	0
MONTGOMERY, No. 5, London body	£13	15	0
MONTGOMERY, No. 7, Exeter body, hood, and screen	£18	10	0
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MILLFORD Corvette, storm apron mat and luggage board	£12	0	0
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WERNER, 3½h.p., 2 cyls., mag., new tyres, belt, just been thoroughly overhauled; bargain, £10.—Harris, High St., Slough. [1122

MOTOR Cycle, 80×90 Fafnir engine, 2¼ cord tyres, Senspray, adjustable pulley, 2 accumulators, spares; £12.—Davis, Twyford, Berks. [X6834

RUDGE Multi.—Deliveries from stock; trial runs given; exchanges entertained; trade supplied.—Official agent, Barnes, Slough. [9139

HARTWELLS' Garage, Chipping Norton.—Triumph and Douglas agents; also agents for Swift cycle car for Banbury, Burford, and Chipping Norton.

TRIUMPH, 3-speed, 3½h.p., free engine, clutch; in stock; £59/15.—Hartwells'.

DOUGLAS model O, £48; in stock model R, £52.—Hartwells'.

ENFIELD Autolette in stock, £138.—Oxfordshire agents, Hartwells'.

TRIUMPH, 1912, free engine, in fine order throughout, new 1in. Dunlop belt, lamp, horn, and tools; £39.—Hartwells'.

TRIUMPH, 3½h.p., 3-speed, delivered end of July, with Mills-Fulford torpedo sidecar, wind screen, hood, horn, lamps, mirror, and every accessory, beautiful order, and all of the best, as new; cost £83, no reasonable offer refused.—Hartwells'. [1786

LAYTONS'.—Scott, 1913, brand new, soiled only; list price £68/5, offers wanted; easy payments, exchanges.—Laytons', Bicester, Oxon. [X7407

LAYTONS'.—1913 3-speed Triumph, used once and as new; £52.—Laytons', Bicester, Oxon. [X7408

LAYTONS'.—Sunbeam, 1913, 2¾h.p., kick starter, 2-speed; catalogue price £63, offers wanted.—Laytons' Bicester, Oxon. [X7409

LAYTONS'.—Douglas, model O, 2-speed, just arrived; £48; exchanges, easy payments.—Laytons' Bicester, Oxon. [X7410

LAYTONS'.—Triumph, 1913, 3-speed model, just delivered; £59/15; exchanges, easy payments.—Laytons', Bicester, Oxon. [X7411

LAYTONS'.—James, 4h.p., 1912, 3-speed model, complete with sidecar, lamp, horn, thorough order; £40.—Layton, Bicester. [X7412

LAYTONS'.—Scott, 1912, used 800 miles only, complete with lamp, horn, speedometer, spares, etc.; exceptional opportunity, £48.—Laytons' Bicester, Oxon. [X7413

LAYTONS'.—Triumph, 1910, 3½h.p., standard model, best 1910 we have seen; £28.—Laytons', Bicester, Oxon. [X7414

LAYTONS'.—Douglas, 1913 model, complete with lamp and horn; £43; fast machine.—Laytons', Bicester, Oxon. [X7415

P. and M., 1913, good condition, little used, £55; with new Chater-Lea wicker Canoelet sidecar, £60.—Baines, 65, Whiteladies Rd., Bristol. [1014

TRIUMPH, 1910¾, Mabon free engine, clutch, in perfect condition, complete with tools and spares; £29.—A. Whaley, Bourne Av., Salisbury. [X7506

MATCHLESS, 1912, 5h.p., Gradua gear, touring and racing handle-bars, guaranteed perfect; £42.—James Kellar, 45, Woodstock Rd., Bristol. [X7283

1913 Triumph Motor Cycle, F.E., not unpacked; also 1912 Triumph, F.E., as new, £40; also 1911 Triumph, splendid order, £22.—Merrett, Corsham. [X7498

TRIUMPH, clutch, October, 1911, excellent tyres and belt, Lucas lamp, Garner whistle, spares; genuine machine; 30 gns.—Banks, Weston Birt, Tetbury, Glos. [1024

SCOTT, 1913, 2-speed, as new, done 512 miles, offers; Premier, 1912, 2½h.p., 3-speed, new Dunlops and belt, bargain, £26.—Surplice, Sheet St., Windsor. [1001

TRIUMPH, 3½h.p., Dec., 1908, carefully used, new Druid and Kempshall tyres, nickel and paint good, just overhauled, lamp, all accessories; £25, or offer.—Still, Warminster. [X7351

3½h.p. (November, 1911) Free Engine Triumph, 1912, spring forks, inch belt, Cowey speedometer, Lucas lamp, tools, horn, in good condition; nearest offer £33.—Apply, Belmont, Porton, Salisbury. [X7419

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

LEA-FRANCIS, 3¼h.p., new last April, complete with lamp, horn, speedometer, and tools, etc., 2-speed, kick start, chain drive, foot clutch, will do 58 on the level, only done about 2,000 miles; £55.—Apply, Lawes, The Triangle, Aldershot. [X7392

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

F.N., 5-6h.p., thorough condition; £23.—J.W., 66, Naylor Rd., Peckham. [1076

1906 Triumph; £23, or offer; must sell, no licence.—Hicks, Felstead, Essex. [X6839

8h.p. 1910 Minerva, with or without sidecar.—38, Church Av., East Sheen. [0919

A GOLDEN OPPORTUNITY

occurs just now to the man who requires a high-class motor bicycle at a reasonable price.

ERIC S. MYERS

is offering (one or two of each only)

BRAND NEW

SLIGHTLY SHOP SOILED, and a few machines which have been used once or twice for demonstration runs only, at

BIG REDUCTIONS.

They include 1913

SCOTTS
TRIUMPHS
JAMES
ENFIELDS
WILLIAMSONS
ZENITHS

They offer you a chance of a lifetime. Remember—first come—first served.

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"NO WORRY DEPOT"

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Manningham Lane,

BRADFORD

MOTOR BICYCLES FOR SALE.

[ORGAN and Maxwell, The Motories, 80, High Rd., Streatham, London.—Keen prices, quick deliveries, better terms than you can obtain elsewhere.

[ORGAN and Maxwell.—Aster-Ribble tricar, 6½h.p., 2-speed; £12/10.

[ORGAN and Maxwell.—Bat, 2¾h.p. De Dion, spring frame; £10.

[ORGAN and Maxwell.—Bat, 8h.p., and sidecar, 1913; £60.

[ORGAN and Maxwell.—Clyno, 5-6h.p., late 1912, 2 speeds, Binks, and coachbuilt sidecar; £45.

[ORGAN and Maxwell.—Enfield, 6h.p., 1913, 2 speeds, and sidecar, as new; £68

[ORGAN and Maxwell.—F.N., 1910, 2½h.p., shaft drive, Bosch; £11.

[ORGAN and Maxwell.—Humber, 1912, and sidecar; £30.

[ORGAN and Maxwell.—Indian, 1913, 7-8h.p., as new, and sidecar; £75.

[ORGAN and Maxwell.—Ivy-Precision, 3¾h.p., late 1911, free engine, Dunlop specials; £25.

[ORGAN and Maxwell.—J.A.P. lightweight, 2½h.p.; £7.

[ORGAN and Maxwell.—L.M.C., 3½h.p., 1913, Armstrong 3 speeds; £38.

[ORGAN and Maxwell.—Matchless, 6h.p., 1913; £55.

[ORGAN and Maxwell.—Minervas from £5 each.

[ORGAN and Maxwell.—Moto-Reve, 2h.p., 1911; £12.

[ORGAN and Maxwell.—Motosacoche, 2h.p., Bosch, 1911; £14.

[ORGAN and Maxwell.—Motosacoche, 2½h.p., 1912; £22.

[ORGAN and Maxwell.—New Hudson, 1912, 2½h.p., 3 speeds; £35.

[ORGAN and Maxwell.—New Hudson, 1912, 3½h.p., 3 speeds; £40.

[ORGAN and Maxwell.—N.S.U., 1910, 6h.p., 2-speed, and sidecar; £32.

[ORGAN and Maxwell.—Rudge, 3½h.p., free engine; £30.

[ORGAN and Maxwell.—Singer, 2½h.p., T.T., 1912, 3 speeds, Bosch; £35.

[ORGAN and Maxwell. Triumph, T.T., 1911, de compressor, special engine and fittings; £32.

[ORGAN and Maxwell.—Triumph, 1911, Tourist, fine condition; £30.

[ORGAN and Maxwell.—Triumph, 3½h.p., latest 1913, 3 speeds, brand new, never used, shop-soiled; £

[ORGAN and Maxwell.—Wolf 1½h.p. lightweight £5.

[ORGAN and Maxwell.—Zenith, 6-8h.p., 1913, barely soiled, Gradua gear, Hutchinsons, Bosch, head lt, speedometer, complete with Gloria new Projectile ear, all tools, lamps, fittings; price £100, with in ance policy.

[ORGAN and Maxwell.—8h.p. De Dion car, hood, screen, lamps; £50.

OME Over Here! To Morgan and Maxwell, 80 High Rd., Streatham, for J.A.P.'s, Rexes, Bradburys, haus, speedometers, lamps, new and used accessories; e stock, cheapest and best of all.

[ORGAN and Maxwell's Miscellany.—A.S.L. seat pillar, as new, 21/-; Binks 2-jet carburetter, 21/-; ley and Smith speedometers, almost new lamps, etc.; te us.—Morgan and Maxwell, 80, High Rd., Streatham, London. [X7451

IGHTWEIGHT Twin Moto-Reve, 2½h.p., mag., Druid forks, Dunlops, reliable, fast, with spares; offer.—Montague, 18, The Avenue, Brixton. [0876

S.A.-Minerva, 2¾h.p., in absolutely perfect condition, only run 4,000 miles, P. and H. head lamp, carrier, etc.; £9.—46, Hillcrest Rd., Acton. [1065

OUGLAS, 1913, model O, with lamp and horn, new in May, excellent condition; £37; owner going abroad—Cave-Browne, Folkestone Rd., Dover. [X7495

VY-PRECISION, 1912, 3½h.p., T.T. roadster, specially fitted up and overhauled, with accessories; offer best offer.—29, Waldegrave Rd., Upper Norwood. [0971

RADBURY, 1912, 2-speed, chain, speedometer, £38 Premier, late 1911, 3-speed, £29; sidecar, with child's seat, £4 extra.—Gough, 44, Hazlewell Rd., Put [1006

.N., late 1912, 5-6h.p., clutch (grey) model mileage 850, Continental non-skid, footboards, perfect ner; £37/10.—H. S. Tosh, 91, Queen Victoria St. [1061

RIEL, 1913, 3-speed, kick starter, new June last, not done 500 miles, £49; with Phœnix 12 gn. sidecar; 9—73, Loughborough Park, S.W. 'Phone: Brixton [1128

913 4½h.p. Twin Hobart, fitted with Armstrong 3 speed, free engine, Hutchinsons tyres, unscratched, new; must sell; any trial.—Petty, 3, Norbury Parade, Norbury. [1009

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surely want to buy in the best market.
If so, you must come to

CORDINGLEY'S.

We are offering all the following
AT BARGAIN PRICES
ALL MODELS.

NEW HUDSON	**RUDGE**	**B.S.A.**
MATCHLESS	**CLYNO**	**LEVIS**
ENFIELD	**SCOTT**	**JAMES**
BRADBURY	**MARTIN**	**SINGER**
DOUGLAS	**PREMIER**	All makes.

First cheque secures the following:

	Usual Price.	Clearance Price.
MATCHLESS, 6 h.p., 2-speed..	£73 10	**£62 0**
RUDGE Multi, 3½ h.p., Sidecar	£70 0	**£57 10**
JAMES, 3½ h.p., Model 6, complete with Canoelet Sidecar	£76 13	**£66 0**
SINGER, 3½ h.p., 3-speed, F.E.	£58 15	**£49 0**
SINGER, 4½ h.p., 2-speed, F.E. (complete with Singer Sc.) Cannot repeat above.	£80 0	**£66 0**

DOUGLAS Models O, P, and R. Offers.
SCOTT, 3¾ h.p., just in from makers. Offers.

SIDECARS.	Usual Price.	Clear for
GLORIA, 1 only, Model No. 3, complete	£18 18	**£16 0**
CLYNO, 1 only, Model No. 5..	£15 0	**£13 0**
ROSSENDALE, 1 only, coachbuilt, really smart	£12 0	**£9 10**

SPECIAL BARGAIN.
Brand New **CENTAUR,** 2 h.p., 3-speed, free engine, green enamelled, and a really smart machine; makers' price, £47 10; our price **£36 0**
Cannot repeat

CYCLE CARS FROM STOCK.

HUMBERETTE, painted cinnamon brown, a real beauty, complete with hood, screen, etc. **£125 0**
SINGER, 10 h.p., French grey, hood, screen, five detachable wheels and tyres, lamps, horn, tools, etc. **£185 0**
HUMBERETTE, 1913 model, only run 1,000 miles, complete hood, screen, lamps, horn, tools, etc., like new ... **£100 0**
Quick delivery of all makes.

THE FINEST STOCK OF SECOND-HAND MOTOR CYCLES IN ENGLAND.
The following are a few of our Special Bargains:
SCOTT, 3¾ h.p., 1912 model, new August, and little used. One of the best machines ever turned out by the Scott Co. **£47 10**
RUDGE Multi, 3½ h.p., 1913 model, almost new, complete with Bramble coachbuilt Sidecar, lamp, horn, tools, etc. guaranteed perfect; cost £75; accept **£50 0**
1912 **CLYNO,** 5-6 h.p., 2-speed, free engine, kick starter, complete with lamp, horn, tools, etc., new coachbuilt Sidecar, very special **£47 10**
SCOTT Cycle, new October, 1912, in really fine order (or very close offer) **£55 0**
1913 **SINGER,** 3½ h.p., T.T. model, a real flyer **£37 10**
2¾ h.p. **TORPEDO,** complete with speedometer, lamp, and horn, 1912 model, a bargain **£26 0**
HUMBER, 3½ h.p., 2-speed, free engine, handle starting, Sidecar complete, a bargain **£25 0**
TRIUMPH, 3½ h.p., 1908 standard, Mabon clutch, footboards, good machine ... **£24 0**
TRIUMPH, 3½ h.p., lamp, horn, tools, etc., in good condition; accept **£18 0**
PREMIER, 3½ h.p., 1910 model, complete with lamp, generator, horn, tools, etc. **£25 0**
HOBART, 1912, 2¾ h.p., fixed engine model, only done 500 to 600 miles, and cost well over £40, absolutely as brand new; clear for **£30 0**
1912 **RUDGE,** 3½ h.p., free engine model, complete, and just like new; bought this year **£40 0**

Please come to us when you want to save a few pounds in the buying of anything in Motors.

J. S. CORDINGLEY,
THE MOTOR CYCLE MART,
HASLINGDEN, LANCASHIRE.
Wires—"Cordingley, Haslingden."
'Phone—2Y, Haslingden.

MOTOR BICYCLES FOR SALE.

2¾h.p. Douglas, T.T., new April, P.H. lamp, generator, horn, Isochronous speedometer, condition as new, just overhauled; £45.—Osmond, 45, Blackheath Park, S.E. [0720

MOTOSACOCHE, 1912, 2½h.p., free engine, perfect order, ridden only 500 miles, tyres unpunctured never given slightest trouble; 28 gns.—Kidson, Karoo, Marden, Kent. [0893

3½h.p. Rex, h.b.c., 1912, B.B., spring forks, footboards, new belt, good condition, accumulator, lamp, accessories; £12, or offer.—7, Worcester St., Wapping, E. [X7372

MINERVA, 3½h.p., Druid forks, B. and B., splendid condition, excellent running order, recently overhauled, lamp, spares; £11/10.—Phillips, 2, Kimberley Rd., Chingford. [0998

1912 Rudge, T.T., just overhauled by Rudges, new tyres Cowey, F.R.S., accessories, and spares, perfect condition; a bargain, £34/10.—27, Holwood Rd., Bromley, Kent. [0890

TRIUMPH, 1913, 3-speed, bought 3 months ago, used only week-ends, all accessories, heavy tyres, very fast, condition perfect; bargain, offers.—93, Balfour Rd., Highbury. [1057

SUNBEAM, 2¾h.p., 1913, just received from makers, unscratched; £52, or exchange higher power, cash adjustment.—Box L3,962, *The Motor Cycle* Offices, 20, Tudor St., E.C. [1125

MODEL O Douglas, new July 23rd, only 700 miles, Senspray, lamp, horn, tools, many spares; £45; giving up motor cycling; appointment.—Walker, 117a, Finchley Rd., N.W. [1110

S.I.A.M.T., 2¾h.p., T.T., 1912, 140 m.p.g., fast, just overhauled by makers, £5 spent, spare tyre, accessories; owner going to Paris, must sell, £15.—29, Woodlands Rd., Harrow. [1062

6h.p. Gradua Matchless, new, £58; Triumph, 3-speed, new, 55 gns.; model R Douglas; Humberette, hood, lamps, and screen, £112.—Morriss and Co., 139, Finchley Rd., N.W. [0952

BARGAIN.—1912 4h.p. free engine Rex Tourist, powerful, handle starting, new condition; any examination; cost £50, sell £30.—H., 8, Cameron Rd., Seven Kings, Essex. [0949

1911¾ Motosacoche 2½h.p. Lightweight, bought new in 1912, and very little used, new Whittle belt, Druid forks, h.b.c., free engine, accessories and spares; a real bargain, £18.—Below.

1912 Enfield 2¾h.p. Twin Lightweight, in new condition throughout, 2-speed gear, nice engine, sight feed oiler, all accessories and spares; a splendid bargain, £30.

1912 Bradbury and Sidecar, 2-speed gear, free engine, decompressor, lamp, generator, horn, etc., excellent order; £40.—Below.

1910 Motosacoche 2h.p. Lightweight, free engine, mag., h.b.c., spring forks, splendid running order and condition; £13.—Below.

1913 Rover, 3-speed model, brand new; exchanges, easy payments.—Below.

1913 Rudge Multi, 3½h.p., brand new, just delivered; exchanges, easy payments.

1913 Douglas, model O, 2-speed, and free engine, footboards, brand new; exchanges, easy payments.

ELCE and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [1041

£27, or near.—B.S.A., 1911, perfect condition, fast, spare tyre and belt, Lucas lamp, numerous accessories; giving up motoring.—Jasper, St. Brannocks, Masons Hill, Bromley, Kent. [1039

LUGTON, 3½h.p., 3-speed, Armstrong mark VI., B. and B., Bosch, Lyso saddle, Hutchinson tyres, deep horn, 2 months old, ridden 150 miles; cost £50, accept £42.—James, Orsett, Essex. [0872

1912 F.N., 5-6h.p., 2 speeds, disc clutch, waterproof Bosch mag., lamp, horn, etc., perfect condition, almost new; any trial; £41/10; sidecar, £4/10.—26, Parsons Green Lane, Fulham. [1007

INDIAN, 3½h.p., 2-speed, free, June, 1912, excellent condition, just overhauled, Dunlop pinion back; £40, immediate sale.—Nicholes, 1a, Berners St., Oxford St., W. Evenings after 7.30. [0914

DOUGLAS, 1912, model K, 2-speed, kick starter, no accidents, unscratched, lamp, horn, Jones trip speedometer, mirror, Xl'all saddle, spares; £39.—Emery, 33, Beethoven St., Kilburn Lane. [X7400

PHELON and Moore, Ltd., 4, Percy St., W. have several good second-hand P. and M. machines for sale, which have been overhauled and are in perfect order.—Can be seen at above address. [0131

SPEED King Rex, 3½h.p., 1910½, absolutely reliable, perfect condition, all accessories, numerous spares, ready for tour; any trial; £21/10 cash; appointment.—13, Leinster Av., East Sheen. [0980

1913 Ariel, 3½h.p., Armstrong 3-speed, free engine, and decompressor, spring seat-pillar, as new, only ridden few miles, £49; also Ariel sidecar for same, £6.—Sorrell, Clarnico Works, Victoria Park, N.E. [0695

BRIGHTON.—Sunbeam, almost new, ridden 900 miles, £52; N.S.U., 6h.p., thoroughly overhauled and re-enamelled, offers over £18; agent for Douglas, Scott, Clyno, Premier, Bradbury.—Turpin's, 29, Preston Rd. [0311

MOTOR BICYCLES FOR SALE.

TRIUMPH, 1912, spring forks, F.E., B. and B., Whittle, Bosch Palmer, spring seat pin, new condition, bargain £25; canoe sidecar, with wind screen and apron, suit above, £5/19.—241, Balfour Rd., Ilford. [X7377

1912½ F.N., 5-6h.p., just overhauled, new steel-studded tyre, Cowey, F.R.S. lamp, horn, tools, spares, sidecar has screen, apron, grid; £45.—Box L2,489. *The Motor Cycle* Offices, 20, Tudor St., E.C. [0921

MATCHLESS, 3½h.p., N.S.U. 2-speed, new Davison tank, internal pump, new Autoclipse set, B. and B. variable, Simms mag., nearly new Lyso spring frame; must sell; first reasonable offer.—50, Brooks Mews, Mayfair. [1080

HURLIN and Co. have the following bargains: Triumph, 3½h.p., and sidecar, brand new, £45; Rex, 2½h.p., good order, £6; twin Antoine, 6h.p., £40; 1913 Scott, 3½h.p., new, £60.—Hurlin and Co., 295, Mare St., Hackney. [1095

TRIUMPH 1912, free engine, very little ridden, lamp, horn, speedometer, and all accessories, everything in excellent condition; must be sold at once; price £41; may be seen by appointment.—Write, Duncalf, 38, Esmond Rd., Bedford Park, W. [X7325

LATEST 1913 Rudges, Rexes, Triumphs, Singer, G.W.K., and Humberttes, B.S.A.'s, Zenith, Enfields, Douglas, Scotts, etc., actually delivered from stock; exchanges and easy payments.—Maude's, 136, Great Portland St., London, W. [1107

ROVER, 3½h.p., F.E., Sturmey-Archer 3-speed gear, delivered June, 1912, Lucas lamp and horn, Cowey speedometer, practically new front Dunlop tyre (only run 10 miles); may be seen by appointment; £44.—P. W. Johnson, Kirk Braddon, Croydon Rd., Beckenham, Kent. [7500

HUMBER, 2¾h.p., twin-cyl., late 1912, Lucas head lamp and generator, horn, mirror, pan seat, watch, speedometer, only run 900 miles, paintwork unscratched, smart little machine, fast and good hill-climber; bargain, price 30 gns.—Apply, 89, Wigmore St., W. Tel: 3743 Mayfair [0703

7-9h.p. Twin Brown, 1911, B. and B. carburetter, h.b.c., free engine, Bosch mag., very powerful, 26×2¼ new Rom non-skids, low, Brown Bros. make throughout, everything splendid condition, plated rims, Whittle belt, all accessories, watch, mirror; trial; bargain, £26; nearly new latest torpedo sidecar, plated rim, Dunlop tyre, £5/5.—17, Bedford Sq., Stepney. [X7503

BARGAINS Every Week.—1913 3-speed Rover, brand new, shop-soiled, £48; 1912 clutch Bradbury, brand new, £36; 1912 clutch Triumph, absolutely perfect, £35; 1912 2-speed Bradbury, belt drive, £32; 1912 Bradbury standard, £26; 1912 3-speed Premier, as new, £38; 1911 3¾h.p. twin Premier, £23; 1911 3½h.p. Kerry-Abingdon, perfect, £20; 1913 3-speed Rover and sidecar, £45.—Batchelor and Co., Clarence St., Kingston-on-Thames. [X7393

MESSES. PALMER and Kitson, South Eastern Garage, Herne Hill, London, S.E., guarantee all the following machines to be in running order: Antoine tricar, 4½h.p., 2 speeds, £15; 3½h.p. 1912 Zenith-Gradua, £36; 5h.p. 1911 F.N., £28; 1¼h.p. F.N., £10; 2½h.p. Clement, £10; 1910 Douglas, £18; 4h.p. Peugeot and sidecar, £15; 1912 2¼h.p. Calcott, £27; 1911 2-speed Douglas, £27; 1911 6h.p. 2-speed N.S.U., sidecar, £35; 1910 5-6h.p. Rex, 2-speed, sidecar, £35. Accessories.—First P.O. secures the following, money refunded willingly if not satisfied: J.A.P. car carburetter, new, 70/-; Ford car carburetter, 20/-; pair electric cycle car lamps, new, 20/-; exhaust whistle, h.b.c., 10/-; inner liner for car cover, new, 7/6; car tube gaiters, new, 5/-; Triumph pattern bars, with all 5 controls, new, 25/-, etc., etc. Write for lists. [8457

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

DOUGLAS, 1913, Model O., £48; Model R., £52; both in stock.—Moffat, Yeovil. 'Phone: 50. [5324

MOTOR Tricycle for sale, De Dion, 2-speed, free engine, splendid climber; £13, offers.—Davys, Wells, Somerset. [0881

QUADRANT, 3½h.p., reliable, excellent condition, spring forks, B. and B.; £9.—Rnoff, 4, Hill View, Ilminster. [X7496

EXETER Motor Cycle Co., 6 and 7, Bath Rd., Exeter. —The big western people for motor cycles and cycle cars.

EXETER Motor Cycle Co.—6h.p. Enfield, £86/2; 3 h.p. Enfield, £52; 2¾h.p. ditto, ditto, £50.

EXETER Motor Cycle Co.—3½h.p. Singer, £58/15; 3½h.p. Centaur, £57/10; 2h.p. ditto, ditto, £37; 1912 Bradbury, new, £45; 3½h.p. Zenith, £55/13.

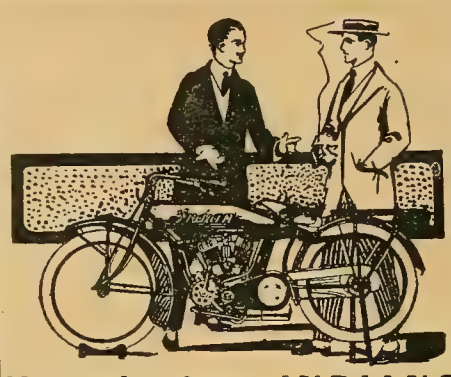
EXETER Motor Cycle Co.—G.W.K. cycle cars, Rollo ditto, etc., etc., in stock.

EXETER Motor Cycle Co. for sidecars. About 30 second-hand motor cycles and cycle cars ready for the road, £15 to £145. Deferred payments arranged on any the above from 2% on balance.

EXETER Motor Cycle Co. for repairs.—Expert mechanics ready at a moment's notice to ride 30 miles either way to do roadside repairs.—Ring up 975

EXETER Motor Cycle Company for quick supplies to the trade. Write for terms. Most the best makes stocked. [1722

1913 T.T. Douglas, only done 1,500, splendid condition, lamp, horn, etc.; £38.—Peters, Grosvenor Place, Exeter. [X7272



How about an INDIAN?

—I can give you immediate delivery of this popular mount, having several in stock NOW—"ready for riding." NO WAITING—place your order with me, and save disappointment.

—or one of these?—

—I have the following "high-grade" makes all in stock:—

TRIUMPHS, JAMES, ROVERS, HUMBERS, CLYNOS, ENFIELDS, ZENITHS, A.J.S., BRADBURYS, NEW HUDSONS, etc.

—all brand new 1913 models—ready for immediate use. All models of MONTGOMERY, CANOELET, MILLS-FULFORD, GLORIA, etc., Sidecars in stock.

'BARGAINS'

¶ Over 50 Special CLEARANCE Bargains in SHOP-SOILED and "SECOND-HAND" mounts from **£10** to **£60** each. Here are a few selections:—

1913	**INDIAN,** 7 h.p., and Gloria, shop-soiled	**£80**
1913	**IVY-PRECISION,** 3-speed, good order ..	**£32**
1913	**LEA-FRANCIS,** 3 h.p., 2-sp., hardly used	**£55**
1913	**MATCHLESS,** 8 h.p., Sidecar, cost £100	**£68**
1913	**ENFIELD,** 2¾ h.p., 2-speed, as new ...	**£38**
1913	**HUMBER,** 3½ h.p., 2-sp., Canoelet, soiled	**£60**
1913	**BAT,** 3½ h.p., 3-speed, hardly soiled ..	**£42**
1913	**ZENITH,** 3½ h.p., F.E., Millford Sidecar	**£55**
1913	**SCOTT,** 3⅝ h.p., hardly soiled	**£55**
1913	**N.S.U.,** 3½ h.p., 2-speed, list 50 gns. ...	**£36**
1913	**FORD,** 2-seater, demonstration car ...	**£125**
1913	**BRADBURY,** 3 h.p., 3-speed, list £60..	**£48**
1913	**HUMBER,** 2 h.p., never used, list £35	**£25**
1912	**ENFIELD,** 6 h.p., 2-speed, coach Sidecar	**£50**
1912	**MORGAN,** complete, all accessories ...	**£68**
1912	**WILLIAMSON,** 8 h.p., Canoelet	**£55**
1912	**ZENITH,** 3½ h.p., good tyres, grand order	**£32**
1912	**REX,** 3½ h.p., racer, done 60 miles	**£17**
1912	**FORWARD,** 2¾ h.p., twin, good order	**£20**
1911	**SCOTT,** 3⅝ h.p., 2-speed., and Canoelet	**£45**
1911	**ZENITH,** 3½ h.p., Sidecar, good order	**£35**
1911	**SCOTT,** 3⅝ h.p., semi-T.T. bars, fast bike	**£28**
1910	**HUMBER,** 3½ h.p., 2-speed, free engine	**£25**

—many others to choose from—all overhauled and tuned up—guaranteed in *perfect* condition for riding. Full list on request.

¶ If you fancy a Small Car, I can supply from stock:—

G.W.K.	complete	**£150**	**0**
HUMBERETTE	,,	**£125**	**0**
ALLDAYS Midget	,,	**£138**	**0**
SINGER	,,	**£185**	**0**
FORD Runabout	,,	**£135**	**0**
(Dickey seat, **£1** extra.)			
FORD Touring Car	complete	**£150**	**0**
PERRY	,,	**130 Gns**	
CALTHORPE Minor	,,	**160 Gns**	

—and early delivery of STANDARD, SWIFT, etc.
— Best terms — exchanges arranged — complete tuition *free* — satisfaction *guaranteed.*
—Please CALL, Write, or 'PHONE me.

P. J. EVANS

87, 89, & 91, JOHN BRIGHT STREET.
Telephone: Midland 662.
and at Sparkhill, BIRMINGHAM.

MOTOR BICYCLES FOR SALE.

MOTOSACOCHE, 1¾h.p., mag., h.b.c., Watawata, direct drive, Palmer, runs well; £15.—Bradleigh, 21, Graham Rd., Weston-super-Mare. [1021

1910 Humber, Roc 2-speed, handle starting, splendid condition, hub wants seeing to; sacrifice £17/10, rare bargain.—Cutland, poultry fancier, Wellington, Som. [X7306

TRIUMPH, 1909, splendid condition, just re-bushed and overhauled, tyres almost new; £22, or near offer.—Box L3,959, *The Motor Cycle* Offices, 20, Tudor St., E.C. [1127

TRIUMPH, 3½h.p., clutch model, late 1909, recently overhauled by makers, in splendid condition, with lamp, horn, and spares; a bargain, £26/10.—A. Baker, Beaworthy, Devon. [X7436

TRIUMPH, clutch model, good condition, £38; New Hudson, 1913, and Canoelet sidecar, 72 gns.; Rex, £16; Victoria Precision, 1913, 2½h.p., new, £33.—Harris, Parade, Exmouth. [2542

3½h.p. Rudge, sidecar, new Armstrong 3-speed, Cowey, £35; 3½h.p. Triumph, fixed engine, £30; 3½ h.p. Quadrant, Bosch, Auto Varia, free engine, £12.—A. Davey, Moorland Rd., St. Austell. [X7234

PREMIER, 2½h.p., 1912½, Sturmey-Archer 3-speed and clutch fitted 1913, new belt, spares, splendid condition, spare tube and case; £28; approval.—Box L2,488, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0920

NEARLY New 3h.p. Motor Cycle, latest 1913 model, Armstrong 3 speeds, and free engine, spares, etc., complete, cost over £50, will accept 36 gns., or what offers? Mabon free engine clutch and variable pulley combined, cost £3/10, will accept 50/-.—Young, Misterton, Somerset. [X7286

SECTION X.

Scotland.

3½h.p. Rex, £10; 5h.p. N.S.U., £14; 3½h.p. Humber tricar, £8; must sell.—Frazer's Garage, Largs. [0931

3½h.p. Humber, free engine, chain drive, good condition; accept £9.—McCulloch, 2, Jamieson Terrace, Troon. [0889

MOTOSACOCHE, 1912, 2½h.p., good condition, only done 1,800 miles; buying heavyweight.—Farquhar, Pitscandly, Forfar. [X7315

N.S.U., 5-6h.p., 2-speed, V.M. Pillion seat, Cowey speedometer, perfect condition; £20, or nearest.—McCormick, Polmont Station, Stirlingshire. [X7502

ABERDEEN and District Agent for Scott, Levis, P. and M., A.J.S., Matchless, and Sun, also Premier cycle car; any other make supplied.—George Cumming, 165, Holburn St. [9406

GLASGOW Agents for Indian, Bat, Royal Enfield, Williamson, B.S.A., Zenith, Norton, Rex-Jap, Trump, also G.W.K. cycle cars, Ford cars.—Alexander and Co., the leading Scottish firm, 272, Gt. Western Rd., Glasgow. [X6302

EDINBURGH.—Agents for Indian, Phelon and Moore, Douglas, Williamson, Zenith, Matchless, B.S.A., Bradbury, Norton, Royal Enfield, Premier, Rex, Rex-Jap, Trump, also G.W.K., Ford cars.—Alexander and Co., Scotland's largest motor cycle dealers, 115, Lothian Rd., Edinburgh. [X6301

SECTION XI.

Ireland and Isle of Man.

3½h.p. 1912 Free Engine Triumph Motor Cycle for sale, in perfect order.—R. G. Stewart, St. Mary's Terrace, Sligo. [X7273

CYCLE CARS.

MORGAN 1912 Sporting Models, complete, lamps etc., good tyres, and chains; £68.—Below.

HUMBERETTE, latest 1913 model, used for two demonstration runs; £115.—Below.

CALTHORPE, 1913, 10h.p., specially tuned for demonstration car, and winner of Shelsey Walsh hill climb; £135.—Below.

CYCLE Cars.—Before purchasing a cycle car, call and see me. I can give immediate delivery of Perry-Standards, Calthorpes, Humberettes, Alldays, Midget Fords, G.W.K., Singers, etc. Tel.: 662 Midland.—J. J. Evans, John Bright St., Birmingham. [X736

CYCLE Car Chassis, complete, less engine and tyres, perfect; £10.—Hughes, Electrician, Selly Oak. [X742

DUO Sociable, all accessories, fine condition throughout, new last August; offers.—Rowley, 35, Lumley Rd., Skegness. [066

A.C. Sociables for reliability, £75; demonstration run arranged.—Sole Devon agents, Moon Bros., Duke St., Plymouth. [X56

BEDELIA De Luxe, late 1912, hood, screen, lamps complete, accept £72.—Chalmers, 67, Scholefield St., Birmingham. [X746

HURLIN and Co., 295, Mare St., Hackney.—Brand new Turner cycle car, 10h.p., unused; listed £220, our price £150. [109

HURLIN and Co., Hackney.—Sabella, 8-10h.p. J.A.P. cycle car, 1912; best offers wanted.—Hurlin and Co., 295, Mare St., Hackney. [109

HUMBERETTE, 1913, £120, unused, practically new.—Hurlin and Co., 295, Mare St., Hackney (2 doors Hackney Empire). [109

SEPTEMBER 4TH, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND FORTY-FIFTH CONSECUTIVE ISSUE.

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SOUTH AFRICA.—Central News Agency, Ltd. PARIS.—Smith's English Library, 248, Rue Rivoli.

ADDRESS: 20, TUDOR STREET, LONDON, E.C.

A New Road Problem.

A JOURNAL, which is known for its enterprise in many directions, has lately taken motor cycles under its care. In so doing, our contemporary has discovered a new road problem, none other than the congestion of the highways by motor cycles in the near future. This is all the more interesting, as some few years back this same organ gave it out authoritatively that motor cycles were dead and were doomed to disappear, and that in a year or two we should not see such things on our roads any more. How near this prophecy was to the truth may be left to the imagination. Now, burying its former prophecy, it indulges in another: that in the near future motor cycles will out-number cars; but in this case we regret we cannot share such an optimistic view, for, as a matter of fact, probably largely due to the influx of cheap American cars, the number of motor car owners has lately increased in even greater ratio.

Still the increase in motor cycles has been wonderful, and this increase is naturally very pleasing to everyone interested in the welfare of the movement, but we do not think there is any need to become flustered at the number of these machines, "which are as thick as flies upon the great roads that lead out of London." With the memory of the start of the recent Six Days Trials fresh upon us, we cannot recollect that the 160 competitors and innumerable officials and lookers-on mounted on motor cycles made even the streets of Carlisle appear at all crowded. Half a dozen cars will block up a road far more than five-and-twenty motor cycles, and, if it comes to obstructing the road, one road hog on a car is more of a nuisance than a whole club of riders on the single track machine.

A total of 200,000 motor cycles is looked for "in the near future" by a "traffic authority," but if we multiply this figure by ten in years to come, we do not anticipate the King's highway will be unpleasantly crowded. There is a ray of consolation, however. These machines are not all to be ridden by speedmen. The advent of the sidecar is having a sobering effect on speed. No longer will the most ardent speed maniac scorch—instead he fills his sidecar with feminity and becomes a sober tourist. Still, we prefer to keep our heads, believing that our highroads are capable of accommodating any traffic likely to be put upon them.

One point more—a motor cyclist, even if a rash rider, will always do his best to avoid a collision, for, as he rides an unstable vehicle, there is every prospect of injury to himself and a valuable machine.

The Olympia Show.

THE fourth International Motor Cycle, Cycle Car, and Accessories Exhibition, which will be open on November 24th next and remain open until Saturday, the 29th of November, promises to be even more successful than its predecessors. Elsewhere in this issue we publish a plan of the main hall, showing the positions of the exhibitors of complete machines and some of the accessory firms. Some dissatisfaction was expressed last year at the large amount of space devoted to business offices in the annexe; this year this space has been considerably reduced and a portion of the annexe given over to tyre exhibitors.

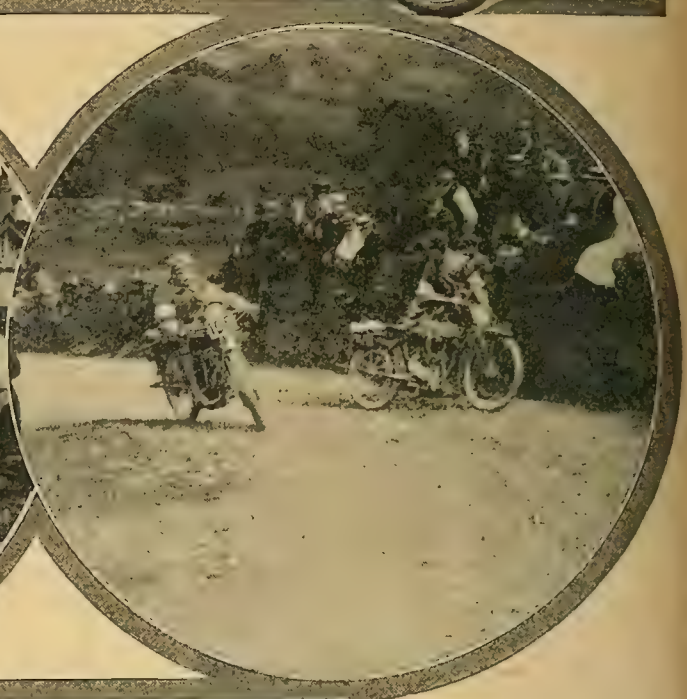
The growth of the Olympia Motor Cycle Show is phenomenal, particularly taking into consideration that only three of these exhibitions have been held. The organisation and conduct of the exhibition reflect the greatest credit on its promoters, the Motor Cycle Manufacturers' Union. Motor cycles and their accessories will again form the bulk of the exhibits, and, although most of the accessory firms cater for pedal cycles as well as motor cycles, there will be comparatively few complete pedal cycles shown; it is possible to run through the plan of the main hall and find only two or three firms who will exhibit pedal cycles only.

A suggestion recently made for a separate cycle car show has not borne fruit, and at this stage of the cycle car industry we do not think a separate exhibition for these machines would be at all successful either from a monetary or numerical point of view. This year's exhibits of cycle cars promise to be of the most interesting nature, as there are a large number of new models to be shown, which will come under the public view for the first time at Olympia.

It will be most interesting to see the trend of design in connection with motor cycle engines, as we know of several firms who are experimenting with multi-cylinder engines and two-strokes.

The springing question is also receiving some attention, and, in connection with sidecar combinations, it is most essential that the motor cycle should be fully sprung as well as the sidecar wheel.

INCIDENTS OF THE SIX DAYS TRIALS IN THE LAKE DISTRICT.



(1) A long line of competitors waiting for the flexibility test. In the foreground are R. E. Guest (8 h.p. Matchless sidecar), J. N. Longfield (Scott), and George Hunt (Campion).

(2) A trio of Douglas riders in Threlkeld.

(3) E. A. Colliver (7 h.p. Indian) on Gastack Beck. The rough state of the surface will be noted.

(4) J. V. Edge (Brough) and F. A. Applebee (Scott) rounding the hairpin on a severe gradient known as Sil er Hill, Keld.

"The Motor Cycle" Diary.

Sept. 5th and 6th.—Irish A.C. Rosslare Motor Car Races.
,, 6th.—Surrey M.C.C. Hill-climb.
,, 6th.—Motor Cycling Club. Paperchase, starting from Hatfield.
,, 6th.—Hull and District A.C. Invitation run to Bleak House, Patrington.
Sept. 6th.—Ipswich and District M.C.C. Hill-climb.
,, 6th.—Liverpool A.C.C. Balloon chase.
,, 6th.—Manchester A.C. Hill-climb.
,, 6th.—Streatham and District M.C.C. Slow hill-climb.
,, 6th.—Western District M.C. Competition for Williams Shield.
,, 6th-8th.—Oxford M.C.C. Run to Cheddar Gorge.
,, 9th.—Banbury and District M.C.C. Run to Rugby.

The Clutches of Three-speed Hubs.

I was a little surprised by the warnings printed against using the clutch of a three-speed hub. My third three-speed hub has already reeled off a very creditable no-trouble mileage, and with all three test samples I have habitually used the clutch whenever I wanted it. I plead guilty to still finding the jump mount the quickest and least troublesome, but in spite of this my three clutches have all had plenty of work. I use them for all momentary stops, for turning round after overshooting a signpost, for handling the machine with the engine "dead," for coasting down long hills, and for starting against tiring grades, yet my hubs have never given me any trouble.

Starting on a Decompressor.

As I recently overheard several novices grumbling about the difficulty of starting up with the decompressor in action, I will venture to repeat the simple essentials which are familiar to every practised rider. To obtain a quick and certain start on a decompressor two things are necessary.

(1.) Flood the carburetter very freely.

(2.) Open the throttle much wider than is needed for a start on full compression.

Further, to prevent the engine baulking as soon as the rider is in the saddle (supposing the jump-mount is applied with the decompressor still in action, as would usually occur in the case of a machine fitted with a single gear and foot-operated decompressor), do not give any extra air until the decompressor has been put out of action. If these instructions are followed, a decompressor will be found to work with comfort and certainty until the engine compression becomes so poor that the engine cannot fire under any circumstances when the decompressor is in action. I am riding a three-speeder with decompressor, and I find the engine starts so easily on first or second gear that I seldom use the decompressor except for getting a start on the stand by pulling the back wheel round.

Hub and Countershaft Gears.

Perfection in this vale of tears is always in the nature of a compromise, and the admirable letter signed by Mr. Bowden on behalf of the Sturmey-Archer Gear, Ltd., ignores the fact that, though we are more than satisfied with his and other three-speed hubs, as gears, we are distinctly dissatisfied with their present location. It may be ideal from the gear manufacturer's point of view, it may even be nearly ideal in running: but, frankly, it is rather a nuisance when we want to change a tyre, and some of us, who are fastidious or fussy, imagine that it makes our back wheels much more bounceable and uncomfortable than they should be. Consequently there are thousands of us who are ready to accept the counter-shaft gear, with all its faults, real or alleged, if only we can get a moderate efficiency and durability, plus an accessible and light back wheel.

I should be specially interested to know if Mr. Bowden's experiments included the fitting of a counter-shaft Sturmey gear to a medium powered twin-cylinder machine, for to my mind the substitution of a twin (not exceeding 500 c.c. or 600 c.c.) just turns the balance in favour of the counter-shaft gear, young as its age is. I agree with Mr. Bowden in so far that I have not yet lost my heart to a 3½ h.p. machine with two-step drive and counter-shaft gear: but I add a corollary, that I am prepared to discard the 3½ h.p. single with hub gear in favour of a 2¾ to 5 h.p. twin with two-step drive and countershaft gear. Reading Mr. Bowden's letter, I should imagine that the experimental Sturmey-Archer counter-shaft gears were chiefly or exclusively tested on single-cylinder machines of 500 c.c. or thereabouts. My own similar test discouraged me enormously: but as soon as I repeated it with a twin-cylinder engine, the knell of the single-cylinder three-speeded hub machine was sounded in the sphere of my private judgment.

The Experimental in Cycle Cars.

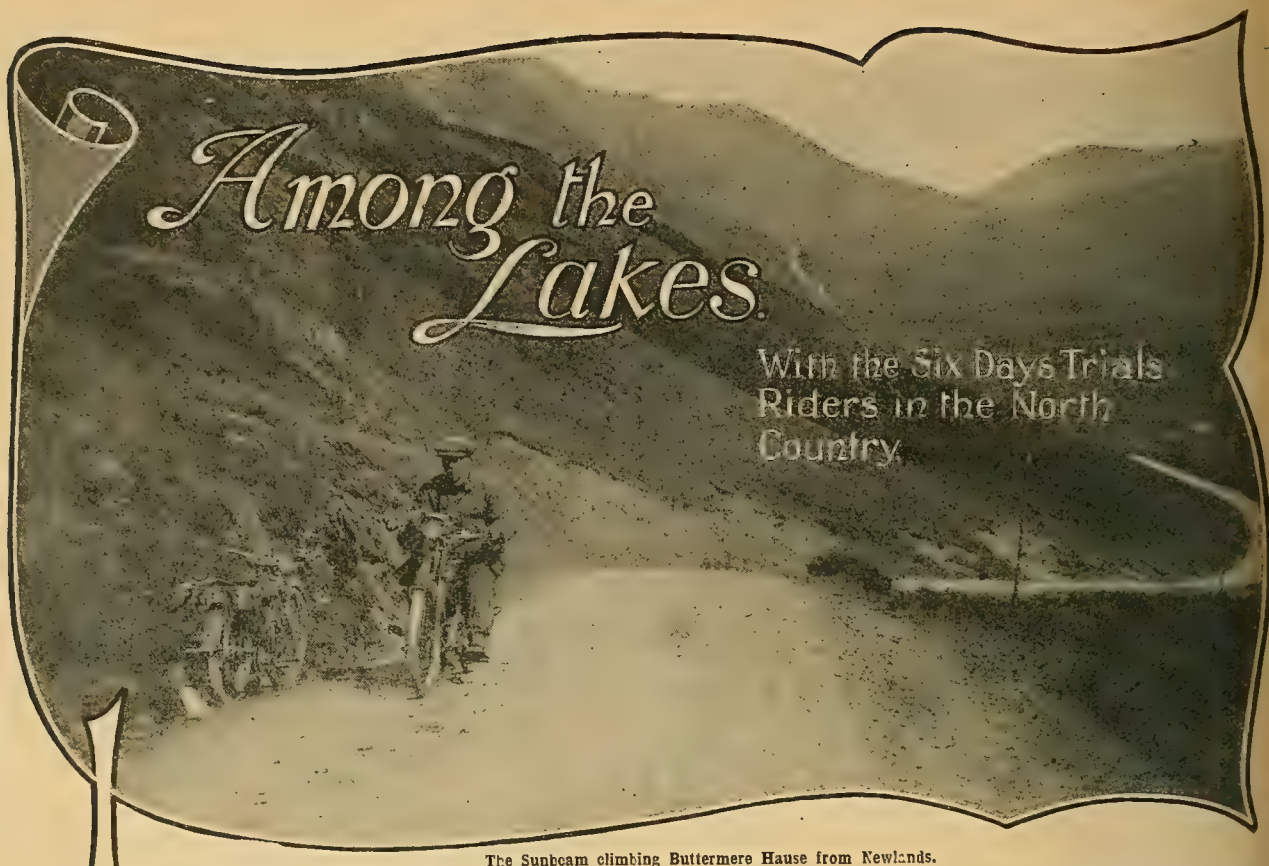
The Motor Cycle has never been afraid to reiterate the fact that, though a register of the different makes of cycle car may include over one hundred different names, yet a large number of these vehicles are purely experimental. In many cases, a name is only represented by one or two vehicles actually on the road, and the inventor is not prepared to accept—or at any rate to fulfil—orders. In other cases the eager designer is more cynical, and though he himself has only materials for the vaguest estimate of what his machine is worth, he is ready to supply by the hundred, supposing sufficient gullible fools come along. In a few—a very few—cases, the vehicle is sound from stem to stern, and the makers have their works thoroughly organised to supply a good article punctually.

We have often been reviled for our frank policy in this matter; but if there was anybody in whose eyes we needed some justification, the results of the A.C.U. Six Days' Trial bear us out most triumphantly. There is—admittedly—an immense market awaiting the first cheap and thoroughly efficient cycle car. If an inventor secured three gold medals with an entry of three machines, he would be absolutely certain of a busy season and large profits in 1914. Yet we find there are only twelve cycle car entries, representing ten makers. *Verb. sap.*

Personally, as one who was often "had" rather grievously in his salad days, I feel a certain resentment not only against the maker who tries to hoodwink the public into doing his experimenting for him, but also against those who in part create the impression that anything on wheels called a cycle car is, *ipso facto*, equal to the Rolls-Royce in everything except upkeep charges. Ninepence for fourpence is not to be had from any motor manufacturer!

Among the Lakes.

With the Six Days Trials Riders in the North Country.



The Sunbeam climbing Buttermere Hause from Newlands.

IT is a significant fact that, although honours in respect of chain *v.* belt are fairly evenly divided so far as *The Motor Cycle* staff is concerned, there seems to be an unconscious leaning towards the chain-driven single-cylinder type of mount for strenuous long-distance work. Thus it came about that we accepted the offer of Messrs. John Marston, Ltd., Wolverhampton, of a 2¾ h.p. Sunbeam as our hack during the now memorable A.C.U. Six Days Trials. It has been truthfully stated on more than one occasion that the journalist's lot in trials of this kind is far more difficult than the competitors', for he has to see practically all the main incidents in one place, then scurry ahead again to witness the performances of the vanguard, and after the day's run his time is usually fully occupied in writing, so that it is impossible to bestow any attention upon his motor cycle. A reliable machine, therefore, is a *sine qua non*.

We started away from Coventry on the Saturday preceding the trial, and were very quickly at home with our new mount. The position of the valve lifter on the right-hand grip certainly required some practice before we became accustomed to it, and in this connection we should like to point out that in our opinion it is high time the control of motor cycles was standardised. We, who, perforce, change from one machine to another, have first to become accustomed to carburetter levers opening inwards, others working outwards, brake levers on the left and right footrests, sometimes operated by a toe and sometimes by a heel pedal; valve lifters on left and right grips, clutch controls on handle-bar and footrest, until with such a medley one can hardly settle down with comfort to any one mount.

Impressions of the First Run.

Our Sunbeam was geared 6 and 12 to 1, in view of the tales of the severe climbing we were to expect in Lakeland, and the writer being in company with the rider of a 6 h.p. twin Brough on the trip to Carlisle, the pace, as may be imagined, was well up to standard. What impressed us more than anything else was the beautifully balanced engine and the absence of valve clatter. It has been our usual experience of single-cylindered machines that the handle grips are inclined to dither at speeds exceeding 30 m.p.h., but even with the chain drive of the Sunbeam there was a smoothness of running which must be experienced to be believed. Our run north *via* Stone, Knutsford, Warrington, to Preston by the R.A.C. avoiding route, and over Shap to Penrith and Carlisle was devoid of incident, and was accomplished throughout on top gear. *En passant*, neither of us was over-impressed by the R.A.C. route *via* Ormskirk. Twice we went off the route owing to the absence of direction posts, and finally decided that it was not worth the eleven miles extra distance entailed to avoid Wigan and the Lancashire cobble stones. A 240 miles trip in a day on an absolutely strange machine proves our confidence in the Sunbeam. The flexibility of the engine is a feature to be admired, for not only is it possible to crawl along in traffic with the engine just turning over, but it will "rev." at an extraordinary rate. As an instance of this, de la Hay in the mile speed test averaged forty-five miles an hour on a 6 to 1 gear;

Among the Lakes.

which gives a speed of 3,500 r.p.m. When it is remembered that the course was slightly uphill and heavy, owing to the drizzling rain, and that the test was on the last day of the trial, the significance of the demonstration of power maintenance is the more noteworthy. The course of the Six Days Trials has now been thoroughly discussed in these columns, and the consensus of opinion seems to be that, though the A.C.U. misled the competitors by stating that no abnormal surfaces or freak hills would be included, the fact that forty-six obtained gold medals proves that the test was not so bad as it has been painted. After all, with only five days and 750 miles to test the reliability and general excellence of the machines, the A.C.U. were bound to include tests out of the ordinary, or otherwise we should have had the absurd result of practically everybody obtaining the maximum award, which result would have neither benefited the industry as a whole nor the breed of machines in general.

The Tit-bit of the Trial.

Gastack Beck, between Dent and Ingleton, was, to the writer's mind, the test of the week. There was no such thing as a fluky ascent of this hill, which was nearly a mile long; had gradients of at least 1 in 4, and was covered with loose stones. A motor cycle which can successfully account for a hill such as this must be of the first water, though, admittedly, failure in some instances may have been due to bad luck. Our plucky little Sunbeam successfully scaled this hill as well as every other hill we attempted during the trial, but had it not been for the splendid plate clutch with which the machine is provided, success would not have been ours. Twice the machine slowed down on the steepest gradients until within a few yards the engine would have stopped, and as a last resource we eased the clutch slightly, and were amazed to find that one could hold it half engaged without there being the slightest tendency for it suddenly to grip, which is the usual procedure of clutches which are designed on the small side. We have never had a more striking demonstration of the efficiency of a large size plate clutch, or of the desirability for handle-bar control. On the loose surfaces it was necessary to put down one's feet from time to time to correct a skid, so that the successful operation of a pedal clutch was out of the question. Nenthead, Tan Hill, Butter Tubs Pass, Kirkstone Pass, and Silver Hill, Keld, among others, the Sunbeam revelled in, and Crossdale Hill, near Cockermouth, which a disillusioned yokel suggested

THE SIX DAYS TRIALS.

(1) V. Garland (8 h.p. Chater-Lea sidecar) followed by R. Pearson (Clyno sidecar) on Buttermere Hause. (2) E. A. Colliver (Indian) and D. Alexander (Williamson sidecar) on Watermillock. (3) H. Ball (Triumph) and F. Crosthwaite (8 h.p. Matchless sidecar) climbing Higher Lath near Ulverston.

Among the Lakes.—

to us was one of the worst hills in the whole trial, the Sunbeam easily climbed with *The Motor Cycle* photographer on the carrier. On the Wednesday of the trial, up to which point nothing had required attention, we climbed both sides of Buttermere Hause, the ascent from Newlands being the steeper. The stability of the Sunbeam left nothing to be desired.

On the Thursday and Friday of the trials, when the rain made the conditions so uncomfortable, the same average speed had to be maintained, and, as before mentioned, it was necessary for us to beat the average of the competitors, in order to see the main points of interest during the trial. By this time the exhaust caps and pipe of the Sunbeam had assumed a purple hue, but there was still no sign of falling off in power, and we continued to take single figure gradients with the certainty of a clock.

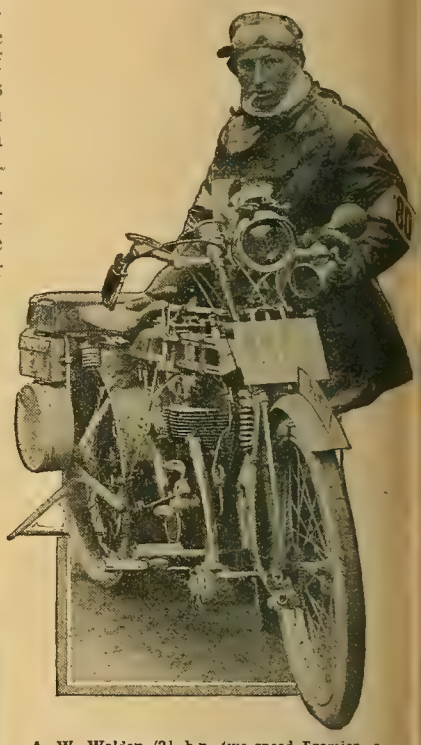
Only One Adjustment Necessary.

Only one adjustment did we deem necessary during the strenuous week's work, and that was to take up the slackness of the rear chain, which is easily accomplished by the special studs provided. This occasion was, in fact, the only one on which we inspected the toolbag, and we were interested to observe that the machine had been sent out equipped in the most thorough manner. It is a peculiar coincidence, of which we have taken due note on several occasions, that the most reliable machines which we are asked to test are usually those provided with the most complete repair outfit and spare parts.

On the Homeward Road.

The homeward run to the Midlands was again accomplished in a day, despite the fact that it rained practically all through the journey. At the conclusion of the test we were interested to observe that one could stand on the foot starter against compression for an indefinite length of time, proving that the Sunbeam engine is not only efficient and reliable, but one that will maintain its power for long periods. A peculiarity is a slight ring in the cylinder, due to the thin radiating fins.

The machine generally had stood up to its work perfectly. The brakes were as powerful as ever, and not a nut was loose. Oil certainly had oozed from the exhaust valve tappet, but not in sufficient quantities to cause a mess. If we were asked to suggest an improvement, it would be in connection with the number of speeds. It is true that a machine which suits Lake District requirements may not be ideal for the majority of other roads, but in hilly districts especially one notices the absence of a middle ratio on two-speed machines. For instance, when climbing the moorland hills during the Six Days Trials there were many cases when the combination of a head wind and rising gradient proved too much for the top gear of two-speeders, yet on the low gear the engines were running unnecessarily fast. An intermediate ratio would have exactly filled the bill and saved the little engine much needless labour. G.S



A. W. Walden (3½ h.p. two-speed Premier, a gold medal winner in the A.C.U. Trials.

J. Drysdale (5-6 h.p. Hazlewood) and Jesse Baker (3½ h.p. Scott) climbing Watermillock Hause, a long climb over a stony surface.

AMONG THE ACCESSORIES.

B.K. Accessories.

Messrs. Bransom, Kent, and Company, Limited, 40, Great Eastern Street, E.C., have lately introduced a good many interesting accessories. One, for example, known as the "Glad Eye" cushion, designed to fit on the back carrier of a

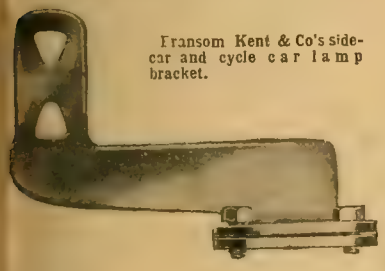
B.K. leather and canvas belt.

motor cycle; similar to this is the "Glad Eye" seat, which is a basket seat designed to be fitted in the same position. Quite a novelty introduced by this firm is a leather belt, which we illustrate herewith. The chief feature is the length of canvas (two plies) running between the leather. It will be noticed that the belt is supplied with eyelets, so that no boring is necessary.

A cleaning brush should be very useful to those riders who look after their own machines. Combined with it is a smaller brush, which fits into the handle, for cleaning between the chain links.

B.K. dashboard clock for cycle cars.

We also inspected an excellent motor cycle watch for fitting on the handlebar. The face is inverted and the back of the case is provided with slots which allow the face to be set square, even when the clip is fixed on to a curve in the

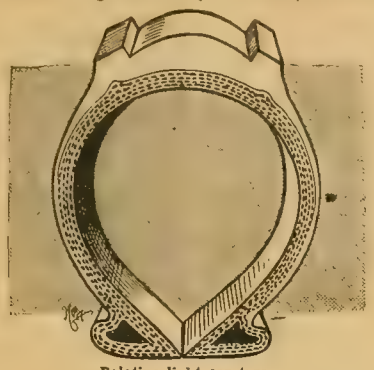


Fransom Kent & Co's sidecar and cycle car lamp bracket.

handle-bar. The cycle car clock illustrated is another useful accessory. The lamp bracket shown herewith is designed specially for sidecars and cycle cars. It is made in several forms for attaching to the bodywork, or for fastening to the sidecar tube by means of a U bolt, or on to the springs of the sidecar.

A Light Car Tyre.

Messrs. The Palatine Tyre Company, Saul Street, Preston, have recently introduced a light car tyre for cycle cars,



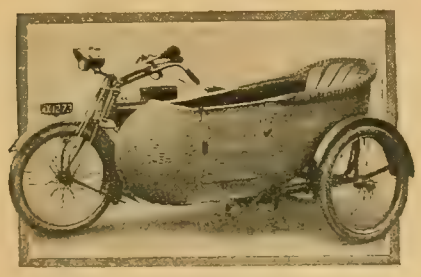
Palatine light car tyre.

following the lines of the successful motor cycle tyre which made its *début* at the beginning of the season with a severe A.C.U. test, through which it came most successfully. It is illustrated herewith.

The Lomax carrier tool case.

Maude's Latest Sidecar.

Messrs. Maude's Motor Mart, 136, Great Portland Street, W., have brought out a new pattern cane sidecar for which great comfort, combined with lightness



A new design wicker sidecar by Maude's Motor Mart.

and strength, is claimed. Spring cushions for the seat and back are fitted. A 26in. × 2¼in. Continental tyre is supplied on a flat type rim, and 5in. shackles are utilised in the springing. The whole sidecar is most roomy and built on strong lines, and the price complete is thirteen guineas.

"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates:—Unmounted prints, half plate 1/6 post free; mounted, 1/9 post free. This refers to photographs taken by "THE MOTOR CYCLE."

Orders, which must be accompanied with remittance, should be addressed to the Photographic Department—Iliffe and Sons Limited, 20, Tudor Street, London, E.C.

The "Midmore" Saddle.

The latest type motor cycle saddle which we have had the pleasure of using is the "Midmore," a padded-top saddle just placed on the market by Middlemore and Lamplugh, Ltd., Coventry. The saddle top is moulded and shaped to fit over a pressed steel plate which is shaped to accommodate itself to the rider's form. Between the leather and steel is a soft padding of felt, the combination making a very comfortable seat. The patented construction lies in the direction of the springing, which is quite novel. Attached to the rear of the steel plate

Latest pattern Middlemore saddle.

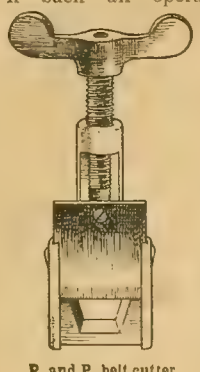
are two C springs made of flat steel, these springs being fastened at their base to tension coil springs depending from the rear extremities of the frame. The tension coil springs take the weight of the rider, and the C springs act as compensating springs. The action of the C springs is wonderfully easy, and we have found this saddle one of the most comfortable we have tried. There are no springs in front; the nose of the saddle is hinged to the front part of the frame and oscillates about this centre. The weight of the Midmore is 5¾ lbs., and the price is very reasonable.

An Unstretchable Belt.

We have received a belt for inspection which is interesting in that an attempt has been made to convert an ordinary belt into one of the unstretchable type. The feature consists of a length of flat

Allen's Patent unstretchable belt.

spring steel extending from one fastener to the other, and held in position by light wire staples. Holes are punched in the strip at short intervals near the end so as to facilitate shortening if such an operation should become necessary. The maker is Mr. A. H. Allen, Panmure, Victoria Road, Cirencester.



P. and P. belt cutter.

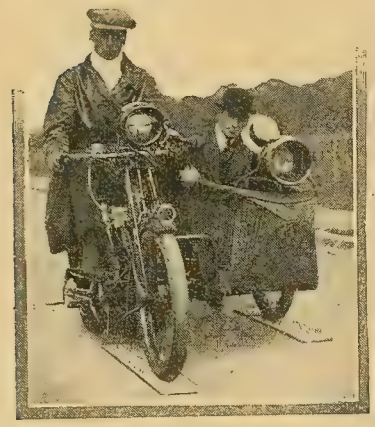
A Belt Cutter.

Messrs. Packer and Prentis, engineers and manufacturers, Roden Street, Ilford, E., have lately introduced a very neat and well made belt cutter, made, in the form of a guillotine, which cuts truly and cleanly

A Puncture-sealing Demonstration.

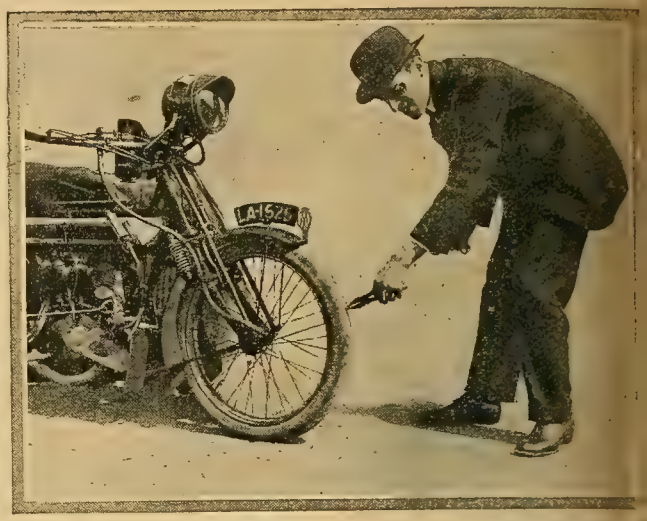
LAST week we were invited to witness a demonstration of the preparation called Puncture-Seal, which has been introduced by Puncture-Seal, Ltd., of Elden Street, Hampstead Road, N.W., to minimise the troubles arising from tyre punctures. The composition is a secret one, and is put up in collapsible tubes, but we understand that 50% of it is pure rubber. It is almost odourless and is non-inflammable, and can be washed off the hands with soap and water. Its application is as follows: A collapsible tube of the mixture is screwed to the valve of the air tube, from which all air has been expelled, the collapsible tube is squeezed, and the mixture forced into the air tube. The air tube, after fitting and inflation, is then used in the ordinary manner, and during the running the ingredients of Puncture-Seal receive their final mixing.

When a puncture occurs the pressure in the air tube will force the Puncture-Seal into the hole, where it sets like rubber. The mixture is always ready to fill a hole, because the centrifugal action of the revolving wheel keeps a layer of it on the inside of the tube next the tread.



The 6 h.p. three-speed Trump-Jap being driven over the nail covered planks to test a new puncture seal.

The demonstration we witnessed took the form of extreme ill-treatment of the tyres on a Trump motor cycle and sidecar driven by Mr. Cass, of Cass's Motor Mart. Two planks about 4ft. long were each studded with eighty-eight wire nails and laid along the road; meanwhile three wire nails 1¼in. long had been driven into each of the three tyres of the combination, which was deliberately driven over the planks, the nails of course penetrating the tubes, for they projected above the boards for about one inch.



Drawing nails from the tyres of the machine on which the test was made.

After the combination had been driven over the nail and had also been stopped and started thereon, some the nails previously hammered in were withdrawn from t tyres. Throughout the demonstration, no loss of pressu was experienced.

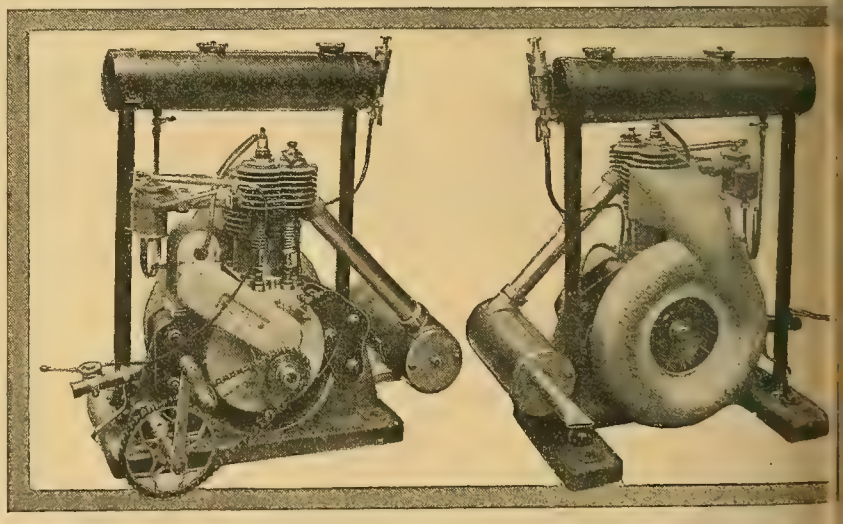
The makers of Puncture-Seal will guarantee air tub against puncture for three years if their preparation properly applied, but, of course, do not guarantee agai bad cuts or bursts, but they inform us that on one occasi a cut in a tube 1¼in. long was stopped.

Ordinary methods of vulcanisation are said not to affected by this composition, and should a cut or burst quire patching and vulcanising, the Puncture-Seal which oozed out can be removed by the aid of water, which m not be allowed to enter the tube.

It is claimed that the composition prolongs the life of t rubber and cures porous air tubes.

A 5 H.P. STAG ENGINE WITH NOVEL COOLING DEVICE.

We recently had an opportunity of examining the 5 h.p. Stag cycle car engine (bore and stroke 80 × 120 mm.), which is now at the Service Co.'s Depot. The engine is particularly well-made, the castings being clean and neat, and there is an absence of dust-collecting recesses. The timing is effected by means of a single cam of large dimensions, operating roller rockers of special design, so that both valves close sharply, thus doing away with the necessity of extremely strong springs. The valve springs are of large diameter and are brought well away from the engine so that they may be easily cooled. The valves are made of 3% nickel steel. The cylinder ports are of large area both above and below the valve. The cooling arrangement is most interesting. An outside flywheel has vanes cast on it, and is enclosed in an aluminium casing, thus acting as a high speed blower. The current of air produced by the flywheel fan is led through a large channel, and impinges upon the cylinder head round the valve ports. The main shaft is supported on ball bearings, the outside flywheel end of the shaft being provided with a double row. Inside flywheels have also been retained.



(1) Valve side of the Stag engine which is made at Nottingham. The engine is rated at 5-6 h.p. and designed for cycle car work. (2) The same engine showing the mechanical blower which directs a curre of air on to the cylinder head.

THE FREAK HILL POLICY.

By "ROAD RIDER."

LAMENTABLE as it may seem to have been, I for one am not altogether sorry that the path-finders of the Auto Cycle Union received some-ng of a snub in the Carlisle week. This remark is ely devoid of personalities. The gentlemen con-ned in the selection of the route which occasioned h sensational friction were merely the logical ponents of a policy which has been far too popular h the organisers of competitions during the last o years. The introduction of three-speed gears, ording emergency ratios as low as 15 to 1 if neces-y, has rendered a first class motor bicycle capable jeering at all the hills which any sane man would sh to climb. It has also put club secretaries in a tty hole. Split second timing is practically the sole ernative factor by which weaklings can be eliminated ler the present *régime*. A trial organiser does not sh his event to be reduced to the farcical level of Caucus race hymned by Lewis Carroll, in which erybody wins and everybody receives prizes. If he l, the treasurer would object furiously, since the gest practicable entry fee does not leave enough rgin for all the entrants to take home cups or dals: and, finally, the riders themselves, even the tradiest" of them, have sufficient sportmanship to fer a task with some difficulty in it. So our short-ghted organisers fancied they were in a cleft stick tween the most niggling split second timing and the ak hill policy.

The Baulking Difficulty.

The bigwigs of the A.C.U. were a little nervous st they had outstripped prudence with their Carlisle urse: and therefore they carefully announced that e path-finding party had made clean ascents of all e worst freak precipices, and that with quite rational ars—Brooklands gears, indeed, one might say with spice of exaggeration. They forgot in their uberance that it is one thing for a trio of light-arted holiday tourists to romp up a freak hill: but nite another for eight score machines, including many ide, slow passenger outfits, and a sprinkling of dacious fools, to tackle the same hill in a string, ssibly on a wet day, with the surface ploughed up kle-deep, with practically permanent baulking (I yself was baulked on all twelve test hills in a trial ith a smaller entry some years ago), and with the rain of knowing that the gold medal depends on ch twitch of the carburetter levers or the handle-ar. In other words, these freak hills do not provide genuinely fair and scientific test of the machine. hey are a magnificent lottery: and lotteries are right t of place in an event which may spell success or ilure to a manufacturer at the critical stage of his ublicity campaign, and which is, *par excellence*, tended to be the real "form-exposer" of the year r the buying public. If the Carlisle *débacle* sounds he knell of the "freak hill policy," so much the etter.

It is easy to be a destructive critic, and the world eeds constructive critics. I am strongly inclined to ecommend a combination policy. If adherence to ell-known main road hills (*e.g.*, Sunrising and Bird-ip, *et hoc genus omne*) were combined with a rigid ear ratio minimum, we should obtain a better flexibility test than the brief episode designed to try that factor in this year's trials: should practically eliminate the lottery factor, because baulking can easily be prevented on broader hills of good surface, and the trade would secure a greater advertisement, because an out-of-the-way hill can never command so huge a crowd of spectators as a main road gradient.

My Point of View.

In strongly commending this policy to the organisers of future trials, I write from the dual standpoint of a sportsman and an experienced trials competitor. I have won many gold medals under the "freak hill policy," which I condemn. The winning of those medals was largely a matter of good fortune. I was wiser than many of my fellow competitors. I was always careful so to arrange matters that I did not essay the ascent of a twisty, narrow, rockstrewn by-lane in the thick of the crowd, or with two or three passenger machines or bad drivers of solo mounts immediately ahead. I adopted gears too low for the occasion, and I changed down to my lowest ratio as soon as the surface became alarming. Even so, the gold medal on a dozen occasions hung round my neck by a thread. Over and over again, it was a question of inches and shrieks as to whether I was shut in or not, and an infinitesimal error in the adjustment of carburetter or ignition levers would have spelt failure. Failure did not particularly matter to me, riding as an irresponsible amateur for my own amusement. But I was inspired with a deep sympathy alike for the unfortunate trade rider, whose very bread and butter may depend on success, and for the budding manufacturer, whose capital is insufficient to wait another twelve months for the customers his goods may deserve. Therefore *à bas* with the "freak hill policy" so far as the big annual trials are concerned.

THE SIX DAYS' TRIALS IN LAKELAND.

W. R. Steel (2¾ h.p. Sunbeam) ascending Crossdale Hill. It was on this twisty rise that the Sunbeam we were riding took a passenger up on the carrier.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Caps for Motor Cyclists.

Sir,—I see that your well-known contributor, "Ixion," is in search of a cap for motor cycling in May I suggest the following, which I have found very practical: Remove the peak off a cap and sew it on to another whole cap so as to overlap the latter's peak and thereby provide a peak some six inches or so in length. I think "Ixion" will find that the above is a cure for keeping rain off goggles and glasses. One generally has an old cap handy, or perhaps one may find a friend's cap doing nothing!

G. G. C. PIGOTT.

The Fosseway.

Sir,—In your article on the Fosseway in *The Motor Cycle* for August 21st, the writer, in commenting upon the absence of villages along this road, says, "Moral: Don't run out of petrol." This would convey to your readers the impression that petrol cannot be obtained along this stretch of road, but this is not the case. Motor cyclists can always rely upon getting a supply of petrol, oil, carbide, etc., at the Durham Ox Inn, Six Hills. This inn is on the Fosseway at the junction of the Melton Mowbray and Loughborough roads, about ten and a half miles from Leicester along the Fosseway. L. B. SADLER.

Dispensing with a Differential.

Sir,—Mr. Walford, in his article "Dispensing with the Differential Gear," tells us that "for the most part one of two alternatives is adopted. In the one case, one wheel alone is driven, whilst in the other the axle transmits its torque to both road wheels through over-running clutches."

The first alternative is, of course, quite common, but I have never heard of over-running clutches or free wheels being used in connection with the modern cycle car, although I believe they were used in the early days of motor cars.

The third construction (a solid axle with both wheels driven) is also well-known, but the automatic clutch gear will, I think, be new to most of your readers. Would Mr. Walford tell us what cycle car is, or has ever been, fitted with this gear, as I am rather interested in it?

The last alternative (belt drive) is, of course, nothing new.

ROBERT D. DUNLOP.

Driving from the Sidecar.

Sir,—For four months of the year, in this part of India (Central Provinces) at least, the motor cycle and sidecar has the advantage of its more expensive congener. The rivers are now very much in evidence, and many of them are only bridged by railways, so that owners of cars while travelling have constantly to send their motors by train This is a troublesome and expensive business. The sidecar owner, however, has merely to detach the sidecar, and it goes comfortably into the brake van. I have lately taken to riding solo in the sidecar. It does not take long to get the knack of slipping into the sidecar when under weigh. I find a decompressor useful in descending hills as the clutch (Triumph) is not accessible from the sidecar. While throttling down hill with the decompressor in action it is difficult to tell whether the engine is firing or not, and with the throttle nearly closed and air lever wide open a very good braking effect is obtainable. Both brakes are within reach of the sidecar

I wonder manufacturers do not lay themeselves out more for middle-aged persons like myself. I find the bicycle saddle irksome in the extreme. Why cannot I have an upholstered cane chair to sit in attached to Cee springs connected to the back forks. This, together with a split metal apron, the end of which could be made detachable from the ends of the foot boards with flynuts, would enable the driver to go out to dinner in comfort in torrents of rain.

Central Provinces, India. F. TRAFFORD.

Flexibility.

Sir,—I have noticed several letters on flexibility in your paper, and should like to add a word or two to the subject.

I agree with one of your correspondents that an automatic carburetter is the chief secret. My old machine was a 2 h.p., and was fitted with one of the best makes of two lever carburetters, but it was very difficult to run slowly in traffic or to get sudden acceleration. I now have a 4 h.p. single cylinder, and have fitted it with a Binks carburetter, and to drive it is a pleasure. It is possible on the pilot jet to crawl in traffic, or even turn round in an ordinary road with the engine running, and yet the throttle can be opened quickly for a sudden burst of speed without the old bugbear of choking, as with the two lever type.

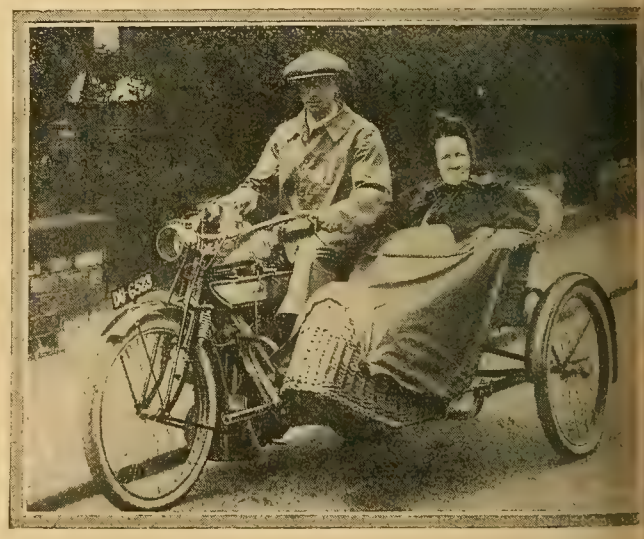
I imagine a twin would be still more flexible, especially if fitted with three speeds. My machine is only a single-speed which makes it a still more unfavourable subject for flexibility trials.

The Binks carburetter does just what Mr. Binks claims for it. I have no interest in his firm, but I am grateful to him for having produced a carburetter which makes driving such a comfort, and I will never be without an automatic carburetter of some sort again. WILFRID M. BEAR.

An Aged Passenger.

Sir,—I enclose a photograph which may be of interest to you, showing how some York young ladies enjoy sidecarring.

JOHN R. M. ANKERS.



An old lady of 91 enjoying a sidecar trip.

Rules for Reliability Trials.

Sir,—Early in the present season you commented upon the rules which were drawn up for one of this club's competitions, the points to which you directed attention being two conditions which were suggested by Messrs. Crow Bros. for the trial held on April 30th for a trophy presented by them. The two rules were as follows:

1. No solo machine exceeding 350 c.c. shall use a gear ratio lower than 8½ to 1.

2. No machine exceeding 600 c.c. shall be driven as a solo machine.

This matter is recalled to memory by looking through the list of entries for the big trade competitions of the last few weeks, in which it will be found that riders of 2¾ and of 8 h.p. solo machines appear to compete on a basis of equality so far as regards the performance expected of them, though it must be obvious that no one can fairly ask the smaller machine to do as much as the larger. The unfairness is further increased when no limitation of gear ratios is imposed.

In order to reduce this inequality, some steps should be taken to place the machines more nearly on a level footing, and I would suggest that it would be worth while to try the effect of enforcing at least the second of the above rules in future competitions.

Perhaps, sir, if you have noticed an alternative proposal of greater promise than the above you will give the matter publication so that it may receive the attention of club officials before we are started on a fresh season of competitions. CYRIL J. FEENY, Hon. Sec. Surrey M.C.C.

The Position of Three-wheeled Cycle Cars.

Sir,—We should be the last to find fault with the decision of the A.C.U. (following the A.C. of France) that three-wheeled cycle cars shall compete on equal terms with sidecars. We have always maintained that it is essential to the success of the cycle car that it shall prove itself the equal of all other light passenger vehicles. Nor do we complain that the three-wheeler is severely handicapped in comparison with the four-wheeler. We take it as a compliment (not wholly undeserved) that in the Six Days' Trials the three-wheeler was required to obtain 5% more marks in order to obtain the premier award for reliability, and also to show itself 7% more speedy, with 9% less engine power, in the speed trial.

But the method then adopted of classing the three-wheeled cycle cars with the sidecars, leaving the four-wheelers in a separate class, gave rise to some confusion and, perhaps, a little unintentional injustice. It is true that "Class II." was defined as "for sidecars and three-wheeled cycle cars," and most people know that the Morgan and the Wall are cycle cars. But, apparently, all had not that knowledge. *The Standard*, for example, wrote of "the only two surviving cycle cars, the G.W.K. and the J.B.S.," whereas the Morgan not only survived but qualified for a gold medal. The same mistake was made by some of the less well informed newspapers in regard to the Grand Prix. Would it not be more convenient if, in future, there should be one class of passenger machines only, which, for handicapping, could be divided into three categories—sidecars, three-wheeled cycle cars, and four-wheeled cycle cars? If special prizes were given they should be given to the whole class, at any rate not to three-wheelers and four-wheelers separately. MORGAN MOTOR CO.

Power for Sidecar Machine.

Sir,—In your 14th ult. issue I notice that on page 1055 Charles D. Wright suggests that there must be many who would like to know what a 3½ h.p. machine with sidecar can do in ordinary hands.

I am one of the "ordinary hands," and drive a Bradbury with sidecar. I always carry twenty-seven stone, which includes myself, passenger, and luggage. I have travelled all over North Wales, Staffordshire, and Derbyshire, and can go up any of the hills easily, and it is only very occasionally that I get any knocking, and this is generally when turning round a sharp corner. My machine has Sturmey-Archer three-speed hub gear. I get seventy to eighty miles out of one gallon of petrol. I have never had any trouble with the machine, although I travel on the average about 700 miles per month.

I learnt to drive on a fixed gear machine with sidecar (5 to 1), and the result was that I learnt how to get the best out of a machine, and even with this fixed gear machine there were only a few hills where the passenger had to get out.

FOOLSTEP OR FULLSTOP? H. E. Ashley (4 h.p. L.M.C.), C. E. Murphy (2¾ h.p. Douglas), and W. Chater-Lea (8 h.p. Chater-Lea cycle car) between the double bends on Foolstep Hill—affectionately known to the competitors as "Fullstop."

I consider that if a beginner was to start like I did, with a fixed gear, he would get a much better idea how to drive a machine than if he were to start with a machine with three-speed gear.

In conclusion I might say that, although a higher power machine may give a bigger speed on the level, for an "ordinary hand" there is nothing to equal a single 3½ h.p. machine for reliability and steady running.

I have no connection with the Bradbury Co., and only write what I have found out from my own experience.

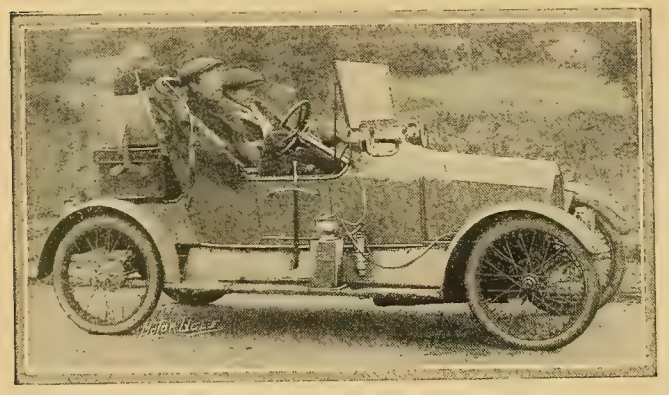
A. W. WALBURN.

A Cycle Car Camping Tour in Lakeland.

Sir,—You may be interested to hear of a tour through Lakeland I undertook recently on my Humberette, when I spent my annual holiday under canvas with my brother on the shores of Haweswater.

Besides our personal luggage and usual long distance motor spares the machine was loaded with tent for two, bedding, and utensils necessary for a camping holiday.

In spite of this heavy additional load (quite equal in weight to an extra passenger) the Humberette made light of all the hills and covered the total distance of 893 miles during the ten days we were away without a mechanical stop, save to clean an oily plug; and although driving on



A Humberette owner on tour (see letter from H. Bunce).

the original tyres supplied with the machine last December, which already have three or four thousand miles to their credit, we returned without even a puncture. I may say in this connection that I find the Humberette very light on tyres; in fact I have only had one puncture since I had the machine, due to a nail picked up on the wood pavement.

We did about 200 miles in the Lake District itself, and on the return journey climbed Kirkstone Pass from the Ullswater side, a sufficiently severe test, in my opinion, to convince any who may entertain doubts as to the practicability of air-cooling on this type of machine. The major portion of the run was done on petrol, and consumption averaged 40 m.p.g. When at home I always run on benzole, which gives rather more power than petrol and about 48 m.p.g.

HERBERT BUNCE.

Hub and Counter-shaft Gears.

Sir,—Last year I bought a 1912 machine with a three-speed back hub gear. Besides being very careful in following the instructions as to the gears, I always lifted the exhaust valve while changing gears, but after I had done six hundred miles trouble began in earnest. After about sixty or seventy miles' ride I always had to adjust the gear, although I had it done up as tight as it would possibly go. I had to have it taken to pieces ten times, and on four of these occasions the whole back wheel had to go to the makers of the gears, and three times the makers of the gears mended it free of charge. But the charges for taking the wheel down and sending it away by rail came to over £9. All this was done before I had the bicycle six months and before I had done 2,000 miles on it. It also kept me for weeks from the use of my machine.

Now in May this year I bought a 1913 Douglas, and have already done 3,400 miles on it without any trouble whatever with my counter-shaft gear. The only thing I do to it is to give it three pumpfuls of oil every 150 miles and to put graphite on my chain. My chain is open to all the dirt and dust of the road, but after 3,400 miles I find no signs of wear to speak of.

Also this year I have met nine persons on the road trying to make their hub gears work properly, and I have never found one person on the road who has broken down with his counter-shaft gear. I think there is no doubt whatever which of the two kinds is better.

LL. K. JONES.

Sir,—I was interested in Mr. Bowden's letter in your issue of August 14th, criticising the counter-shaft drive as compared to the direct belt drive with hub gear, in which he makes some rather alarming statements about chain drive.

I have driven a 3½ h.p. Indian for the past year, covering close on 5,000 miles in all weathers, and have had practically no trouble with the short engine chain to counter-shaft. I replaced this after 4,000 miles, as I found two rollers broken, but the chain is far from worn out, and will probably run a good distance further after being repaired. The drive is no fiercer than that of a belt, and as regards tyre wear I still have the original tyres on (Hutchinson's), which is fairly creditable, as steam-rollered roads are rather a luxury in Ireland, and a good distance has been covered with passenger on the carrier or sidecar. The machine is noticeably free from vibration; this may be put down to the excellent Indian clutch.

I owned a belt-driven machine (a Triumph) before the Indian—the less said of belts (in my experience) the better.

It may not be out of place, in view of the many objections raised against automatic carburetters, to put in a word for the Indian with pilot jet. I have found this very satisfactory, giving good acceleration and any speed from about 5 to 50 m.p.h. with reasonable economy (100 m.p.g.). I tried another widely advertised pilot jet carburetter, but found it was not in the same street as the Indian either as regards slow running, climbing, or speed. I have no interest whatever in the Hendee Co., except a profound regard for them as the makers of a really serviceable motor cycle.

W. T. MALCOLMSON.

Sir,—On reading through your two previous issues I note several comments with respect to the chain counter-shaft drive, and should like to bring my experience before your readers.

I am a commercial traveller, and, as you can imagine, come in contact with all kinds of roads both as regards surface and hills, in various kinds of weather, as I have to get over the ground wet or fine, and think my machine has done wonderfully well under the circumstances.

The mount is a 1913 3½ h.p. James three-speed, counter-shaft, with chain drive throughout, and I have covered upwards of 5,000 miles without ever having touched the counter-shaft chain, and only adjusted the driving chain on three occasions, which is only a few minutes' work—which, I think, will prove Mr. Bowden's theory of a counter-shaft chain only having a life of about 1,500 miles very absurd—and am still riding the original tyres.

I may add that I have no interest whatever in the James Co., and that my reason for writing these few lines is to show the great advantage, to my way of thinking, of the chain drive over the belt with hub gears.

G. R. ARMES.

Sir,—After reading the letter by "AN 1231" in your issue of 14th August, I feel that I cannot allow it to pass without comment, more especially his statement that "hub gears may be all right for lightweights but will not stand the healthy kick of a 3½ h.p." Allow me to give an account of my experiences with a hub gear.

In March last I had an Armstrong three-speed hub fitted to an 8 h.p. twin Matchless, and since then have covered about 3,000 miles, and at least 2,000 with a heavy coach-built sidecar fitted with a wind screen. In that distance I have never had one moment's gear trouble. The clutch has never slipped, the gears have never failed to change, and, above all, have never made any noise when changing. But in case "AN 1231" should think that my machine does not possess a "healthy kick," allow me to specify at least one of my journeys. In the Airdrie and Coatbridge District Club's reliability trial I was asked at the last minute to take the press representative as my passenger. The route

was 160 miles of rough highland road, including an ascent of Amulree. My machine was the only one to make a clean ascent of that hill. I gained the special prize for the best performance in the passenger class.

Again, in the same club's flexibility hill-climb I used my middle gear in both fast and slow ascents, the times being 44⅘s. and 2m. 53s. respectively. In the fast climb I had the full power of my engine turned on, except at the bad bends, and still no trouble with clutch slip. Surely this was a severe enough test to find any weakness in the gear.

In conclusion, I may state that I use my machine for business purposes, and have, on an average, forty stops per day, and I use the clutch to start after each. I do not oil the gear more than once every 200 miles, and then only sparingly. I have nothing but praise for the three-speed hub, especially the Armstrong, which certainly, in my case, has given greater satisfaction than I even expected. I need only add that I have no connection with the Armstrong gear company or with any cycle manufacturer or agent whatever. BENJ. W. BOYLE.

Sir,—Surely it is quite time that your readers looked at facts instead of fancies, and calmly considered performances instead of prejudices. We do not believe that there has been any other part of a machine so unmercifully criticised and so unfairly commented upon as the three-speed hub gear.

When this company first introduced its three-speed motor gear, the press took the thing very coldly, and advised people to stick to the single gear machine rather than take the risk of a complicated piece of mechanism. The great success we had in the T.T. Race, 1911, gave the motor cycle gear movement a great impetus, and the press then began the controversy that, if gears were necessary, counter-shaft gears were preferable to the hub type.

For three years the press has misguided people, and has rejoiced at any instance of a hub gear giving trouble. We know of one case in which a press man, entirely through misadjustment of the gear, complained of clutch slipping and hailed this with positive delight as proving the many unkind things he had written regarding hub gears.

Actions speak plainer than words, and, taking the whole of the strenuous competitions, hub gears have performed magnificently. In the T.T. Race this year six machines out of the first twelve in both junior and senior events were fitted with hub gears. In the Scottish Six Days Trials hub gears scored in a most decisive way, while, in the English Six Days Trials, just held in the Lake District, machines with hub gears put up a phenomenal performance. Ye gods, look at these figures!

500 c.c. Class.

	Machines entered.	Gold medals awarded.
Fitted with hub gears ...	27 ...	17, or 63% of entrants
Fitted with other gears (not hub type) ...	... 33 ...	6, or 18% of entrants

Surely, in face of these figures, it is time to cry a halt in the destructive criticisms that have been levelled against the three-speed hub gear.

Fortunately, the demand for hub gears has been so large that the makers have never been able to keep up with the demand, otherwise we might have felt more concerned about the misrepresentations.

Coming to the points of criticism levelled against us, the principal objections have been as follows:

1. Unreliability!—Surely this has been completely dispelled!

2. Slowing the back wheel!!—Reply: A machine fitted with a hub gear made the fastest lap in the 1913 T.T. Junior Race, and the machine won the race!!

3. Difficulty in taking out the back wheel!!!—This is the only objection that can now be held against the three-speed gear, and we throw down this challenge, that it is possible to take out the wheel of a machine fitted with a three-speed gear and replace the same within five minutes of the time taken with a machine not fitted with a three-speed gear!!!

Why not advocate counter-shaft brakes so that the back wheel could be more easily detached? There would be just as much reason in this as to complain about the three-speed gear. And how often does the back wheel require to be taken out? How many machines in our travels do we see on the side of the road with the back wheel out of the frame?

Really, Mr. Editor, it is time to call a halt, and allow the hub three-speed gear manufacturers fair play. Our success has been such that we have been content to suffer in silence, but feel that the time is come for us to ask the press now to give us justice.

THE ARMSTRONG TRIPLEX THREE-SPEED CO., LTD.
E. C. Paskell, Director.

[Mr. Paskell alludes to the press in the above letter, but, so far as *The Motor Cycle* is concerned, we entirely deny that the hub gear has been received coldly, or that any prejudice has been shown against it.—Ed.]

Carburetters and Flexibility.

Sir,—With reference to the letter in the last issue of *The Motor Cycle* by Mr. Binks *re* carburetter flexibility, I should like to compete with anyone with my new twelve-jet carburetter. The same machine to be used, namely, a 5 h.p. overhead Matchless-Jap, 3½ to 1 fixed gear, preferably with sidecar and two twelve stone passengers. Magneto to be fully advanced all the time. J. H. WILKINSON.

The A.C.U. Six Days Trials.

Sir,—I have read the reports and the comments on the above, with the correspondence printed on the subject, and if I may venture to criticise as one who is neither a member of the A.C.U. nor at all in agreement with its policy, I should like to suggest to you and your readers that the least said by the disappointed folk who went for the Trials the better.

When are we to have an end of this unsportsmanlike spirit that is showing itself amongst motor cyclists. Other people go in for other sports, and we do not immediately get strikes and most fierce letters to the press the moment they find that they cannot manage the trial to their satisfaction. Hats off to the A.C.U. for the trouble it took to make this trial a real test. Many of us in our daily work have quite as hard a time of it as some of the riders had. Some of us Sussex riders who have to be out in all weathers, who have to ride flinty, terrible roads all the year, over downs, through farmyard tracks, over stony roads, and bad hills, through watersplashes, do not squeal like some of the riders did about it, and though we all admit the trial was a severe one, it was merely putting into six days' running the sort of thing some of us have to put up with many times in the year.

The trial was advertised as a Six Days Trial, not as a six days' pleasure trip, and I for one sincerely regret the prominence given to the dissatisfied riders. If they do not like it let them stay away from the next lot. At the quarterly trial held down South this year it was, to many of us, disgusting to hear the growling that went on. If motor cycling is a sport, and men enter for it, let them stand by the rough time they get, and not create a bother for the ruling body, who worked so splendidly to make it a success.

Some machines behaved splendidly—they could not all have had skilful *and* lucky riders—and yet you get the Sunbeams, Triumphs, Ariels, and others coming through with flying colours. If machines fall into pieces, if we learn that crank cases and gear boxes and parts are not strong enough for such strenuous work, if, at the same time, we learn that other parts that ought to be able to go right also did not, the trials are useful things, as many machines have to stand a most strenuous doing in a year of rough work. We do not all ride week-ends only; some of us are at it all weathers, all roads, all places, and have to get there or else give up motor cycles and take to more reliable methods; hence I for one say, "let the growling stop." It has been proved that motor cycles can do hard work, and the sooner motor cycle riders, trade or otherwise, leave off growling every time they get a beating, and, like true British sportsmen, say "better luck next time," the better the sport will be. I was not at all impressed by your comments, as I should have preferred to see the leading motor cycle papers going for sportsmanship clearly and with no indefinite voice. R. C. MEASURES.

Competitors' machines lined up in the hotel yard, at Grantham,—the luncheon stop in the Essex M.C. 24 hours' run to York and back.

ESSEX M.C. ANNUAL 24 HOURS' RUN.

LONDON TO YORK AND BACK.

IN drizzling rain the first man was despatched from the Eagle Hotel, Snaresbrook, at seven o'clock last Friday evening. There were three lady riders competing, Miss Hammett (2¾ Douglas), Miss Baxter (2½ Connaught), and Miss Berend (7 Indian sc.). Whereas the former was riding an open frame machine, Miss Berend rode a standard Indian, with the addition of a very neat dress guard over the rear cylinder; L. A. Baddeley, a prominent M.C.C. member, occupied the sidecar seat.

The route was marked at night by means of red and green lanterns and lay through Hockerhill, Cambridge, Norman Cross, Grantham, and Doncaster, straight through to York. Rain continued to fall intermittently till Hockerhill was reached. The first check (open) was held here, in charge of Mr. Kapadia. On leaving this place the rain simply poured down, and continued to do so until Cambridge was reached, where a check (open) was held and fifteen minutes allowed for replenishing both man and machine.

Early Retirements.

Soon after leaving Hockerhill, Deacock, who was riding one of the two lightweight machines with sidecar attached, broke his driving chain, and as the spare links did not fit he was obliged to retire. Some fourteen miles from here Miss Hammett, also on a Douglas, was obliged to retire owing to the state of her eyes. During the Scottish Six Days she was badly bitten by mosquitos, and the night riding found out a weak spot again. The third rider to give up was Gordon Fletcher, who ran into the Cambridge control five minutes early, and as this mistake would probably have robbed him of a gold medal he decided to retire. The lightning up to this point was very vivid, and many of the competitors thought this had affected their watches. The next check (open) was held at Godmanchester, and six miles further on the first secret check section entered. Four sections were marked on the route card wherein a secret check would be held. The first was found one and a quarter miles past the top of Alconbury Hill, and was in the hands of Mr. E. J. Bass. An uneventful run now brought us to Stamford, where the rain had subsided to some extent, only to begin pouring down again a few miles out, and to continue thus right in to Grantham.

A Welcome Rest.

Here supper was served and one hour's rest allowed. After leaving in the rain an A.A. scout directed many on to the wrong road, among whom may be mentioned Cocks, with his little 2½ h.p. Connaught and sidecar, also Miss Baxter. After travelling some little distance they found themselves in a ploughed field, so decided they were off the route and returned. Cocks again lost his way at Barnby Moor and went several miles off the course, added to which both he and Miss Baxter suffered generator trouble. Some three miles north of Bawtry Mr. Bass held the second secret check. Webster arrived somewhat late through taking a wrong turning just outside Bawtry. The rain now stopped, and we had a fine run into Doncaster (open check), and thence on to York.

The York Control.

The morning was very foggy and dull when the timekeeper and one or two others awaited the arrivals at 6 a.m. at York. The control was at the Windmill Hotel, where breakfast was served. Punctually at 6.22 Webster and Brown arrived, followed in quick succession by a large batch of competitors, all of whom came in well up to time. We remained at the control till 9 a.m., and, except for the retirements mentioned, there were no late arrivals. The two ladies looked particularly well and fit, but all complained of the terrible weather experienced up to Grantham. A. T. Stanton repaired a puncture.

Just before reaching York, Brown, who had been "blinding" a great deal, broke his exhaust valve. Luckily, however, he carried a spare, and after fitting it he continued. MacDonald found it advisable to fit a larger jet; he had also lost part of his silencer, which caused his engine to make a terrible noise. Many told us tales of woe at York. Miller complained of serious belt slip, which caused him to arrive late at Cambridge. Cass and Beal had on several occasions been off the road, and the latter reported having run into a donkey, which he said he knocked down without doing any

Essex M.C. Annual 24 Hours Run.

damage to rider or machine. Worley had to take his carburetter down three times owing to some rag having entered his tank. Pearson had lost the shoe of his rear brake, and was obliged to put his foot on the flywheel when he wished to pull up. News came to hand that Applebee, sen., had hit a horse with his B.S.A. and sidecar, which caused his retirement. After a welcome rest the competitors were started on their return journey, the first man leaving at 7.30 a.m.

The Return Trip.

The same route was followed as on the outward journey. The first secret check section started at Ferrybridge, the check being found six miles past this place. Some two miles past the check Sewter had the misfortune to blow off one of the cylinders of his Humberette. The going through Doncaster was very bad, the tramlines being in a very greasy condition. After checking in here, a fine run brought us to Grantham where one hour was allowed for lunch. Just before Grantham Cocks had trouble with his front wheel. On making investigations he found that a ball had broken and had ruined his cone. This occurred some ten miles from Newark, but a passing Humberette driver very kindly took him into Newark, where he fixed things up and returned to his machine again on the cycle car.

Soon after leaving Grantham, Whitmore was worried by his Armstrong gear, the clutch appearing to slip momentarily when pulling up hill. After a good dose of oil his trouble disappeared. Just outside Stamford we found Pearson with his front wheel out fitting a new tube. It appeared that he and Brown had collided while travelling at a good speed. The last secret check was found at the Norman Cross Hotel, again in the hands of Mr. E. J. Bass.

After checking in at the top of Alconbury Hill we pushed on to Huntingdon, where we met Dr. Moss-Blundell on his Green-engined sidecar. This machine

Rex Mundy (Triumph) and C. Pearson (Douglas) at an early morning check outside Doncaster.

appears to possess a fine turn of speed. At Cambridge, where fifteen minutes were allowed for tea, Frank Applebee was checking the competitors. A mile after passing Great Chesterton, R. M. Brice, of Brown renown, was running a secret check to find competitors ten minutes ahead of time. This meant disqualification for those caught. The next check was held at Hockerill, but a mile or so outside we found Applebee, sen., running another secret check.

Upon enquiring of him for particulars of his smash, he informed us that in the dark he had hit a horse, which put its foot through the body of his sidecar and at the same time fell on his passenger. Both luckily escaped serious injuries. Soon after leaving Hockerill rain commenced to fall again, and continued practically all the way to the finish.

Wortley reported tyre troubles, having used four tubes and then had to send several miles into a village to get another one. Hemy punctured near Great Chesterton. Phillips, on the Warne cycle car, had a puncture and a burst, the latter being caused by a nail. An 8 h.p. Williamson successfully completed the double journey with a two-seated sidecar attached. Miss Baxter was heartily cheered on finishing at Snaresbrook. She had undoubtedly put up a splendid performance in finishing the course considering the weather conditions on the outward journey. Mr. Stenson Cooke, secretary of the A.A., accompanied the competitors throughout on a 40 h.p. Oakland car. The officials of the club wish to acknowledge the help received from the A.A. scouts all along the route. The following finished the course within twenty-five hours :

MOTOR CYCLES.

W. W. Webster (3½ Rudge).
L. G. Brown (3½ Corah Jap).
A. C. Stephens (3½ Triumph).
H. R. Whitmore (3½ Rover).
R. G. Mundy (3½ T.T. Triumph).
C. Pearson (2⅜ Douglas).
H. J. Beal (4 L.M.C.)
F. Roberts (3½ Singer).
G. T. Gray (5 Rudge).
S. Tharp (3½ Triumph).
A. G. Peppercorn (3½ Bradbury).
Miss Baxter (2½ Connaught).

SIDECARS.

A. G. Cocks (2½ Connaught).
F. H. Worley (6 Matchless).
Miss Berend (7 Indian).
B. A. Hill (7 Indian).
A. F. Brassington (6 Rex).
A. R. Abbott (3½ Bradbury).
A. T. Stanton (3½ Bradbury).
W. C. Hemy (6 Clyno).
A. H. Gold (8 Williamson).
J. H. Kerr (3½ N.S.U.)
F. L. Cook (4½ Calthorpe).
L. Cass (6 Trump).
A. E. Ufflеman (8 Chater-Lea).
Victor Garland (8 Williamson).
A. Miller (6 Zenith).
K. A. MacDonald (3½ Singer sc.)

CYCLE CARS.

J. Chater-Lea (8 Chater-Lea).
A. B. Phillips (8 Warne).

P. Alan Hill (7 h.p. Indian sidecar), J. H. Kerr (3½ h.p. N.S.U.), and another leaving York for the return journey to Woodford.

Road Tests of the New B. and B. Carburetter.

SINGLE OR DOUBLE LEVER CONTROL AT WILL.

THE problem of perfect carburation at all speeds is one which claims attention from all classes of motorists; motor cyclists, therefore, will be particularly interested in the new B. and B. carburetter, which has been the subject of twelve months' constant experimenting by Messrs. Brown and Barlow, of Westwood Road, Witton, Birmingham. The carburetter which we are about to describe is the result of this firm's experience with three earlier models: the standard single jet type, the universal, and the single lever automatic carburetters. The knowledge gained from these three models has enabled the firm to design a carburetter which can be treated, if desired, as a semi-automatic model, and is particularly easy to manipulate when so treated, especially at the low speeds necessary in slow moving thick traffic.

For the purpose of explanation four sectional views are given with the throttle valve in different positions. Fig. 1.—When running dead slow at no load. Fig. 2.—When on the level at about 20 m.p.h. Fig. 3.—When almost at full speed. Fig. 4.—At a point between 1 and 2.

Referring to the illustrations below, it will be seen that this carburetter is adapted for a double lever control, one lever of which controls the throttle T, and the other the air valve A. The construction of the throttle T is such that when it is opened it also uncovers 60% of the total available amount of air, so that the maximum amount of extra air that is under control by the air valve A only amounts to 40% instead of the usual 100%. This 40% is the amount of variation actually required to provide for the extreme conditions met with during running. To the throttle valve T is attached a needle N, which works in the jet so that as the throttle T is raised or lowered, the needle N is raised or lowered the same amount in the jet J. The first portion of the needle at N1 is parallel, and, after a certain distance, is tapered to the end. The jet J in which the needle slides is situated in a small choke tube C, so that a small amount of air enters at this point sufficient to break up the petrol as it issues from the orifices. Completely enclosing the top of the choke tube is a cap S, into which the petrol spray and air pass from the jet and choke. This cap is provided on one side with a number of holes S1 of small diameter, through which the petrol and air have to pass, thus ensuring perfect vaporisation. The throttle T is provided on the engine side with a small slot T1 to give ease of control when running slowly, and the corresponding part of the throttle on the other side T2 is cut away the whole width of the throttle. It will thus be seen that the air intake to the carburetter I is opened in advance of the outlet to the engine P. The proportions of the carburetter change as the throttle T is altered to suit various conditions met with at moderate speeds, this without any aid from the extra air valve A

Taking the position shown in fig. 1, we have a very small outlet to the engine formed by the top of the slot in the throttle, and the intake side of the throttle T completely shuts off the air. Under these conditions the whole of the air required must come through the choke tube C around the jet J, and it is a comparatively easy matter to make the size of the petrol orifice (*i.e.*, space around the needle N1) correct to run the engine dead slow when free.

Now, assuming that the throttle T has been opened out to fig. 2 position, in doing this we have, during the first portion of the opening, opened the slot T1 only on the engine side of the throttle, but giving a fair amount of air on the intake to the throttle I. Thus for the first part of the movement the inlet I to the carburetter is larger than the outlet P to the engine. At the same time the needle N has been raised out of the jet J, but the area around the needle N1 has not been increased. An equivalent process, however, has taken place, viz., the frictional resistance of the fluid between the needle N1 and the nozzle J has become less, and at this point has reached a minimum, and from now onwards the area around the needle N1 increases, with a consequent increase in the flow of the petrol.

Now taking fig. 3, in opening the throttle T through position fig. 2, the outlet will begin to increase quicker than the inlet I (owing to 40% of the available space on the inlet side being occupied by the air valve A), until at posi-

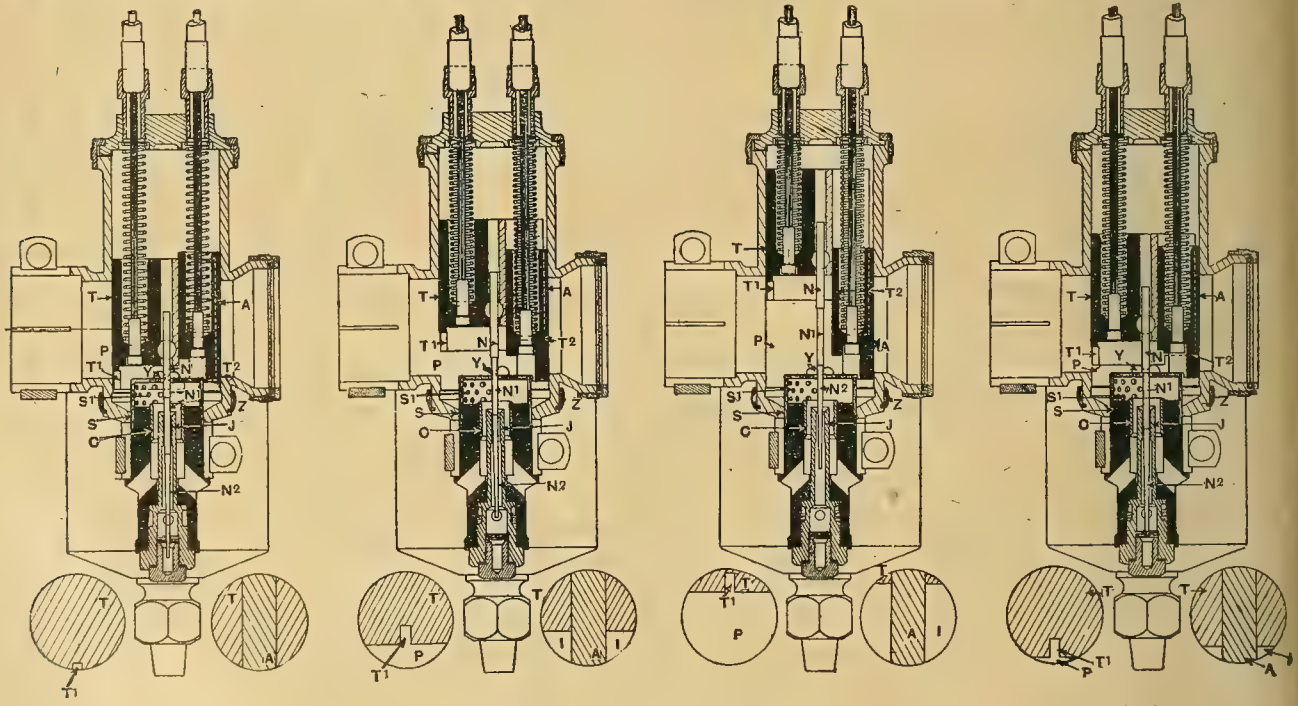


Fig. 1. Fig. 2. Fig. 3. Fig. 4.

Sectional views of the new B. and B. carburetter.

(1) Carburetter set for running dead slow at no load.
(2) On the level at about 20 m.p.h.
(3) At almost full speed.
(4) At a point between Nos. 1 and 2.

A Air-inlet valve. C Choke tube. C1 Air intake. J Jet tube N Needle. N1 Parallel portion of needle. N2 Taper portion of needle. P Outlet to engine. S Vaporising cap. S1 Holes in cap S. T Throttle valve.

B. and B. Carburetter.

tion 3 the outlet P is larger than the inlet I. At this position the needle N has been raised a similar amount, and at this point the space around N2 of the needle is such as to give the mixture required for slow heavy pulling, the needle N2 having a proportionate increase in its taper from position 2, through position 3, and on to the full open position. The taper N2 on the needle steadily increases the size of the petrol orifice in correct proportions, starting from minimum size and finishing with the throttle T at the full open position. It has been found that practically all machines answer to the same setting on positions 1, 2, and 3, but there is a slight difference in the position midway between 1 and 2, and shown in fig. 4. This is owing to the slight variations in the valve design on different makes of engines. In some instances, when driving as a single-lever carburetter, *i.e.*, with the air valve A obstructing the intake, it is found that the mixture which is right at position 1 increases slightly in richness at position 4, and then falls back to the correct mixture at position 2, and afterwards is correct for the remainder of the opening. This slight variation has been provided for as follows: Two small air holes Y (completely closed by the throttle T when in position 1) are gradually opened as the throttle T is opened until position 4 is reached, when both holes Y are fully opened. On the outside of the body is a rotating member Z, which can be turned to uncover these holes Y to any desired extent. The rotating piece Z is then set, when the throttle T is at position 4, to suit the particular engine to which the carburetter is fitted, and left at that, no alteration being necessary after once setting.

Variable Jet Opening.

The firm's claims for this new model are simplicity, ease of adjustment and fitting, economy, and capability to take very heavy loads up the steepest hills, the last owing to a big jet which is provided to give maximum power on full throttle. As the great proportion of riding is done on a small jet, there is no waste of fuel owing to the provision of a big jet for maximum power, as the jet is variable. The petrol is vaporised in a complete manner, with the result that a good uniform mixture is fed to the engine at all speeds, so obviating overheating, which is often the result of bad carburation. It is also possible at all ordinary speeds to give an excess of air, thus making it possible to drive to the utmost nicety as regards consumption, if it be so desired. There is also an absolute absence of any blow-back of petrol.

The Road Tests.

Mr. C. Brown, although satisfied in his mind that these claims are accurate, wished us to prove to our own satisfaction that the new carburetter will do all that is claimed for it. In consequence, he invited us to make some road tests of the carburetter under varying conditions, using both the single and double levers. The tests arranged were flexibility (slowest and fastest), power on hills, acceleration, and consumption.

A Midland Route.

The route chosen was the firm's usual test course from Birmingham to Kidderminster, Bewdley, Cleobury Mortimer, Hopton, Clee Hill, Tenbury, and the old road from Tenbury to Worcester, which includes Hill Top Bank, near Rochford, returning through Stourport, Hartlebury, up Mucklow Hill to Birmingham. The first thing we noted was the easy control of the machine in traffic with the air valve closed and the carburetter manipulated as a one lever type. It was possible to crawl through traffic, and to bring the machine to a standstill with the clutch out and the engine just ticking round, re-starting being effected by simply opening the single lever throttle control. Once out of traffic, the air valve was brought into play, and with this open the requisite amount, speed could be controlled entirely by the single lever, and we noticed no sensitiveness at speeds varying from twenty to thirty-five miles an hour.

Steady Climbing

Those who know the route described above are aware that it comprises some steep hills, including Lem and Clee hills. The former has a steepest gradient of 1 in 7, and was ascended with a James sidecar on top gear with passengers weighing 26 stones. From Hopton to the summit of Clee is about two and a half miles of steady climbing, and we particularly noticed the even note of the exhaust during the whole ascent, and not the slightest sign of overheating.

At Tenbury we conducted a short experiment to prove slow running with the machine jacked up on the stand, and succeeded in getting as low as 300 r.p.m., with the engine firing evenly the whole time. (Will those who think 300 r.p.m. easy of accomplishment make the experiment themselves?)

On Hill Top Bank

Hill Top Bank was chosen for the hill-climbing test, two trials being made with a standard 1913 B. and B. single jet two-lever carburetter fitted with a No. 34 jet, and two trials with the new carburetter. The machine used was the works "'bus," an old 3½ h.p. Triumph, which has had nothing particular done to it since it was overhauled by the makers some nine months ago. The gear ratio was 4⅔ to 1. We convinced ourselves that we could not climb the hill with the standard carburetter and the gear ratio employed, but with the new carburetter on we reached within a few yards of the top, and Mr. Brown took the machine clean over at a minimum speed of 18 m.p.h. The Contour Book gives the gradient of this hill as 1 in 7. This is the average, as one section is about 1 in 5, and its length is about a mile.

Flexibility Tests.

The above tests consisted of riding the machine over a measured one-third of a mile with a flying start at the slowest and fastest possible speeds with air valve closed and controlling the carburetter by the single lever, and with both levers in use. The machine was ridden in a straight line, the engine firing regularly; neither clutch nor change-speed gear was fitted. The results will be found in the next column.

FLEXIBILITY TEST.

MEASURED DISTANCE ⅓ MILE.

	m. s.	m.p.h.
Slow with One Lever.		
1st trial	2 54	6.9
2nd trial	3 13	6.2
Fast with One Lever.		
	0 43	27.9
Fast with Two Levers.		
	0 23⅖	51.28

The high-speed test with one lever may appear slow, but it must be taken into account that this proves that the machine can be driven up to nearly 28 m.p.h. on the level without making use of the air valve lever.

For the acceleration test we used a Bonniksen speedometer, the hands of which show the amount of acceleration possible. The average of several tests, all with the single lever, be it noted, showed that it is possible to accelerate from 10 to 20 m.p.h. in five seconds on level ground by merely opening the throttle valve.

Consumption.

The consumption test was made over an undulating course, starting from the works towards Sutton Coldfield. This necessitated many sharp turnings, sudden accelerations, and a few short fairly steep hills. The same machine and carburetters that were used for the hill-climbs, without any alteration in setting or gear ratio, were employed. The float chamber was first drained dry and connected to a special tank holding .0905 of a gallon of petrol. The first test was made with the new model, and the distance, measured by Jones's speedometer, was 11.6 miles—128 m.p.g.

The 1913 model was then fitted, float chamber drained in the same manner, and connected to the special vessel, the result being a petrol consumption of 121½ m.p.g., the distance covered being exactly eleven miles.

It should be mentioned that the machine was ridden under touring conditions, and at a speed of between twenty and twenty-five miles an hour.

Power with Small Consumption

We think our readers will agree with us that the above test conclusively proves that the new B. and B. provides what it is impossible to obtain with a single jet of the ordinary type, viz., full power for hill-climbing, and a small petrol consumption for all ordinary speeds. This is what the makers have aimed at, and we certainly think that they have been successful.

Incidentally, we may mention that we tried one of these carburetters on a twin-cylinder sidecar machine of our own. The average previous best consumption was about fifty miles to the gallon, but by careful driving at the second attempt we were able to show a consumption of 70 m.p.g. over a distance of 6.3 miles. With this setting, we noticed no falling off in power on hills, and the ease of control was very marked, particularly when starting engine, and running slowly with clutch out.

To sum up we think that this new production of Messrs. Brown and Barlow marks a very considerable advance in the matter of motor cycle carburation.

TIME TO LIGHT LAMPS.

September	4	... ..	7.40
,,	6	... ..	7.35
,,	8	... ...	7.31
,,	10	... ...	7.26

Liege-Paris-Liege Trial.

In addition to the list of first-class awards in the above trial, particulars of which were published last week, E. Taymans, a Belgian rider and private owner of a Triumph, won a gold medal. He was riding the only Triumph entered.

Paris-Tours Reliability Trial.

This event will take place on the 14th September over a distance of 145 miles. The route taken will be *via* Orleans and Blois. The event is being held by the Touring Motor Club of France, under the rules of the Union Motocycliste of France. There are classes for practically every type of motor cycle on the market, including sidecars, tricars, and cycle cars. Speeds vary from 15½ miles for machines of 250 c.c. up to 18½ miles per hour for motor cycles of 1,000 c.c. and cycle cars of 1,100 c.c.

Entries close on Tuesday, September 9th, and should be sent to Mr. R. Desitter, 48, rue de Moscou, Paris. Entry fees: Trade, 40 francs each motor bicycle, sidecars or cycle cars 50 francs; members of foreign clubs, motor bicycles 35 francs, sidecars or cycle cars 40 francs.

Suggested Carburetter Trials.

In the issue of July 10th we published an article on automatic carburetters, and suggested that the Auto Cycle Union should organise a trial for the purpose of testing different carburetters on motor cycles. Our suggestion has been taken up with enthusiasm by several prominent manufacturers, and we would draw the attention of the Auto Cycle Union to this fact. We cannot but think that a trial of the leading makes of automatic carburetters, with a view to testing the flexibility and power obtained therefrom on some standard make of motor cycle, would produce data of the greatest interest to riders and the industry.

A.A. and M.U. Notes.

SPECIAL PATROL ARRANGEMENTS.—Special patrol arrangements have been made by the A.A. and M.U. in connection with the Doncaster St. Leger meeting (September 9th, 10th, 11th, and 12th). All the roads will be fully patrolled, and in the vicinity of Doncaster, where traffic is likely to be heavy, extra patrols will be put on duty.

EARLY LIGHTING-UP WARNING.—Members are requested to drive carefully and to light up early between Dunstable and Hockliffe on Sunday evenings. Several herds of cattle and flocks of sheep are regularly driven between these two places from five to eight o'clock.

SPECIAL FEATURES:

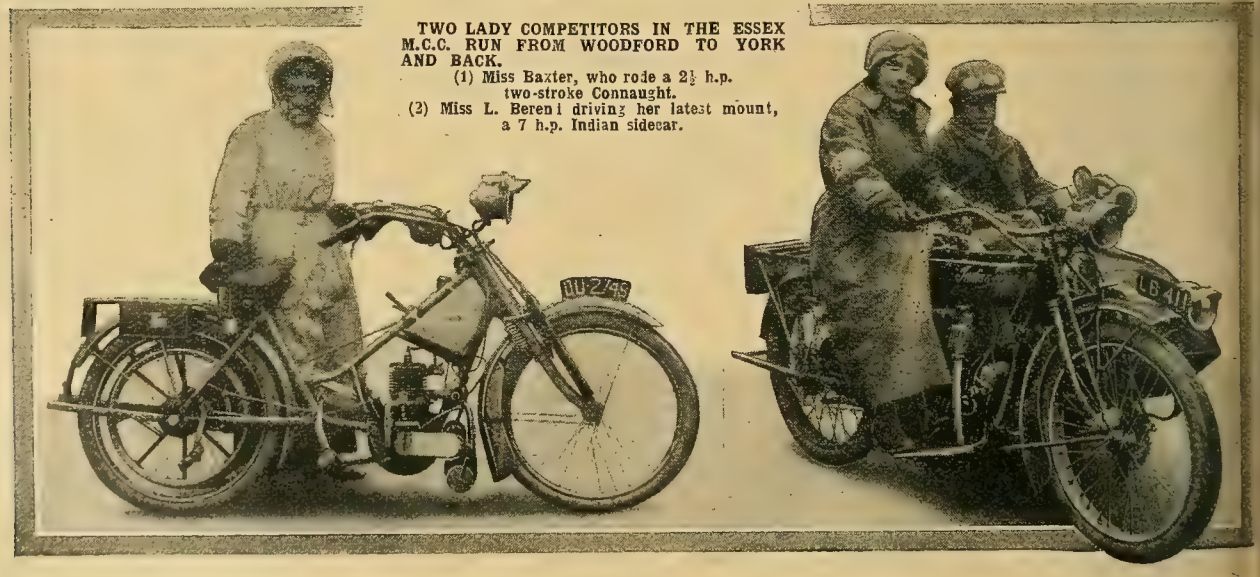
AMONG THE LAKES*
With the Six Days' Riders in the North.
ROAD TESTS OF A NEW CARBURETTER.
ESSEX M.C. 24 HOURS' RUN.

Import Duties on Motor Cycles.

The United States Senate Finan Committee have been considering t question of the duty on automobiles a motor cycles imported into the Unit States of America. The duty on mot cycles up to date has been 40% *valorem*, but in future the commit recommend that the duty be 25%. T should give British manufacturers chance of doing some business in U.S.A.

Illumination of Number Plates.

Motor cyclists generally are cautio so to fix their head lamp that it il minates the front number-plate on e side after dark. The chief constable Derby has pointed out in a very courte communication sent to the secretary the Derby and District M.C.C., t motor cyclists in Derby are infring the regulations, as the lamps, in m cases, are fitted too high. Motor and the police in Derby and distr are on excellent terms, and motor cycl should see that the existing conditi are preserved.



TWO LADY COMPETITORS IN THE ESSEX M.C.C. RUN FROM WOODFORD TO YORK AND BACK.
(1) Miss Baxter, who rode a 2½ h.p. two-stroke Connaught.
(2) Miss L. Berent driving her latest mount, a 7 h.p. Indian sidecar.

Three cycle cars in the Essex M.C. twenty-four hours. Reading from lef to right they are 8 h.p. Chater-Lea (driven by J. Chater-Lea), 8 h.p. Humberette (J. F. Sewter), and 8 h.p. Warne (A. B. Phillips).

Brooklands Automobile Racing Club.

The following races will be decided at the B.A.R.C. meeting on Saturday, October 4th: The Seventeenth Short Motor Cycle Handicap for all classes of motor cycles, distance 5¾ miles, and the Fourteenth Long Motor Cycle Handicap, distance 8½ miles. Entries close September 22nd at noon.

The A.C.U. Trials.

A competitor in these recent trials writes to say that he does not consider the hill at White Shaw Moss, sometimes called Gastack Beck, by any means unrideable, although the surface was undoubtedly rough. He also says that the hill near Durham, known as Little Honister, had an abnormal surface on the day in question, but that this was caused by the weather, and that the same thing applies to the hill at Alston. This competitor entirely approved of the course chosen and thoroughly enjoyed himself.

Road Warnings.

The police are extremely active in the village of Great Ormesby, on the road from Yarmouth to Stalham, and also at Potter Heigham, on Hickling Broad.

Motor cyclists on the road between Scarborough and Malton should take great care in passing the village of Sherburn, as there is a most dangerous cross-road at this point.

Military Motor Cyclists. Motor Cycles v. Horses.

The manœuvres which were to have been carried out by the 4th Cavalry Brigade in Northamptonshire and Buckinghamshire next week, will be seriously interfered with owing to the outbreak of mange amongst the horses of the 3rd and 20th Hussars, preventing these regiments from taking any part in the manœuvres. This is another point in favour of the establishment of a trained corps of motor cyclists, as it is considered that for despatch riding and orderly work an efficient motor cycle and trained rider could do the work of about six horsemen. A general finding himself in the predicament of being unable to use part of his cavalry owing to an outbreak of disease amongst his horses would not be so seriously handicapped if he had a body of trained motor cyclists at his disposal who could undertake many of the duties carried out in the ordinary way by his mounted troops, and so leave him the greater proportion of his cavalry for reconnaissance.

FUTURE EVENTS.

Sept. 6.—Scottish A.C.U. Speed Championships at St Andrews.
„ 6.—A.C.U. East Midland Centre Speed Trials.
„ 13.—Mersey M.C. Open Hill-climb at Pen-y-Ball.
„ 13.—B.M.C.R.C. Race Meeting.
„ 19-20.—Birmingham M.C.C. Open Trial to Carlisle and Back.
„ 20.—Streatham M.C.C. Open Speed Trials at Brighton.
„ 24.—A.C.U. Open One Day Trial.
„ 27.—Liverpool A.C.C. Open Reliability Trial.
Oct. 4.—B.A.R.C. Brooklands Meeting.
„ 11.—Coventry & Warwickshire M.C. Annual Open Hill-climb.

Well-known Motor Cyclist Married.

On Wednesday last the Rev. P. W. Bischoff, who is well known to most of our readers as an enthusiastic motor cyclist, was married to Miss Beatrice Langston at All Saints' Church, Brougham Street, Edinburgh. One of Mr. Bischoff's wedding presents was a Clyno and sidecar, on which the happy couple will tour in Devonshire.

Birmingham M.C.C. 24 Hours' Trial.

On September 19th, at 10 p.m., the start will take place at Perry Barr of the open reliability trial from Birmingham to Carlisle and back, promoted by the Birmingham Motor Cycle Club. Some valuable trophies are being put up for the competitors. First prize for solo machines will be the F. E. Baker Trophy, consisting of a silver cup; and first prize for passenger machines will be a watch presented by the Lloyd Motor Co., Ltd. In addition, gold, silver, and bronze medals will be awarded to successful riders. Entries close September 13th, and should be made to the secretary, Mr. B. C. Otley, 115, Colmore Row, Birmingham.

B.M.C.R.C. Fixtures.

On September 13th the B.M.C.R.C. holds a meeting confined to members. Eight events will be decided. The racing commences at 11 a.m., and the last event is due for decision at 5 p.m. Entries close Tuesday morning, Sept. 9th. Two one hour races are to be held, the Junior for teams of three machines of any one make not exceeding 350 c.c., and the Senior for teams of three machines of any one make not exceeding 1,000 c.c. Gold, silver, and bronze medals will be awarded in each class of each race and in the team races to each member of the winning teams. Members should at once correspond with other likely members to form a team and should state their partners on their entry forms.

Essex M.C.C. twenty-four hours Woodford to York and back ride. The 8 h.p. Williamson sidecar driven by V. Garland coming up the hill near Grantham.

A.C.U. SIX DAYS TRIALS.

Revised List of Marks and Awards.

SEVERAL alterations have been made in the marking, and, consequently, the awards in the Six Days Trials results. These have been due to the consideration of various protests, and to the fact that the firm of map publishers who measured the route were found to have made an error of four miles in the course followed on the Friday afternoon. C. R. Collier, who was down as having lost twenty marks, was misdirected at the foot of Kiln Park Brow, and did not protest at once. When he did eventually call the attention of the officials to the error, he was awarded a gold medal, and was found to have made the best performance in the sidecar class, thereby winning the Wheatley Cup.

The following riders have had their marks, etc., corrected as hereunder:

Rider and Machine.	Fig. of Merit for Whole Trial.	Total Marks, including Bonus.	Marks Lost.	Nett Marks Obtained.	Award.
DIVISION I.—CLASS B: 350 c.c.					
J. B. Sproston (2¾ Sunbeam)	102.04	99.4	6	93.4	Gold medal
T. C. de la Hay (2¾ Sunbeam)	142.55	104	0	100	Gold medal
H. Newey (2½ Levis)	105.66	101.96	18	83.96	Silver medal
DIVISION I.—CLASS C: 500 c.c.					
J. H. Kerr (3½ N.S.U.)	99.28	99.2	101	0	Bronze medal
A. E. Catt (3½ Triumph)	100.26	99.4	91	8.4	Bronze medal
F. W. Applebee, sen. (3½ B. S. A.)	133.9	102	69	33	Bronze medal
P. Shaw (3½ P. & M.)	97.18	92.18	1	91.18	Gold medal
W. H. Longton (3½ Alldays)	115.37	101	2	99	Gold medal
K. A. Macdonald (3½ Singer)	102.74	98.4	40	58.4	Bronze medal
C. Lester (3½ P. & M.)	116.27	100	4	96	Gold medal
DIVISION I.—CLASS D: 750 c.c.					
J. A. Neumann (5-6 Rudge)	119.48	102	81	21	Bronze medal
F. H. May (5-6 A.J.S.)	97.7	99.2	28	71.2	Silver medal
G. W. Braithwaite (5-6 Rudge)	129.82	100	10	90	Gold medal
G. Hunt (5-6 Campion)	139.6	100	21	79	Silver medal
J. Richard (4½ Sun-Precision)	114.63	102	19	83	Silver medal
J. D. Drysdale (5-6 Hazlewood)	110.1	102	4	98	Silver medal
DIVISION I.—CLASS E: 1,000 c.c.					
J. R. Alexander, jun. (7 Indian)	140.56	104	10	94	Gold medal
J. F. Morrison (5-6 Bat)	99.73	100	38	62	Bronze medal
DIVISION II.—CLASS H—SIDECARS: 750 c.c.					
G. Freeman (5-6 Clyno)	119.39	103	5	98	Gold medal
G. Nott (5-6 Clyno)	114.05	104	34	70	Silver medal
DIVISION II.—CLASS I: 1000 cc.					
C. R. Collier (7-8 Matchless)	141.11	104	4	100	Gold medal
DIVISION III.—CLASS K—CYCLE CARS.					
E. B. Slater (8 J.B.S.)	115.89	95	17	78	Silver medal

TEAM PRIZES (CLUBS).

1. Westmorland M.C.C. (231 marks).—G. W. Braithwaite (5-6 Rudge), H. Gibson (3½ Bradbury sc.), and W. Westwood (3½ Triumph).

2. Cumberland M.C.C. (270.8 marks).—W. B. Little (3½ Premier), T. B. Westmorland (3½ Premier), and R. Drinkhall (4½ Quadrant).

3. Essex Motor Club (267 marks).—G. T. Gray (5-6 Rudge), H. Gibson (3½ Bradbury sc.), and B. A. Hill (7 Indian).

TEAM PRIZES (TRADE).

1. Components, Ltd. (Ariel) (296 marks).—A. C. F. Andrews, F. C. North, and L. Newey.

2. Messrs. Phelon and Moore (P. and M.) (290 marks).—W. J. M. Sproulle, W. C. Drake, and P. Shaw.

3. The Hendee Manufacturing Co. (Indian) (284 marks).—E. A. Colliver, B. A. Hill, and J. R. Alexander, jun.

WHEATLEY CUP.

C. R. Collier (7-8 Matchless and sidecar).

A LETTER FROM THE A.C.U. SECRETARY.

Sir,—The amount of notice that has been taken, particularly in the general press, of the behaviour of certain competitors in the recent Six Days Trial and the gross exaggeration of the difficulties of the course will, I am afraid, tend to obscure the valuable object lessons that both the public and the trade may learn from this trial.

I trust, therefore, that you will give this letter the same publicity, not because it is in any sense an official explanation or statement, but because I am personally responsible for selecting most of the route, and by reason of my position should be able to demonstrate the value of the trial more authoritatively than certain misinformed journalists or disappointed competitors.

I need hardly labour the principle that the Six Days Trials have from their commencement in 1903 been organised with the sole object of encouraging the use of the motor cycle. This encouragement has been effected by demonstrating to the public how successfully the motor cycles entered have met the conditions that year by year have been made more difficult, and simultaneously by providing the manufacturer with a measure of the factor of reliability of his particular make. As machines have improved so have the regulations become more stringent, until a point was reached at which the personal element of the skill and good luck of the rider was of equal importance to the excellence of his mount.

Recognising this fact, it was obvious to the Competitions Committee of this Union that, if the trial was to continue its useful work, the personal element of luck must be discounted, hence the paragraph in the General Conditions to the effect that hills with an abnormal surface, that were dangerous, or too narrow, would be excluded. The Union assumed that the most skilful of this country's riders would enter, and, that they might do justice to their mounts, set them the most difficult course they could find in the district chosen, drawing the line at hills on which, given a suitable machine, it is more a question of luck than skill whether one

climbs it or not. I maintain that in the whole course of the trial there was no hill that a skilful driver should fail on, unless on account of some fault in his machine, or through being baulked by other competitors. When surveying the route a number of hills were visited (and most of them climbed) that were ruled out as, for the reasons above stated, they were considered abnormal. Honister Pass, the road over Bootle Fell, Bleatarn, of last autumn one day trial memory, a hill to the immediate west and parallel to Peat Hill, an extraordinary acclivity connecting this hill with the top of Peat Hill, and the hill leading south out of the village of Dent were amongst these on which the surface was considered abnormal, and on which a climb was considered to be largely a question of luck.

A considerable part of the trial was over very rough surfaces, particularly in Yorkshire, but such surfaces are the normal ones for nearly all secondary roads in that district. The drought had made them very loose, and consequently uncomfortable to drive over, though, personally, I should prefer such roads to many suburban ones I know of, and I am sure the latter stress wheels and frames more than any surface traversed in the trial, not excepting the gulleys on Crossdale and Buttermere Hause. The Union has been criticised for including watersplashes of two feet in depth (one paper stated three feet!). The deepest watersplash crossed in the trial had 8in. of water flowing over it on the day in question. Fords of this depth are met with all over England, and, in my opinion, the modern motor cycle should, and can, be driven through such splashes without difficulty. The remaining bone of contention was the scheduled speed of 20 m.p.h. To average 20 m.p.h. over many parts of the course needed a generous throttle opening and frequent application of brakes, and, consequently, as was intended, *cut down the time for adjustments and engine cooling to a minimum.* An inspection of the timekeepers' sheets shows, however, that the majority of riders drove extraordinarily closely to the schedule, and that those who were late had usually failed in other directions. Moreover, it appears to have been overlooked that on certain difficult parts of the trial the speed was reduced to 15 m.p.h., and that before the stewards (on the plea of personal danger) increased the permissible margin of error, it was possible to have driven for from eight to fifteen miles at a stretch at 5 m.p.h. less than the set speed without incurring any penalty.

I would suggest that it was simply because a number of competitors were unused to the undoubtedly difficult conditions that they found Tuesday's route so arduous. Personally, I consider Tuesday's run one of the easiest of the five, but then I surveyed it last of all, and had, perhaps, lost my sense of proportion! The fact that the driving of the competitors was much improved towards the end of the week, and that the two local club teams gained respectively first and second places, appears to bear out my contention that it was more the experience of the driver at fault than any unfair condition for the machine, in support of which is the additional fact that the 10.4 h.p. Grégoire car which preceded the competitors covered the whole of Tuesday's run without difficulty, and in spite of numerous stops to put up arrows, etc., made up time on schedule.

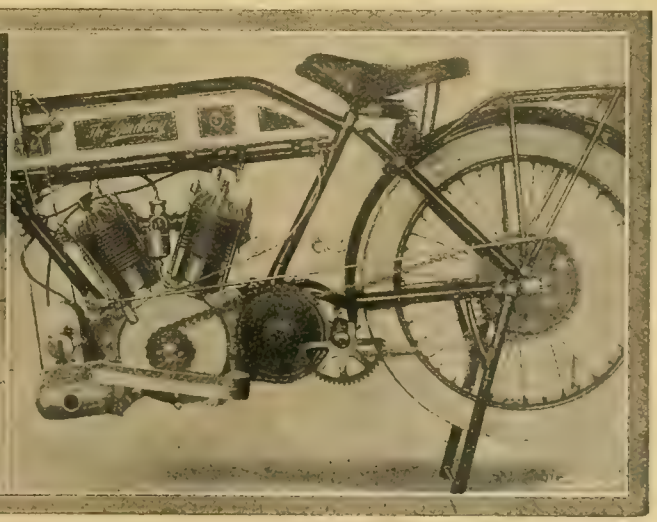
The value of the flexibility, acceleration, and speed tests has been somewhat overshadowed by the more sensational features of the trial, but it should be remembered that it was just the severity of the course as a whole that rendered these particular tests so interesting and instructive. These subsidiary tests are also valuable in that they furnish a satisfactory means of finding a winner from amongst the large percentage of competitors that gained full marks. The percentage of medal winners is my concluding argument, and I contend that these figures are a magnificent tribute to the reliability of motor cycles. Out of 161 starters 51 have obtained gold medals, 22 silver, and 26 bronze medals. These results prove conclusively, to my mind, the value of the trial; my only regret is that the sportsmanship of a minority of the drivers has not been displayed to the same advantage.

T. W. LOUGHBOROUGH.

A NEW BRADBURY TWIN-CYLINDER MODEL.

WHISPERS of a more powerful Bradbury model than the 3½ h.p. single-cylinder have, for some time, been heard in Oldham, and now it has been decided to market for 1914 a twin-cylinder three-speed motor cycle of 750 c.c. The cylinders are placed on the crank case at 50%, and are offset to secure larger bearings for the connecting rod big ends. The transmission is by Hans Renold chains throughout, which, in the marketed product, will be totally enclosed, although our photographs show the drive exposed. The makers have evidently been largely influenced by the admirable A.J.S. design, both in the engine and the general lay out of the machine. The engine is fitted with detachable cylinder heads, held down by long bolts to the crank case. Large diameter side-by-side valves are fitted. The gear box is also reminiscent of the A.J.S. gear, and gives three speeds—the standard ratios afforded being 4½, 7½, and 13¼ to 1, very well proportioned ratios, in our opinion. A clutch with cork inserts should provide a gentle and progressive take up, and such clutches have an almost unlimited life and will stand a good deal of abuse from the novice without complaining. A large internal expanding metal-to-metal foot-operated brake is fitted to the rear wheel. Other details are a Best and Lloyd drip feed lubricator, a very large petrol tank, kick starter, dropped frame, and a very large silencer, under the magneto in front of the engine.

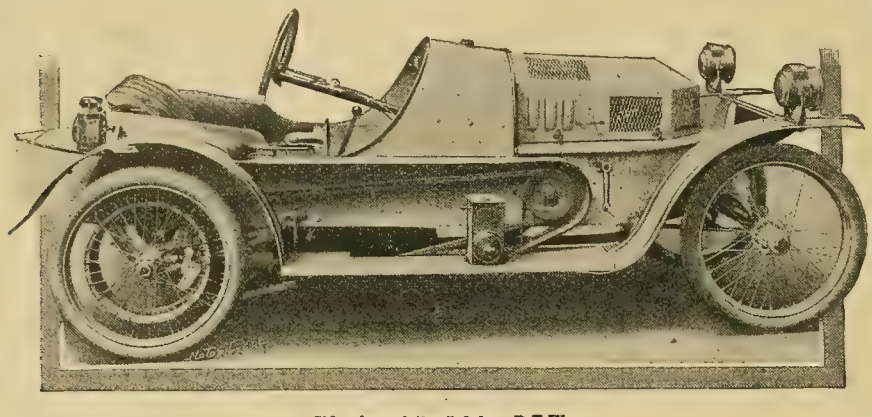
Hugh Gibson and J. Eastwood on a thousand miles test of the new twin Bradbury.



The Bradbury 7-8 h.p. twin-cylinder engine showing chain drive, with covers removed, three-speed counter-shaft gear and kick starter.

The Latest Type D.E.W. Cycle Car.

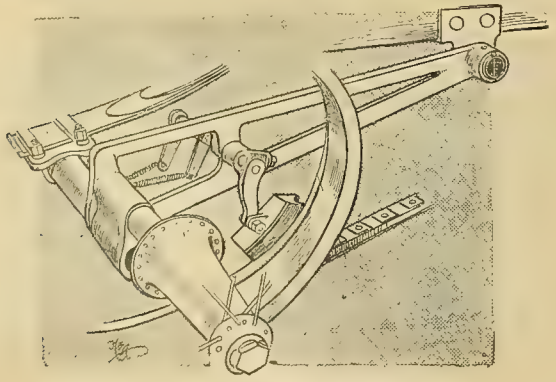
IN previous issues of *The Motor Cycle* we have given details of the early models of the D.E.W. cycle car, manufactured by the Dew Engineering Co., Eynsford, Kent. The model with which we are about to deal is a very great improvement upon anything yet turned out by Mr. Dew, and a company has now been formed, works have been installed, and the vehicle is properly on the market, we may therefore expect to see it in competitions before very long.



Side view of the 5-6 h.p. D.E.W.

The framework, consisting of the best seasoned ash members, which incorporates body as well, remains unaltered, but a 5-6 h.p. twin-cylinder Precision engine 76 × 85 mm., is now fitted. This engine is carried on a crossbar at its rearward end, and fitted in front to a bracket attached to the foremost portions of the frame. It is held by bolts passing through slotted holes in the brackets. On the front of the forward bracket is a single bolt, which, when the holding down bolts are slackened, if tightened up, draws the whole of the power unit gradually forward in a straight line, thus enabling the driving chains to be adjusted. A similar form of adjustment is used for the magneto chain.

The carburetter is the well-known Amac, and a Bosch magneto is fitted. The starting handle is fixed to a separate shaft, connected to the engine shaft by a chain and a pair of chain wheels, the one on the engine shaft being provided with a free engine clutch, by means of which the engine can be started.



Radius rods at the rear of the D.E.W. cycle car.

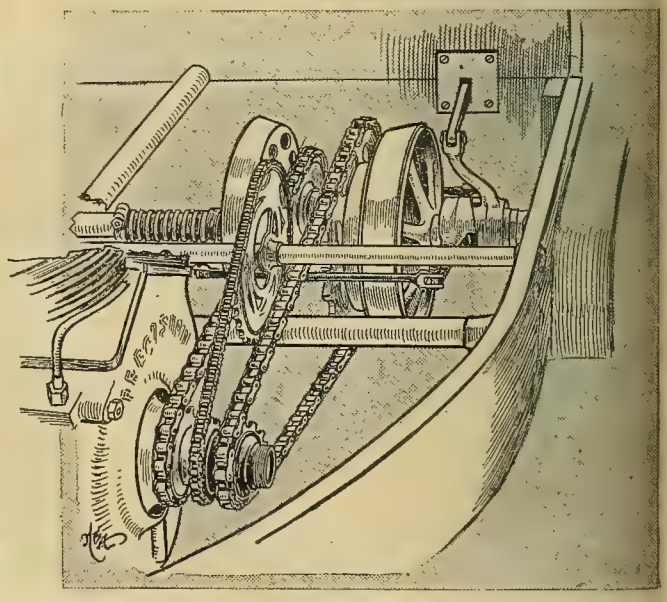
The two-speed gear is an innovation on the D.E.W. There are two chains and two friction clutches. The clutches run in double ball bearings, which also take the thrust. The gear control is by means of a pedal, which in its normal position gives the neutral. If pressed down, the low gear clutch is engaged, but if, after going into neutral, the pedal is kicked up, the high speed gear is engaged. The high gear is kept in position by means of a powerful spring, the low gear clutch being operated by means of inclined planes. On each end of the counter-shaft are mounted Skefko ball bearings, and on the end of the gearshaft, opposite the change-speed mechanism, the foot brake drum is carried.

The rear of the vehicle is sprung on cantilever springs, and the front axle is stayed by radius rods running to the first cross member of the chassis.

The steering is direct, and the wheel consists of special half wheel of large dimensions, allowing access to the body, and although the steering is direct it enables the vehicle to be steered with the greatest ease.

We drove the vehicle about six or seven miles, and were certainly impressed by the way in which it ran. It took all hills with the greatest ease, is controllable, and steered very well indeed. It is, in fact, a handy little vehicle.

A bonnet is fitted over the engine, and is arranged with louvres and wire-covered holes, so that plenty of air reaches the motor for cooling purposes. Large mudguards of the car type are fitted throughout, and a substantial guard covers each belt.



Details of the transmission, clutch and gearing of the latest model D.E.W. cycle car.

Streatham and District M.C.C. Open Hill-climb.

THE annual open hill-climb promoted by the above club took place on Saturday last on Up-Park Hill, near South Harting, Sussex. Up-Park Hill is on the right-hand fork at the foot of Telegraph Hill, which is generally used for hill-climbs. The surface of Telegraph Hill was somewhat greasy, and the officials did not consider it to be sufficiently safe for this competition. Up-Park Hill is practically straight, has a couple of easy bends, and a very fair surface. The timed section was one-third of a mile in length.

The weather was beautifully fine but rather close. Just before 3 p.m., when everything was ready for the start, a steam tractor drawing a trailer heavily loaded with gravel started up the hill. Olsson, Wilberforce, Axford, and a number of others jumped on board, evidently with a view to having a good look at the course with the minimum amount of trouble. All went well till the steepest portion near the crest (about 1 in 6) was reached, when the wheels of the tractor refused to grip, and the whole concern came to a standstill. Further efforts to restart made the tractor plough furrows in the road surface, so the only thing to be done was to use the winding gear. This was a long and tedious affair, and, though the men in charge worked with a will, the start of the competition was delayed nearly threequarters of an hour.

This was very hard luck on the organisers, who had really arranged things well and had everything ready for a punctual start. An excellent entry had been received, and there were ten classes. Each of these was divided into two sub-classes—"expert" and "general," the names of the experts being printed in italics. The results of Classes III., V., VI., and VII. were worked out on time, while formulæ were used for the others. The formula for Classes I., II., VIII., and IX. was that compiled by *The Motor Cycle*, $\frac{W}{C \times T^2}$, while that for Class X. was the A.C.U. formula, $\frac{W}{C \times T}$. In each class W = total weight of machine and rider, C = capacity in cubic centimetres, T = time in seconds. Class I. was for touring machines not exceeding 350 c.c. No machine was taken as weighing more than 140 lbs. for the purpose of obtaining the results on No. 1 formula, which were as follows:

GENERAL CLASS.

		Bore and stroke.	Fig. of merit.
1	M. Anderson (2¾ Humber)	60.75 × 60	9,515
2.	J. C. Bateson (2¾ Douglas)	60.5 × 60	9,455
3.	H. A. Fordham (2¾ Douglas)	60.5 × 60	8,857

In this class the winner cut out before crossing the finishing tape.

In Class II., for touring machines between 400 c.c. and 500 c.c., and in which no machine was taken as weighing more than 200 lbs., for the purpose of obtaining results on formula, J. Cocker (3½ Singer) made a magnificent climb and had a walk over in the expert class. The results in the general class were as follows:

		Bore and stroke.	Fig. of merit.
1.	S. R. Axford (3½ Martin)	85 × 88	9.183
2.	H. H. Barrs (3½ Triumph)	85 × 88	8.555
3.	T. Meeten (3½ Rudge)	85 × 88	8,455

Class III. was for similar machines, but the results were worked out on time. Results:

EXPERT CLASS.

		Bore and stroke.	Time.
1	J. Cocker (3½ Singer)	85 × 88	24⅖s.
2.	S. T. Tessier (3½ Bat)	90 × 77.5	25⅘s.

GENERAL CLASS.

		Bore and stroke.	Time.
1.	F. Lamb (3½ Premier) / R. L. Keller (3½ Triumph)	85 × 88	27s.
2.	C. Pattison (3½ Rudge)	85 × 88	28s.
3.	T. Meeten (3½ Rudge)	85 × 88	23⅕s.

Class IV. was for touring machines between 500 and 1,000 c.c. No machine in this class was taken as weighing more than 250 lbs. for the purpose of obtaining results on formula.

		Bore and stroke.
1.	G. Griffith (7 Zenith)	90 × 77½

Griffith in this, and in other classes in which he competed, made quite a sensational climb, covering the measured distance in 23⅘s.

Class V. was for any machine up to 350 c.c. Results on time:

EXPERT CLASS.

		Bore and stroke.	Time.
1.	J. P. le Grand (2½ Singer)	69 × 93	27⅕s.
2.	W. F. Newsome (2¾ Douglas)	60.5 × 60	31s.
3.	C. Williams (2¾ A.J.S.)	74 × 81	33⅖s.

GENERAL CLASS.

1.	W. A. Jacobs (2½ Singer)	69 × 93	29⅕s.
2.	M. Anderson (2¾ Humber)	60.75 × 60	29⅖s.
3.	H. A. Fordham (2¾ Douglas)	60.5 × 60	31⅖s.

Fordham wobbled somewhat badly half-way up the hill, but recovered himself.

Class VI. was for any machine with an engine not exceeding 500 c.c. Results on time:

EXPERT CLASS.

		Bore and stroke.	Time.
1.	J. Cocker (3½ Singer)	85 × 88	24⅖s.
2.	S. T. Tessier (3½ Bat)	90 × 77.5	26s.
3.	W. F. Newsome (3½ Triumph)	85 × 88	25⅕s.

General view at the starting line of the Streatham and District M.C.C. Hill-climb, Up-Park Hill, near Petersfield, showing competitors' machines lined up by the roadside.

Streatham and District M.C.C. Open Hill-climb.

GENERAL CLASS.

		Bore and stroke.	Time.
1.	F. Lamb (3½ Premier)	85×88 ...	27s.
2.	R. L. Keller (3½ Triumph) ...	85×88 ...	27⅘s.
3.	W. D. Hawkes (3½ Ixion) ...	85×88 ...	30s.
	S. R. Axford (3½ Martin) ...	85×88 ...	30s.

Olsson's Ariel in this class appeared to be overgeared.

Class VII. for any machine up to 1,000 c.c. Results on time :

EXPERT CLASS.

		Bore and stroke.	Time.
1.	G. Griffith (two-cyl. 7 Zenith)	90×77.5 ...	22⅘s.
2.	J. Cocker (3½ Singer)	85×88 ...	24⅘s.

The steam tractor which delayed the start being assisted by a little extra power.

GENERAL CLASS.

		Bore and stroke.	Time.
1.	E. L. Buchanan (two-cyl. 3½ Imperial)	70×64.5	28s.
2.	S. R. Axford (3½ Martin) ...	85×88 ...	31⅖s.
3.	F. W. Carryer (3½ Regal-Green)	85×88 ...	33⅖s.

Class IX. for cycle cars up to 1,100 c.c., results on No. 1 formula, was run off next. Each entrant ran in both the expert and the general classes. Nash and Bartlett both made good ascents on each occasion. Martin travelled slowly owing to having recently fitted two new pistons which were not run in, while Halsall suffered from misfiring. Results :

EXPERT CLASS.

		Fig. of merit.
1.	A. G. F. Nash (G.N.)	6473
2.	L. Martin (Singer)	4966
3.	Bartlett (Morgan)	3983

GENERAL CLASS.

		Fig. of merit.
1.	A. G. F. Nash (G.N.)	5663
2.	— Bartlett (Morgan)	5014
3.	L. Martin (Singer)	4927

Class X. was for variably geared touring machines with engines up to 1,000 c.c. Results on formula No. 2 :

EXPERT CLASS.

		Fig. of merit.
1.	C. Williams (A.J.S.)	4506
2.	G. Griffith (Zenith)	2205

GENERAL CLASS.

		Fig. of merit.
1.	C. Williams (A.J.S.)	3996
2.	J. C. Bateson (Douglas)	3848
3.	T. Meeten (Rudge)	3789

The last event to be run off was Class VIII. for sidecar combinations. The weight of the passenger had to be not less than ten stones. Results on formula No. 1 :

EXPERT CLASS.

1. G. Griffith (Zenith sc.).

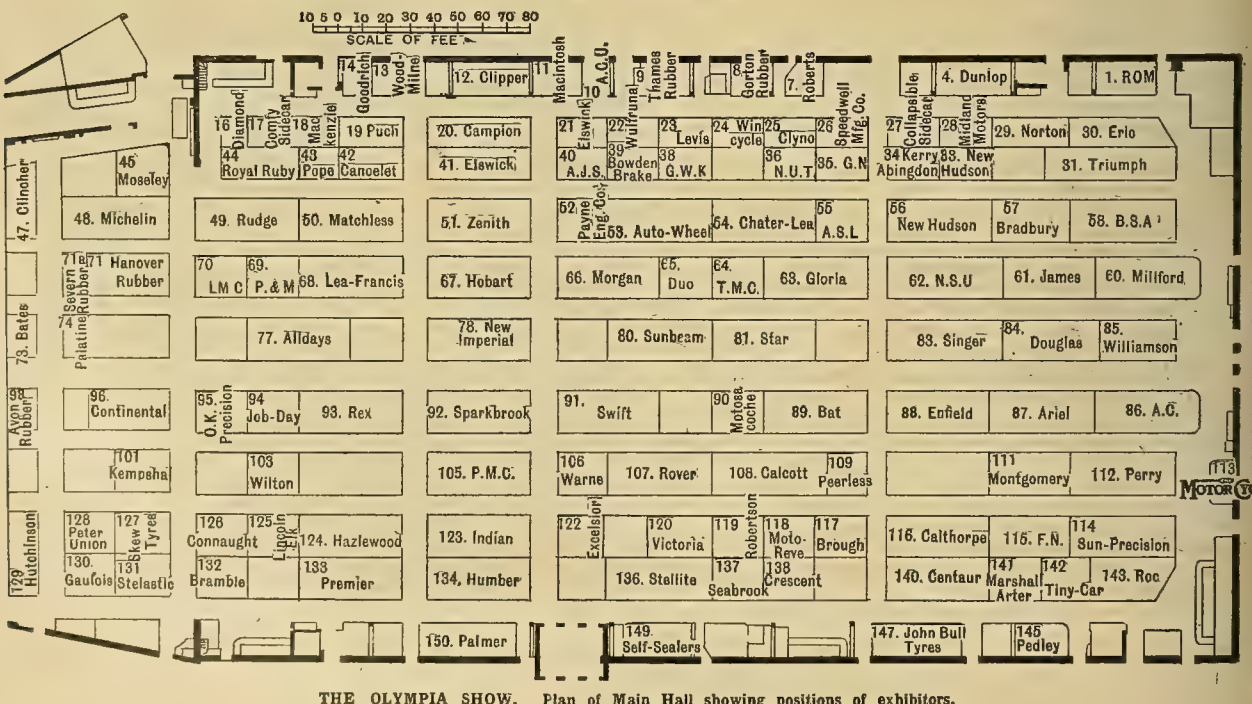
GENERAL CLASS.

1. C. Pattison (Rudge sc.).

Griffith came up at a tremendous pace, and took the corner at the bottom in magnificent style.

J. C. Bateson (Douglas) was the winner of the Pillett Cup for best private owner's performance as a member of the Streatham Club, and G. Griffith made fastest time.

The timekeepers were Messrs. T. D. Dutton and A. J. Wakeford. The formula results were worked out by Mr. F. L. Bassett, the clerk of the course and secretary.

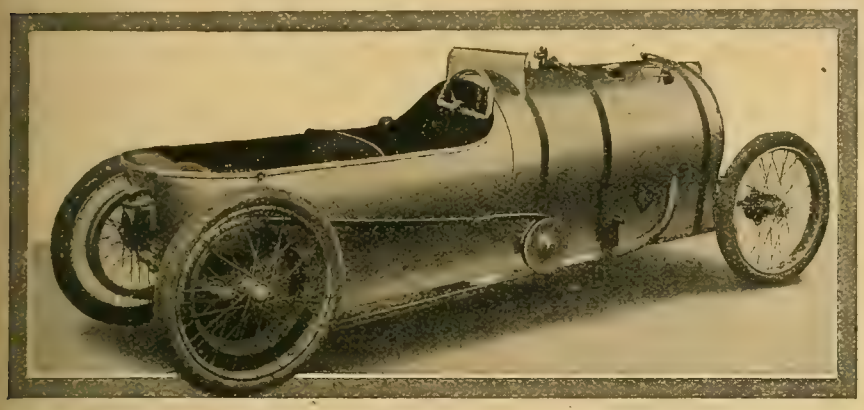


THE OLYMPIA SHOW. Plan of Main Hall showing positions of exhibitors.

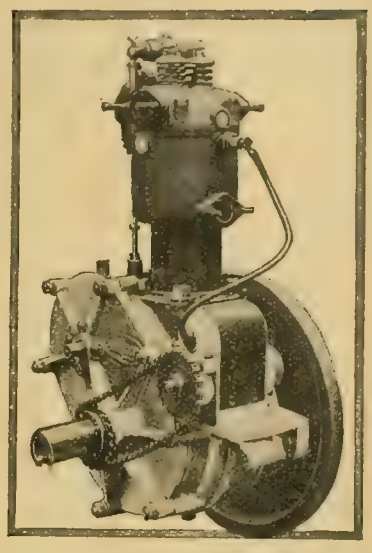
A Water-cooled Cycle Car Engine.

MR. J. F. BUCKINGHAM, of Spon St., Coventry has just added a new engine to his previous models. The engine is exactly the same as those fitted to the Chota cycle cars, but has a water-cooled cylinder and head. The head is made separately from the cylinder casting, and is held down by studs, the overhead valve gear is retained, also, of course, the Buckingham patent valve, which is designed to prevent the head falling into the cylinder in case of breakage. The water spaces are ample, and the outlet is arranged to permit of thermo-syphon cooling.

We hear that on test the engine is giving most satisfactory results and produces great power. We examined all parts of the engine, and it struck us as a very sound, straightforward piece of work. We hear that a complete cycle car is to be marketed by the firm under the name of the Buckingham, which will be similar to the Chota in all respects.



A racy cycle car fitted with a Buckingham engine and special tandem seated body.



The new Buckingham engine showing water joints, overhead valve gear, etc.

(1) C. T. Newsome (Rover). (2) J. D. Morrison (Bat-Jap) passing less fortunate competitors on Gastack Beck. (3) H. G. Dixon ascending Greyhound Hill, Kendal, on one of the new 3½ h.p. twin James machines.

THE MEMORABLE A.C.U. SIX DAYS TRIALS.

AN EXPERT-BARRED OPEN HILL-CLIMB.

We often hear nowadays that the genuine amateur has very little chance of distinguishing himself in hill-climbs when pitted against the factory expert, and if he has a class to himself his deeds are overshadowed by the more dashing performances of the professional. But the Mersey Motor Club is going to give the amateur an afternoon all to himself on September 13th, when it is holding an expert-barred open hill-climb at Pen-y-ball Hill, Holywell, North Wales, at 2 p.m.

The following classes on both time and handicap will be decided, and a competitor entering for any handicap class must enter for the same class on time.

1. Machines up to 350 c.c.
2. Machines between 351-500 c.c.
3. Machines between 501-750 c.c.
4. Machines between 751-1,000 c.c.
5. Passenger machines up to 500 c.c.
6. Passenger machines between 501-750 c.c.
7. Passenger machines between 751-1,100 c.c.

Handsome prizes will be awarded, and it is to be hoped that amateur riders will seize the opportunity of showing their prowess now the chance is afforded them of so doing. Full particulars may be obtained from the hon. sec., Mr. S. W. Carty, 5, Redcross Street, Liverpool.

STOCKPORT AND DISTRICT M.C.C. FIRST OPEN HILL CLIMB.

THE first open hill climb took place on Saturday last at Axe Edge, a 1 in 8 gradient on a broad smooth road with only two bends, and one and a quarter miles in length. F. S. Whitworth (Douglas) went off first, but only got half way, as his timing gear stripped; this took a lot of the interest out of the lightweight classes, as W. Heaton (A.J.S.) had it all his own way in these classes and won all three. H. Scale, riding a machine of his own make, with 3½ h.p. overhead J.A.P. engine, also won three classes.

Ten classes were run off, all on time, and the climb was over by 5.30 p.m. Brewin (8 Zenith) had a burst front tyre at speed in the 1,000 c.c. class and fell, unfortunately breaking his collar bone; in the 350 c.c. class W. Bently, a club member, also came off, and cut his head badly. These two unfortunates were both left at the local cottage hospital. Results:

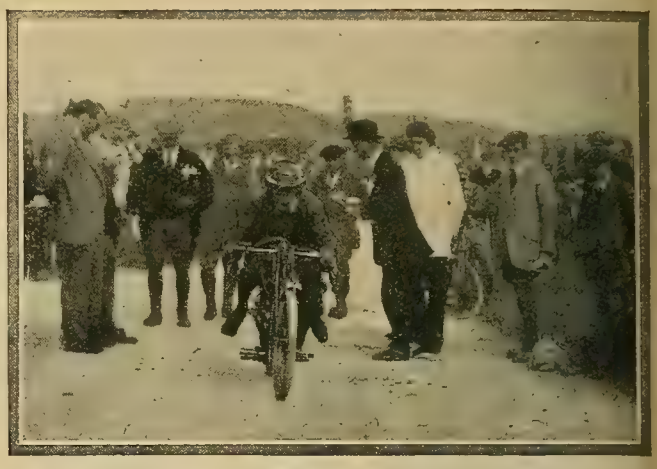
CLASS 1.—Touring machines up to 350 c.c.
1. W. Heaton (A.J.S.) ... ... 1m. 17⅗s.
2. J. Collier (Douglas) ... ... 1m. 37s.

CLASS 2.—Touring machines up to 600 c.c.
1. R. M. Davey (3½ Norton) ... ... 1m. 30s.
2. S. Phillipps (3½ Triumph) ... ... 1m. 55s.

CLASS 3.—Racing machines up to 350 c.c.
1. W. Heaton (2¾ A.J.S.) ... ... 1m. 26⅗s.
2. H. J. Scale (2½ Veloce) ... ... 2m. 33⅕s.

CLASS 4.—Racing machines up to 500 c.c.
1. H. J. Scale (3½ Scale-Jap) ... ... 1m. 19⅕s.
2. J. Smith (3½ Triumph) ... ... 1m. 25⅕s.

CLASS 5.—Racing machines up to 750 c.c.
1. H. J. Scale (3½ Scale-Jap) ... ... 1m. 15⅕s.
2. R. Birkett (3½ Triumph) ... ... 1m. 21s.



Scene at the Stockport M.C.C. Hill-climb, F. S. Whitworth (Douglas) starting.

CLASS 6.—Racing machines up to 1,000 c.c.
1. J. Gookson (8 Matchless) ... ... 1m. 10s.
2. H. Marsden (8 Matchless) ... ... 1m. 11⅕s.

CLASS 7.—T.T. machines up to 350 c.c.
1. W. Heaton (A.J.S.) ... ... 1m. 25s.
2. E. Woods (Levis) ... ... 1m. 51s.

CLASS 8.—T.T. machines up to 500 c.c.
1. H. J. Scale (3½ Scale-Jap) ... ... 1m. 15s.
2. W. Heaton (2¾ A.J.S.) ... ... 1m. 22⅖s.

CLASS 10.—Racing passenger machines up to 600 c.c.
1. H. Bottoms (3½ Triumph) ... ... 1m. 47⅕s.
2. J. Smith (3½ Triumph) ... ... 1m. 50⅗s.

STOCKPORT AND DISTRICT M.C.C. HILL-CLIMB.

(1) W. Heaton (2¾ h.p. A.J.S.) who won three events.

(2) H. J. Scale (3½ h.p. Scale-Jap), who also secured three firsts.

RACING AT PORTMARNOCK.

The Dublin and District Motor Cycle Club held a race meeting at Portmarnock on Saturday. The chief event was a hundred mile handicap, and there were two scratch races for light and medium powered machines respectively. In view of the fatalities that took place at the last meeting, special precautions were taken to avoid any accidents, and these were in every way effective. The sands were not in their usual good condition, and as numerous water courses had to be crossed during the races belt slipping and ignition troubles were numerous. Indeed, in the 100 miles race no competitor made a clean run. Results:

TWO MILES SCRATCH (350 C.C. MACHINES).

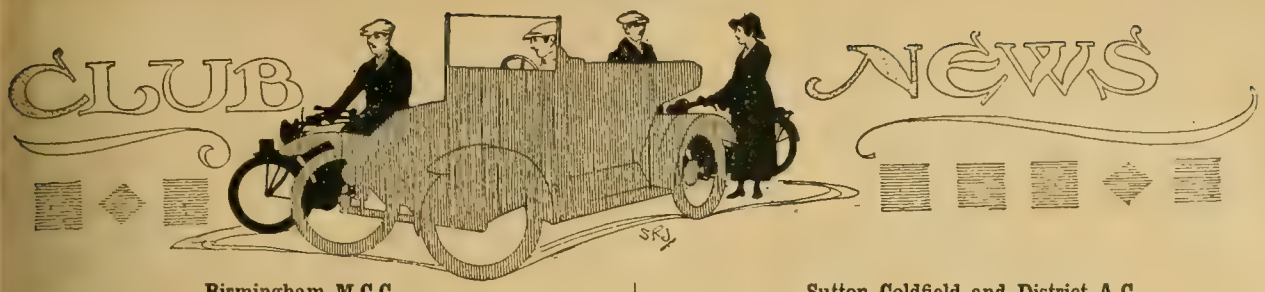
	Rider and machine.	m.	s.
1.	W. J. Towell (2¾ Douglas) ...	3	2⅖
2.	J. Healy (2¾ Sunbeam)	3	5

A very fine race, each of the men leading in turn.

TWO MILES SCRATCH (500 C.C. MACHINES).
1. C. B. Franklin (3½ Indian) 2 19⅘
2. F. J. Walker (3½ Rudge) 2 27

HUNDRED MILES HANDICAP C.C. UNLIMITED.

	Rider and machine.	H'cap.	h.	m.	s.
1.	C. B. Franklin (3½ Indian) ...	9m. ...	2	8	27
2.	W. H. Curtis (3½ Indian) ...	11½m. ...	2	11	30



Birmingham M.C.C.

Owing to the continued growth of the club, it has been found necessary to appoint Mr. B. C. Otley, 115, Colmore Row, Birmingham, as permanent secretary to the club, and all communications should in future be addressed to him.

Cumberland M.C.C.

The result of the hill-climb held at Greenhead has now been announced.

Singles.—1, E. F. Gilbanks (3½ Rover), 45⅖s.; 2, J. W. Moffat (3½ Singer), 48s.

Twins.—1, A. I. Moffat (5-6 Zenith), 43⅘s.; 2, P. N. Gilbanks (2¾ Douglas), 57s.

Nottingham and District M.C.C.

By the invitation of Lord Henry Bentinck a run was recently made to Underley Hall. The return journey was *viâ* Skipton and Harrogate.

Westmorland M.C.C.

A hill-climb was held on the 28th ult. at Underbarrow Scar, a few miles from Kendal. There were classes for lightweights, singles, and twins. The hill is a fairly long one, very steep in parts, and has several difficult corners. Results:

Lightweights.—1, R. M. Chaplow (2¾ Humber); 2, H. Jackson (2¾ Sunbeam).

Singles.—1, G. W. Braithwaite (3½ Zenith); 2, J. Braithwaite (3½ Braithwaite).

Twins.—1, A. I. Moffat (6 Zenith); 2, B. Jeffreys (8 Zenith).

The fastest time in the event was made by A. I. Moffat, who went up in 48⅗s.

Glasgow M.C.C.

The results of the recent 100 miles non-stop trial of the Glasgow M.C.C. are now to hand, being as follows: Special awards—Solo, R. G. McGibbon (3½ Edmund); passenger, T. S. V. Phillips (5-6 A.J.S. sc.) Gold medals.—W. Deans (3½ Ariel), W. Dickie (5-6 F.N.), W. B. Cramb (3½ Elswick), G. Taylor (3½ Rudge-Multi), R. Black (5-6 F.N.), A. D. Morrison (3½ Ariel), and W. Carlaw (6 Enfield sc.)

Sutton Coldfield and District A.C.

On October 3rd, an open motor cycle and sidecar reliability trial will be held for the Levis Cup, and cyclecars will compete for the P. J. Evans Cycle Car Trophy. Competing machines in the latter event must comply with the A.C.U. definitions. Both these trophies must be won three times in succession before becoming the absolute property of the winner. Full particulars may be obtained from Mr. F. W. Finnemore, 122, Colmore Row, Birmingham.

The Speed Trials at St. Andrews.

Chief interest in Scotland is at present centred in the championship meeting, to be held on the sands at St. Andrews on Saturday next. While naturally the minor classes will attract attention, the three championships for lightweights, medium weights, and heavy weights are the most coveted honours. Seventy-five riders have notified their intention of taking part. Apart from local experts, a few of the more notable exponents from other districts are competing, among others being Hugh Mason (2¾ N.U.T.), and E. W. Cheshire and S. Crawley, both on Triumphs. The Scottish Auto Cycle Union, which has charge of the event, is leaving no stone unturned to make it a huge success. The sands at the Fifeshire watering place are admirably adapted for a contest of this nature.

Members of Nottingham and District M.C.C. at Underley Hall, the Westmorland seat of Lord and Lady Henry Bentinck, who are seen in the centre at back of group. Lord Henry is the Nottingham club's president, and he invited the members to spend a week-end at Underly Hall.

FORTHCOMING OPEN EVENTS.

Liverpool A.C.C.

The Reliance Cup open trial will be held on the 28th inst. over a course in North Wales. Entry forms and particulars may be obtained from Mr. S. W. Phillpott, 1, Oakdale Road, Mossley Hill, Liverpool.

ANOTHER PUNCTURE SEALING COMPOUND.

We recently had an interesting demonstration of Filibuster, a tyre stopping liquid sold by Messrs. Stanley Feast and Co., at the premises of that firm in Steedman Street, Walworth Road, S.E. Filibuster is a white liquid, which is injected through the valve into the inner tube. When shaken up by the revolutions of the road wheel it will effectually seal up any puncture of reasonable size that may occur. In the demonstration, which was carried out on the tyres of a carrier tricycle, first of all a pin, then a bradawl, and later a 2in. nail, were driven through the cover into the tube. The result was an immediate air leak, but when the tyre was spun round the orifice automatically closed itself. To be effective a tube must, of course, be in its natural position inside the cover, as it must have some wall or hard substance against which to abut, otherwise the clogging action will not take place. A tube filled with Filibuster, for instance, will not be self-sealing if blown out and punctured when removed from the cover. The test was carried out satisfactorily.

Question & Replie

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply.

Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

A Tour to the West.

I propose going from Reading to Bude in North Devon, and am writing to ask you whether you could give me a favourable route. I have sketched the following route as far as Exeter. Can you suggest anything better? Reading, Newbury, Andover, Salisbury, Shaftesbury, Yeovil, Chard, Honiton, to Exeter. I am wondering how to get from Exeter to Okehampton and thence to Bude. Would Reading to Exeter be a fair day's run with three up and a large portmanteau on a 6 h.p. twin Enfield? —S.A.S.

It would be more direct if you went through Reading, Aldermaston, Kingsclere, to Whitchurch, and then by the route you have given. From Exeter to Okehampton it is better to go by Crediton and Bow than by the direct road, which is somewhat rough. Thence your road lies through Hatherley, Holsworthy, and Stretton to Bude. The total distance would be approximately 200 miles. Reading to Exeter would be a good day's run, but you could probably do it if you started early.

Water Cooling Difficulties.

I should much appreciate your advice on the following matters: My motor cycle is a 3¾ Green-Precision, water-cooled, which has been used only a few hundred miles solo. I find there is almost constantly a knocking noise, but I cannot trace it. This noise is very much like the knock of a lightweight, and it occurs on the level as well as up hills, but ceases when the magneto spark is retarded two-thirds. The top gear is 4¾ to 1. I am told that this noise is common in overhead valve engines, but it seems strange that it almost ceases and is very much less accentuated with a retarded spark. There is also something wrong with the cooling system. The water around the cylinder gets intensely hot, while that in the tank remains cold. The unions and pipes have been both properly examined, and there is no obstruction. When the water is very hot it spurts out of the small hole in the filling cap in short jets at long intervals, and the jacket is so hot that it is almost impossible to keep the hand upon it.—D.A.

It is very difficult with the information which you send us to diagnose the complaint from which your engine is suffering, but you have certainly been misinformed if you think that an overhead valve engine is more likely to knock under normal conditions than one fitted with side by side valves. The symptoms you mention rather tend to make us think that you are driving with the ignition too far advanced. The timing should be arranged as follows: Retard the ignition fully and see that the points of the contact breaker are separating at the moment when the piston reaches the top of the stroke. This is a good general rule for timing, though, as your engine is fitted with a higher compression than normal, it is possible that it will stand slightly more advance, say, 2 mm., before the piston reaches the top. With regard to the water-cooling system, as long as the temperature does not rise above 200° F. you have nothing to worry about. The water in the little tank will naturally remain cool, as this is not in circulation, and is merely used in these engines to keep up the supply through evaporation in the cylinders. Do not fill this little tank more than half full, and you will find that the spurting you complain of will cease.

Dumfries to London.

I would feel obliged if yo could let me know the best rout to take on my 3 h.p. Lincoln-El fixed engine motor cycle fro Dumfries to London, also statin how many miles the journey is, and th best places to stay the night? I a not a fast rider, so I think I ought t do the journey in two or three day I was thinking I would go to Bradfor but if you could give me the best an least hilly road from Dumfries to Lo don I would be very grateful.—G.W.

Your best route would be as follows Dumfries, Annan, Longtown, Brampto Alston, Middleton-in-Teesdale, to Scot Corner. The route from Longtown Scotch Corner is hilly, but, despite thi we strongly advise it. From Scot Corner go straight down Leeming La to Boroughbridge, then continue throu Wetherby, Aberford, Ferrybridge, Do caster, Retford, Tuxford, Newa Grantham, Stamford, Stilton, Eat Socon, Baldock, Stevenage, Hatfie Barnet, to London. After Scotch Corn there is no real hill on the rou This route is the very best, as it avoi all big towns. If you wish to through Bradford you must make

A.C.U. SIX DAYS' TRIALS.
J. A. Neumann (5-6 h.p. Rudge) in the waters plash on Bollihope Common above Stanhope.

Carlisle, and then go through Penrith, Kendal, Kirkby Lonsdale, Ingleton, Settle, Keighley, to Bradford. To avoid Leeds go back to Otley, joining the Great North Road just south of Wetherby. You could spend the first night at Bradford or Boroughbridge, according to which route you take, and the second night at Buckden.

Silencer Regulations.

I have just had the disagreeable experience of appearing in our local police court (Leamington Spa) to answer the charge of riding a motor cycle with the "silencer cut-out" open, or, in the words of the summons, as I "unlawfully did drive a motor car (motor bicycle) propelled by an internal combustion engine on a certain highway and did use on such motor car a device which allowed the exhaust gases from the engine of such motor car to escape into the atmosphere without first passing through a silencer expansion chamber or other contrivance suitable and sufficient for reducing as far as may reasonably be practical the noise which would otherwise be caused by the escape of the said gases contrary to the L.G.B. amending regulation, Art. 11 (7) of the 19th day of November, 1912, made in pursuance of the statute in such case provided." The policeman acknowledged that the machine was not noisy, but all the same I and five others were reprimanded by the Mayor and had to pay costs, in each case 4s. 6d. I contend that the fact of having a silencer and discharging the exhaust gases into same complies with the Act, and, if I am wrong, will you be good enough to correct me? Up to the present, I thought the Act was framed to stop those inconsiderate riders who ride with a direct cut-out on the exhaust pipe and progress like a Gatling or Maxim gun, and I did not take the silencer cut-out to be the one aimed at.—A. POTTERER.

We are under the impression that the usual standard type of motor cycle silencer, in which the gas is first passed through an expansion chamber, would comply with the Act, but if the cut-out on the silencer were open and the machine were making an undue noise, then we think you would be liable. If the policeman acknowledged in court that the machine was not noisy, we think you were unfairly convicted. The Act was certainly framed to stop riders of motor cycles from making an undue noise, and the working of the Act is rather vague. However, as we interpret it, provided the gas first passes through an expansion chamber before issuing into the air, and does not make an undue noise when the cut-out is open, riders cannot be summoned purely for the use of a cut-out. It is quite possible that in their endeavours to stamp out noisy machines, the Benches throughout the country will interpret the Act differently, and it behoves motor cyclists to render their machines as silent as possible, *i.e.*, to ride them with the cut-out closed when riding through towns or villages, and when meeting or overtaking horse traffic. We have obtained a legal opinion concerning the matter; this practically confirms what we have already written.

Ignition Troubles.

I have an old make Bat machine, 3 or 3½ h.p., accumulator ignition, two accumulators, about 15 amps. each. These, to me, are a continual source of anxiety, lest they should run out. And I do not seem to be able to get much above fifty miles out of each, when fully charged, so that a long journey is out of the question, as they take so long to recharge. I do not want to spend too much over the machine, as I am afraid that if I go to the expense of fixing a magneto, it might not increase the value of the machine to that extent when I want to part from it for a more up-to-date one. This is my first season at the game. Would you advise me to get a dry battery, if so what make? I am not riding every day, and I suppose that the dry batteries do not run down when not in use. I have an ordinary trembler coil in the box with the accumulators; should I have to get a special kind for the other? I fitted a switch, so that I make a practice of switching off the spark immediately I finish running. What mileage would I be likely to get out of a dry battery with my present coil? The engine is in good condition.—J.P.M.

It is rather difficult to know how to advise you. Of course, if you can buy a second-hand magneto at a cheap price it is well worth fitting to your machine provided you intend to keep it, but, of course, if you were selling it soon you would not recover the value of the magneto. A dry battery is perfectly satisfactory, but works with a plain make and break and not a trembler. Dry batteries last different distances. You might, perhaps, get 1,000 miles, perhaps not so much. They deteriorate all the time, but deterioration is slow with a good make. We think the best thing would be, if you can see your way to do so, to fit a magneto.

READER'S REPLY.

Fitting Nail Catchers.

I notice in *The Motor Cycle* of August 21st that "P.T." requires a reliable nail guard for his motor cycle. I can speak with great confidence of the merits of the Chemico nail guard. I have used one of these guards for over two years on my motor cycle, and, although I have done a large amount of riding, I have never once been detained by a single puncture. I feel, therefore, that I can recommend this article as being absolutely dependable. It is adjustable and easily fitted.—G. P. WILKS.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"S.F.B." (Purley) — 1913 two-stroke Levis.

"R.M.W." (Didsbury).—1912 Humber 2 h.p. single-speed for town use.

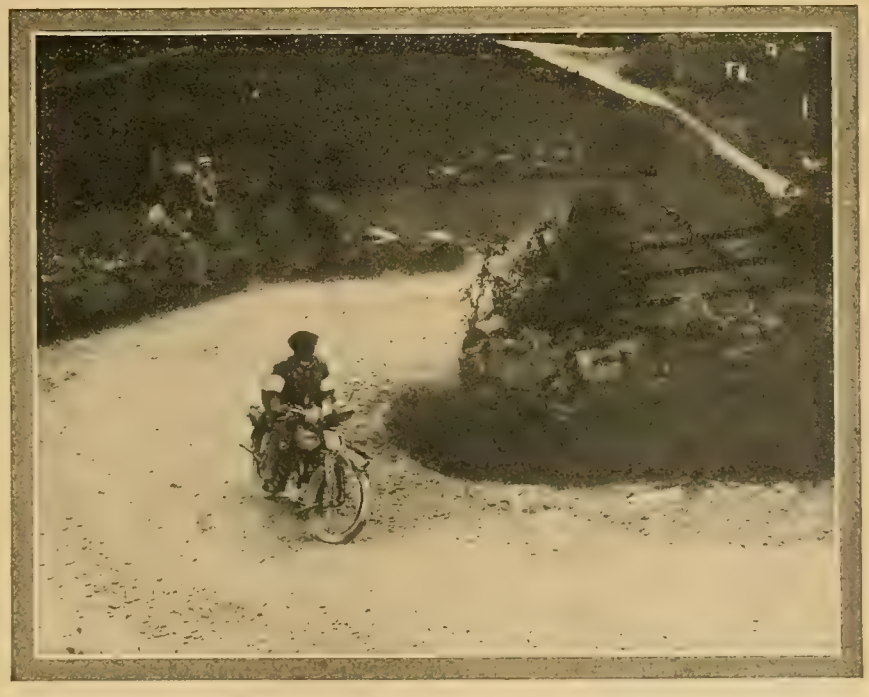
"H.L." (Newport, Mon.)—A.C. Sociable and Morgan runabout. Speed, reliability, consumption and comfort.

"N.S." (Coventry). — A.S.L.-Precision. Reliability and comfort of cushion seat, model 1913.

"H.R.H." (Birmingham).—Three-speed hubs and three-speed counter-shafts, chain and belt. Which preferable?

"W.A.G." (Coatbridge).—1913 Rover, 3½ h.p., with Armstrong Mark VI., or Sturmey-Archer gears. Reliability and petrol and oil consumption.

"W.H.B." (Watford).—Clyno and side-car. Hill-climbing, consumption, flexibility, and accessibility of engine. Also Kempshall tyres.



A.C.U. SIX DAYS' TRIALS.
L. Newey (3½ h.p. Ariel) rounding one of the corners on Silver Hill, near Keld included in a non-stop section.

Catalogues Received.

We have received a copy of the latest catalogue of Wulfruna motor cycles, which sets forth admirably the various points of this machine.

Chains for Passenger Machines.

Hans Renold, Ltd., Manchester, are bringing out a new ½in. pitch chain of 4,300 lbs. strength, which is specially made for transmissions on sidecars and cycle cars.

Business Announcement.

Mr. Harold Williamson, of the Harold Williamson Motor Co., is very shortly going out to Canada to open a motor business there. He has our best wishes for success in his new venture.

Druid's New Address.

We are informed by Messrs. A. Drew and Co., makers of the celebrated Druid front forks, that expansion of their business has necessitated the removal of the firm to larger premises, and that in future their address is Druid Works, 27-29, Leopold Street, Birmingham.

Autolettes Abroad.

The Enfield Autocar Company have lately shipped "Autolettes" to Penang, Singapore, Dunedin (N.Z.), Calcutta, Madras, Colombo, Adelaide (S.A.), as well as to several parts of the Continent.

Dutch Trial Tyre Successes.

In the Anglo-Dutch trial, four gold medals, seven silver medals, and four special awards were won by riders using Dunlop tyres or belts. The special awards included the Manufacturers' and Traders' Union trophy for the best performance by an English private owner, and the N.M.V. Plaque d'Honneur.

A Successful Concern.

We are informed by Bradbury and Co., Ltd., Oldham, that they have had a most successful financial year, the profits being £7,327 2s. 7d. The preference shares receive a dividend of ten per cent. and the ordinary shares five per cent., and £2,283 12s. 3d. is carried forward.

F.N. Improvements.

We are informed that the carburetter of the 2½ h.p. F.N. machine will, in future, be fitted with an auxiliary air valve similar to that on the 1913 5 h.p. four-cylinder model. Amongst other refinements on the latest 2½ h.p. F.N. is a tubular carrier, which pivots backwards with the rear mudguard when one nut is unscrewed. This enables the tyre to be got at readily.

Lubrication.

The makers of the B. and L. forced sight drip lubricator, Messrs. Best and Lloyd, Ltd., Cambray Works, Handsworth, Birmingham, inform us that their lubricator has been adopted as standard for 1914 by the Triumph Cycle Co., Ltd. This lubricator (which has been illustrated and described in these columns) consists of a pump and sight feed glass barrel. The pump is filled by hand and the oil automatically fed through the sight feed glass by the pressure of a coiled spring, which empties the pump gradually, according to the adjustment of a needle valve. A complete pumpful can also be given at any time by means of the hand pump without disturbing the automatic part of the sight feed drip.

SMALLETS

A Treatise on Chain Drive.

The booklet entitled "The Renold Roller Chain Tooth Form," by Mr. Hans Renold, and published by Hans Renold, Ltd., Brook Street, Manchester, is a very interesting publication, and is well worth a study by those interested in chain drive.

Hub Gears in the Six Days Trials.

Armstrong gears were very successful in the recent A.C.U. Six Days Trials at Carlisle. The winning Ariel team were so fitted this year, as was also the 3½ h.p. Premier, ridden by W. B. Little, one of the English team in the International competition incorporated in the Trials.

Satisfactory Belt Service.

The Midland Rubber Co., Ltd., Ryland Street, Birmingham, have long been famous for the excellence of their manufactures. Their rubber belts are admirable, and one of our contributors has just written us his experiences with one of these fitted to his 6 h.p. Zenith. He has now run 1,150 miles, almost all of which distance has been covered with a sidecar, and up to the present not the slightest trouble has been experienced with the belt. Furthermore, he has not even shortened it, and after such a test it speaks well for the excellent construction of these belts.

Victor Tyre's Showrooms.

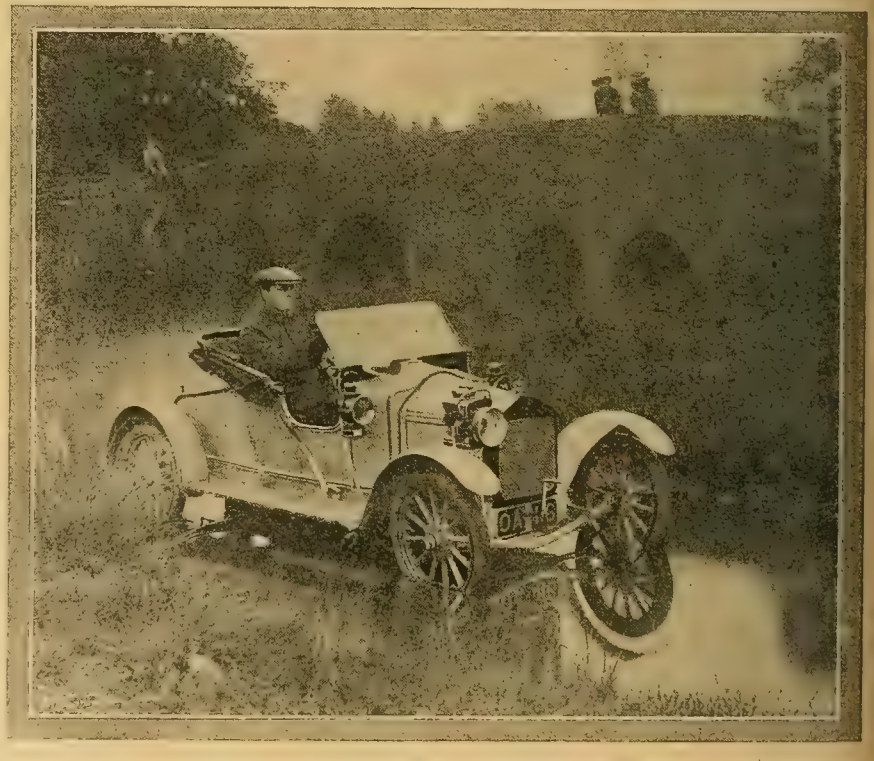
The Victor Tyre Co., Ltd., inform us that they have opened West End showrooms at 15, Carteret Street (near Buckingham Gate), Westminster, S.W., where all clerical business will in future be transacted, and where tyres will be fitted to customers' vehicles.

The Alpha London Agency.

Messrs. Sydney Westall and Co., Ltd., automobile engineers, 143-145, Great Portland Street, W., inform us that they have taken over the agency of the Alpha engine manufactured by Messrs. Johnson, Hurley and Martin, Ltd., of Coventry, which was described in our issue of the 14th August.

Rustproof Enamel.

Messrs. Pellolit, Ltd., 265, Strand, W.C., are responsible for the introduction of Pellolit. This is a sort of enamel which is applied to metals by means of the stoving process, which is perfectly proof against rust, does not chip, and, at the same time, possesses the excellent quality of being an insulator both against extremes of heat and cold, and also electricity. It is elastic and is built up in layers on the surface of the metal. One of its uses has been for the receivers of telephones, and we have seen some excellent examples of these receivers treated in this manner, one of which has been subjected to a heavy blow. Although at the actual point of contact the preparation was removed, it was shown by the presence of several curved marks that the material had endeavoured to follow the course of the dent, clearly proving that under ordinary circumstances Pellolit will not chip or crack, even under rough treatment.



THE NEW STELLITE CYCLE CAR FORDING A STREAM.
This illustration gives an idea of the ground clearance of the new Stellite cycle car described on pages 1134 and 1135 of our last issue.

MATCHLESS

1913 SIX DAYS' TRIAL.

Class I. (Sidecars).

15 machines started — 5 finished, 3 of these being "MATCHLESS" SIDECARS,

which made the best individual as well as aggregate performances, gaining

GOLD, SILVER, and BRONZE MEDALS,

and furnishing the passenger machines of the team that won the 200 GUINEA INTERNATIONAL TROPHY.

Newland Hause. "Excellent."
Kingsdale Hill. "Really good."
Tan Hill. "Makes light of it."
Pent Hill. "Up magnificently."
Hollin Bank. "Never slows for a moment."

A few Press comments on the Matchless in the Trials.

RESULTS

Write for Catalogue and address of Agent —then call and inspect latest models.

H. COLLIER & SONS, Ltd.,
PLUMSTEAD, LONDON.

Does "NO INTEREST" interest YOU?

A HOLIDAY OFFER. → **ANY NEW MOTOR CYCLE** in our Showrooms may be purchased by **extended payments** at **NO** extra on the list price.

TERMS: A quarter down and balance in 12 months. Example: LIST Price, £48, or, by our method, £12 deposit, and 12 monthly instalments of £3. PAY as you ride. Please send for order form and particulars, and let us know your requirements.

SECOND-HAND AND SHOP-SOILED MACHINES 5% extra for extended.

404. 2½ h.p. **ARNO** Lightweight, hardly used, lamp, tools, etc., light and handy, Dunlop tyres; **£22.**
875. 3½ h.p. **BAT-J.A.P.,** 1912, 2-sp. and free engine, spring frame, excellent for sidecar work, a nearly new machine, Dunlop and Hutchinson tyres; **£35.**
351. 8 h.p. **BAT,** 1910, very powerful, good order (try this for passenger work), Palmer-Kempshall tyres; **£29.**
396. 3½ h.p. **BRADBURY,** 1912, standard machine, very little used, take sidecar, Dunlop tyres; **£31 10s.**
3½ h.p. **BRADBURY,** standard, 1911, powerful and reliable, Stewart speedometer, Dunlop tyres; **£29.**
989. 5-6 h.p. **CLYNO,** 1912, 2-speed, free engine, fine machine, Continental tyres; **£45.**
203. 5-6 h.p. **CLYNO,** 1912, 2-speed, free engine, kick starter, fine Millford coach Sidecar, Kempshall tyres; **£52.**
5-6 h.p. **CLYNO,** 1911, 2-speed and free engine, kick starter, Clyno cane Sidecar; **£43.**
273. 2¾ h.p. **DOUGLAS,** 1911, 2-sp., free engine, handle starter, good order, go anywhere, Avon tyres; **£23.**
171. 5-6 h.p. **F.N.,** 1912, 2-speed, and free engine, Englebert 650 x 65 Voiturette tyres. **£37 10s.**
5-6 h.p. **F.N.,** 1910-11, 1912 forks, carrier, etc., very good order; **£26**
46. 2¾ h.p. **HAZLEWOOD,** 1913, 3-speed, slightly shop-soiled, a fine lightweight, Hutchinson tyres; **40 Gns.** (usually 45 Gns.)
402. 2 h.p. **HUMBER,** 1912, lady's machine, very light, only shop-soiled, Dunlop tyres; **£34** (cost £42)
232. 3½ h.p. **HUMBER,** 1912, very little used, 2-speed, free engine, handle-starting, Dunlop tyres; **£39.**
209. 2 h.p. **HUMBER,** 3-speed, 1911, almost new, fast and light, Dunlop tyres; **£26.**
147. 3½ h.p. **HUMBER,** 1911, 2-speed, free engine, handle starter, good condition; **£28.**
91. 3½ h.p. **HUMBER,** 1911, 2-speed, free engine, XL saddle, fine condition, Dunlop tyres; **£30.**
310. 7-9 h.p. **INDIAN** (Red), 2-speed, free engine, very fast, good for sidecar, Kempshall tyres; **£42 10s.**
167. 3 h.p. **PEUGEOT,** low frame, Bosch, N.S.U. 2-speed, B. and B., etc., Hutchinson tyres; **£16.**
518. 3½ h.p. **P. & M.,** 1911, very nice condition, 2-speed, free engine, sidecar gears, Kempshall tyres; **£42.**
452. 3½ h.p. **P. & M.,** 1909, 2-speed and free engine, good sidecar model, rubber-studded tyres; **£30.**
451. 3½ h.p. **PREMIER,** 1912, free engine, very little used, right for sidecar work, nearly new, Dunlop tyres; **£35.**
370. 3½ h.p. **PREMIER,** 1911, very strong puller, take a sidecar; **£27 10s.**
182. 4½ h.p. **QUADRANT,** 1912, Armstrong 3-speed hub, Bosch, B. and B., etc., excellent order, Carroll slightly used coachbuilt sidecar, Dunlop tyres; **£46.**
966. 3½ h.p. **RUDGE,** free engine, 1912, B. and B., Service belt, backrest, good, Dunlop tyres; **£34.**

If you do not see exactly what you require, please write us, or, if possible, call.

All second-hand machines are overhauled and tested.

THE SERVICE CO., LTD.,

'Phone: Central 260.
Wires: "Admittedly."

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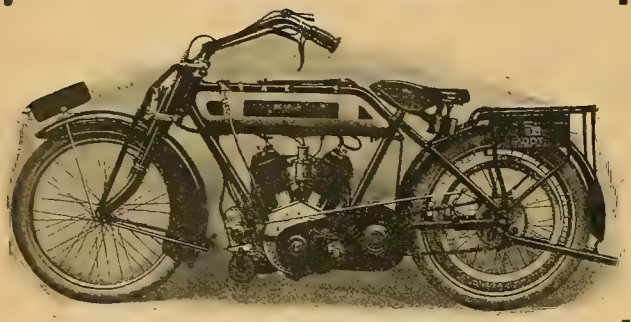
DOT

DEVOID OF TROUBLE

MOTOR CYCLES.



Speedy. Silent. Reliable.

Notice what our Standard Touring Combinations did at

COLWYN BAY SPEED TRIALS:

CLASS 16—
F. C. Topham - 8 h.p. DOT and Sidecar - FIRST.
E. Longden - 8 h.p. DOT and Sidecar - SECOND.

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Only beaten by 10 h.p. Cycle Car.

CLASS 14—
H. REED - 8 h.p. DOT - - - - SECOND.

Full particulars from—

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STAR MOTOR CYCLE

"THE MOTOR OF MANY MERITS."

IT is designed on entirely new lines and embodying

MANY NEW AND ORIGINAL FEATURES

stands far ahead of the ordinary run of motor cycles in the matter of

RELIABILITY.

The Star will do all and more than an ordinary motor cycle will do.

The specification will interest you.
— A Postcard will bring it. —

THE STAR CYCLE Co.,

Proprietors: The Star Engineering Co., Ltd.,
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"LINCOLN ELK" New Models, 1913.

Manufactured Completely by

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Telephone: 484. Telegrams: "ELK," LINCOLN.

Wholesale Agents for Scotland:
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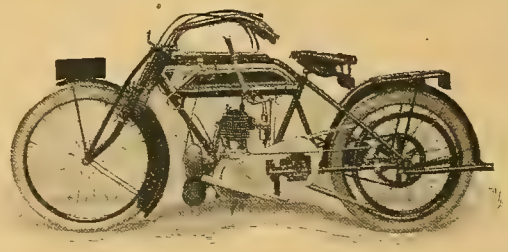
56 & 58, Great Clyde Street, Glasgow.



4¼ h.p. 2-speed Model	£46	0	0
3½ h.p. Standard „	£35	0	0
3 h.p. „ „ „	£31	10	0
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All Models fitted with Palmer Tyres, Bosch Magneto, and Footrests. "Druid" Spring Forks.

Sole London Agent:
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On Monthly Payment Terms.

Every Motor Cyclist should write at once for our illustrated Catalogue of the latest model Millford Side-cars. Contains photo illustrations and full specifications of cars to fit every make of cycle. This interesting book is full of information, with practical tips and wrinkles bearing on the sport. Lowest rockbottom prices are quoted throughout and full particulars as to ordering and delivery are given in the clearest possible way. **WE DELIVER** any model carriage paid to approved orders on receipt of a small payment with order. The balance being payable in monthly payments after delivery, if purchaser is entirely satisfied with the car when fully examined at his home.

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The CLINCHER B Motor Cycle Tyre with beaded edge. Cover only.
26 x 2 .. .. **21/-** 3/6 Monthly.
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The CLINCHER De Luxe Rubber Studded Non-Skid Motor Cycle Tyre, made with beaded edge only. Single Covers supplied in the following sizes:—
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WRITE FOR CATALOGUE, POST FREE.

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PRICE 2/6

ONE YEAR'S GUARANTEE. MADE OUT OF SOLID STEEL BARS. HARDENED—UNBREAKABLE.

ASTON MOTOR ACCESSORIES Co. Ltd.
97, Aston Road North, BIRMINGHAM.

AMAC AMAC

JOHN PIGGOTT'S LTD

Motor Cyclists' Dust Clothing.
Showerproof.
Qual. K14. Jackets, Double Breasted **12 6** ea. Seatless Gaiter. Qual. K14A. Trousers **7/6** pair. Qual. K14B. Leggings **5/6** pair. Qual. K15. Ditto, Superior quality Jackets, Double Breasted, Heavy Drill **18 6** ea. Qual. K15A. Seatless Gaiter Trousers **9/6** pr. Qual. K15B. Leggings **7/6** pair.

36 to 44 Chest, Stocked.

32 to 40 Waist, 31 and 33 leg to each Waist, stocked. *Write for patterns*

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The Parkhurst Double Breasted Motor Jacket. Made in heavy Fawn Paramatta, with Beavertine lining. 36in. long. Wind cuffs, etc. **32/6.**

Seatless Gaiter Trousers. Fawn Paramatta, lined with Beavertine, to match the "Parkhurst" Jacket. **18/9** pair.

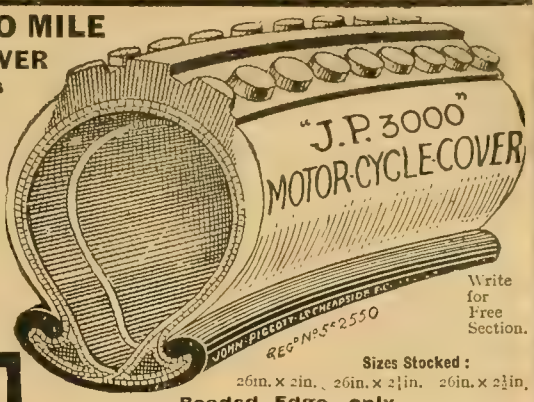
The Ideal Double-Breasted Motor Suit. Comprising Double-breasted Motor Jacket (36in. long, fitted with wind cuffs, deep storm collar, tabs on sleeves, etc.), 1 pair shaped thigh leggings. The above are made in Double texture Fawn paramatta, **25/-** complete.

The 'J.P.' 3,000 MILE MOTOR CYCLE COVER

The Cover that HAS stood the Test.

TESTIMONIAL.

BARNSLEY, June 13th, 1913.
Dear Sirs—Please send per return, two 26 × 2¼in. motor cycle covers, for which I enclose P.O.O. for £3. The last cover I got from you has now done over 2,800 miles, and is the first tyre I have had to do so much on my back wheel.



Write for Free Section.

SEND FOR ILLUSTRATED MOTOR CYCLE LIST No. 147 POST FREE.

YOUR LOCAL AGENT will not advise you to buy a 'J.P.' 3,000 Mile Tyre for

30/-

BECAUSE you must deal direct.

'3,000 MILES' for 30/- allows for no **INTERMEDIATE PROFITS.**

Sizes Stocked:
26in. × 2in., 26in. × 2¼in. 26in. × 2½in.
Beaded Edge only.

This cover is made on the same principle as a heavy motor car tyre, viz., under hydraulic pressure, and not as the usual motor cycle covers which are usually a glorified cycle tyre. It is composed of the best Para rubber, and fitted with a new non-skid tread which has been thoroughly tested and found to be an absolute preventative of skidding. **We are so confident of the wearing properties of this tyre that we are guaranteeing it for 3,000 Miles.**

A Written Guarantee enclosed with every Cover as follows: **30/-** **Guaranteed 3,000 MILES. With or without sidecar.**

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LUKIN
Single Control Carburetter

Read this convincing letter from a——————

"SCOTT"

rider, and the wonderful results obtained with a LUKIN Single Control Carburetter.

Dear Sirs, May 1st, 1913.

I have nothing but satisfaction and pleasure to express as the result of several hundred miles of trial of the LUKIN Carburetter on my "Scott" motor cycle.

I have got between 75 and 80 m.p.g. on it with the LUKIN.

The flexibility which the LUKIN has given me with the "Scott" engine is most satisfactory. I can drive entirely on single throttle lever and acceleration after turning corners on the level, and on hills is quicker and more certain than anything I have experienced with a motor cycle.

To-day I have driven my "Scott" from Dorking to Coldharbour with the steep gradient and continuous hill of 4 miles, on the top gear all the way, and never below 18 to 20 m.p.h., without the slightest sign of the engine faltering.

I am, yours faithfully, (Sgd.) name on application.

Riders of the "SCOTT" or any other motor cycle cannot follow a wiser course than fit the Lukin carburetter. It completely transforms the running of the engine and entirely eliminates the drawbacks of the old double control system.

It imparts the flexibility of a Car to a Motor Cycle.

Full particulars from—

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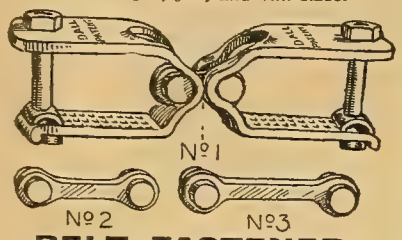
Made in ⅜in., ½in., and 1in. sizes.



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The Dall is easiest to couple up, detach, or adjust.
Every part guaranteed for 1,000 miles.

THE DALL TROUSER GUARD

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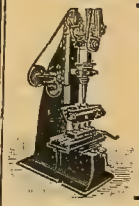

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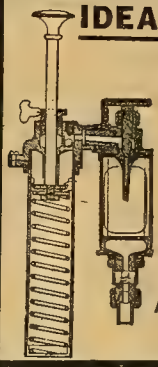

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FIRST! SECOND! THIRD!

Machines were fitted with the BEST Semi-Automatic Lubricator.

ORDER AT ONCE 11/- EACH.

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Quality and Cheapness Combined.

Immediate dispatch of Cycle Houses from

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Height Increased.

If you are under 40, I can increase your height by from two to three inches within 3 months. No appliances, no drugs, no dieting. Send three penny stamps for particulars of my wonderful system. ARTHUR GIRVAN, Specialist in the Increase of Height (Dept. K), 17, Stroud Green Rd., London, N.

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Silence Those Exhausts! You'll do it after the Police have caught you.

THE "WILLBRO" EXTENSION (Regd.)

Cheapest, Lightest, Most Efficient on the Market. Thousands in use all over the World. Fits Bradburys, Triumphs, B.S.A., Matchless, or any Flat Silencers in a few seconds.

Price **12/6**. Order at once.

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Adjustable Tappets for Triumphs.

I have introduced this long-desired luxury. Fit them and the engine can now be tuned to a nicety. Accurately machined and hardened. The head is fitted with a removable Fibre SILENCING DISC. Price **6/6** per pair or **3/6** each, post free. State year of make when ordering

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Cylinders Rebored up to 70 mm., with Pistons, Rings and Pin, 14/6

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THE MOTOR CYCLE "is the medium,"

says Mr. S. Ascott, 36, Rye Lane, London, S.E.

Here is his Letter:

"I beg to acknowledge receipt of "P.O. which you have kindly re-"turned owing to the fact that I "inadvertently sent it not knowing "that my brother had disposed of "the machine.

"I may add it was through your "journal that it was disposed of. "**It is THE medium.**"

THE L.M.C.

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TRIAL RUNS ARRANGED.

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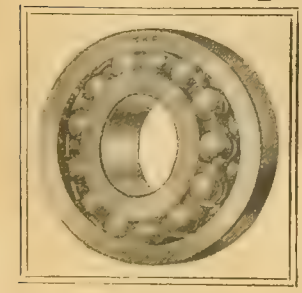
Have you made *sure* of

SKEFKO. SKF

(PATENTED) MADE IN ENGLAND. TRADE MARK.

SELF-ALIGNING DOUBLE ROW **BALL BEARINGS**



for your new machine? Don't be put off with any talk of "just as good." There is no other type of bearing which will help the machine to weather the ravages of rough roads as well as "SKEFKO" SKF.

Write for Catalogue and full particulars.

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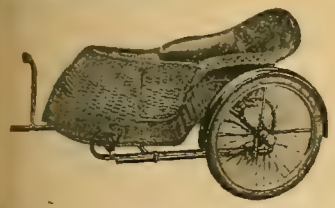
Telegrams—"Skefko, Piccy, London." *Telephone—9641 Gerrard.*

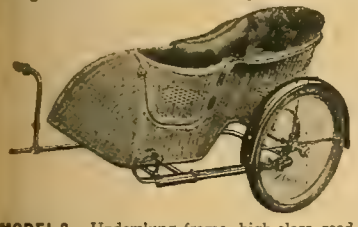
MAXIMUM QUALITY. MINIMUM COST.

Every "CORONET" SIDECAR is made to satisfy. Every purchaser gets the benefit of our practical experience. If you desire comfort, elegance, and reliability, the "CORONET" will meet your requirements. Our underslung frame has many advantages. Write now for particulars.

MODEL 1.—High-class canoe front body, quick detachable joints, **£6 6s.**



MODEL 9.—Underslung frame, body fitted with side door, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£7 7s.**



MODEL 8.—Underslung frame, high-class reed cane body, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£8 17s. 6d.**

MODEL 7.—Underslung frame, coach-built body, tool-box under front, also under seat. A real high-class sidecar. **£10 15s.**

SENT CARRIAGE PAID.
TRADE SUPPLIED.

BOOTH'S MOTORIES,

Keighley Mills,
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HALIFAX.

Telephone 1062.

MOTOR BICYCLES FOR SALE.

L.

HITCHINGS', Ltd., 74, Bold St., Liverpool.

MATCHLESS Agents, Hitchings', Ltd., sole representatives.

TRIUMPH Agents, Hitchings', Ltd., sole representatives.

RELIABLE Second-hand Machines.—Hitchings', Ltd., have a big reputation for absolutely reliable second-hands at reasonable prices. Two 1912 2-speed Matchless sidecar combinations, one 1912 Rudge, one 1911 Humber, 1 1910 Triumph, 1 1908 Triumph, and 1907 Triumph in stock now. All guaranteed, inspection and offers invited.—For courtesy, business-like attention, and entire satisfaction, deal with Hitchings', Ltd., 74, Bold St., Liverpool.

VELOCE Lightweight, 2-speed gear, mechanical lubrication, the sweetest running and most efficient lightweight machine on the market, list price, with footboards, £51, one only left; a bargain at £44; crated and carriage paid.—Hitchings, Ltd., 74, Bold St., Liverpool. [1725

1913 Triumph, standard, new condition, Philipson automatic pulley; £39. — Park, Wigan Lane, Wigan. [X8336

TRIUMPH, 1910, F.E., plating and enamel as new, new bearings throughout; £27.—Savile Royd, Savile Rd., Halifax. [1155

F.N., 2¼h.p., 2-speed, 1911, good running order, tyres nearly new; £18.—36, Mersey Rd., Heaton Mersey, Manchester. [X8014

REX, 5-6h.p. twin, perfect, only done 3,000 miles; £23, lowest.—Pardy, Bird in Hand, Elkington, near Sheffield. [X7947

RUDGE Multi, 1912-13, very good condition, new back tyre, new belt, lamp, horn, etc.; £43.—Holywell Hall, Halifax. [1154

RUDGE, F.E., 1912½, new condition, perfect; £36; appointment only.—Bradley, St. Michael's Crescent, Headingley, Leeds. [X8262

1909½ Triumph, just enamelled, climb anything, good tyres and tubes, accessories; £22, or near offer.—17, Moorgate, Bury. [X8178

1912 Rudge, free engine, splendid condition, fast, new inch belt and lamp, spares; £37.—Collins, 5, Promenade, Bridlington. [1278

SCOTT, 1913, perfectly new, in crate, unable to accept delivery; £59 for quick sale.—Grifton, 52, Barnsley St., Wigan. [X8287

2¾h.p. Clarendon, Clincher, h.b.c., splendid goer; accept £4 and good cycle, gramophone, or typewriter.—35, Porter St., Hull. [1236

1913 Scott, done 500 miles only, absolutely as new, property of doctor, bought car; £52.—Box 4,022, *The Motor Cycle* Offices, Coventry. [X8290

1910 2-speed and Free Engine Roc, in first-class running order; £20. — 6, Firgrove Terrace, Glasshouses, Pateley Bridge, Yorkshire. [X8278

1912 Douglas, in fine order, climb anywhere, £29; 1911 2-speed Douglas, £28; 1911 standard Douglas, £26.—Cross, jeweller, Rotherham. [X8291

ZENITH, 1913, 6h.p., kick starter, clutch, not done 500 miles; cost £78/15, will take £60.—Cook, saddler, 454, Attercliffe Rd., Sheffield. [1217

3½h.p. Premier, done 4,000 miles, new 2-speed, free engine just fitted, lamp, horn, perfect condition; £34.—Whitlam, 66, Boothferry Rd., Goole. [X7668

TRIUMPH, 1911½, free engine, absolutely perfect, Lucas lamp, horn, mirror, spares; £30.—Andrews, Station Rd., Higher Openshaw, Manchester. [X8240

BRADBURY, 3½h.p., N.S.U. 2-speed, adjustable pulley, new Whitsuntide, little used, lamp, horn; £43.—68, Mount Pleasant, Barrow-in-Furness. [X8344

1911 Triumph, bought new 1912, Sturmey-Archer 3 speed, free engine, perfect condition; £39; trial any time.—Howarth, 107, Willis St., Warrington. [X7645

WE are clearing our several shop-soiled 1913 Zeniths, which have never been used, at a substantial discount off list price.—Write Hitchens', Ltd., Morecambe. [0334

MAY We Suggest that if your local agent has not the motor cycle or cycle car that you are wanting, you ask him to write to Hitchens', Ltd., Morecambe, for same. [0331

SCOTT, 1913, perfectly new, unable to accept delivery, bought other make; would sacrifice deposit of 10% for quick sale.—Waite, Ferrybridge Rd., Castleford. [X7121

F.N. Lightweight, under-geared pulley, Bosch, h.b.c., accessories, guaranteed; no exchanges; lowest £9/10.—Beesley, Charlestown, Blackley, Manchester. [X8303

WHAT Offers?—1912 F.E. 3½h.p. Bradbury, Pedley 2¼in. back tyre, 2 belts, perfect order; no reasonable offer refused.—Henderson, 101, Merefield St., Rochdale. [X8379

TRIUMPH, free engine, 1911; Rover, free engine, 1912; Triumph, standard, 1910; Triumph, free engine, 1909; all in excellent running order.—Stockdale, Lytham. [X8797

1913 Precision, 3½h.p., Druid forks, B. and B. carburetter, Bosch mag., adjustable pulley Dunlops, new, guaranteed; £33, usual £40.—65, Manchester Rd., Burnley. [1213

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We can sell you one of these capable machines listed at £52 10s., for **£35 10s.** only, or we will accept easy payments as below.

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1913 £52 10s. MACHINE.

Fitted with 3⅝ h.p. Precision engine, Bosch weatherproof magneto, Best and Lloyd drip feed lubricator, Hutchinson rubber-studded tyres, handle-bar control, and complete with stand, carrier, number-plates, toolbag, and spare spring. Limited number only. If you are a cash buyer we will

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We will take your present machine in exchange if required. We will supply 2-speed gear and free engine for **£6** extra. Don't miss this bargain.

OFFERS WANTED FOR THE FOLLOWING:

New 1913 3-speed 3½ h.p. **HUMBER.**	
8 h.p. **BAT-J.A.P.**, P. and M. 2-speed	£35 10
3½ h.p. **REX**, 1909 model, magneto	£15 10
4 h.p. Twin **N.S.U.** on Rex frame, magneto	£13 10
3½ h.p. **PREMIER**, 1911½, B.S.A. 2-speed	£32 10
3¼ h.p. **HUMBER**, 1913, 3-speed model, done about 200 miles, complete with sidecar	£46 0
8 h.p. **G.W.K.**, 1912 model, not much used	£98 0
2 h.p. **HUMBER** Lightweight, 1912	£25 0
3½ h.p. **A.S.L.**, brand new, 1913 model	£35 10
3¼ h.p. **PREMIER**, 1913 model, 3 speeds, only run 500 miles	£46 10
6 h.p. **BAT**, 1913, chain drive, like new	£58 10
3½ h.p. **N.S.U.**, free engine, splendid order	£19 10
3¼ h.p. **QUADRANT**, 1908, magneto	£15 10
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2 h.p. **MOTOSACOCHE**, 1910, magneto	£15 0
3½ h.p. **REX**, 1910 model	£17 10
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6 h.p. **REX** Sidette, 1913 model; cost £80	£49 10
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Bosch Magneto, suit Triumph	£2 2 6
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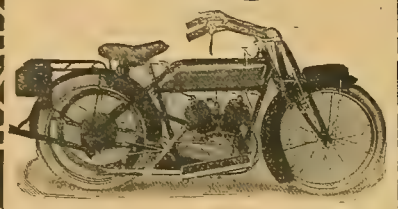

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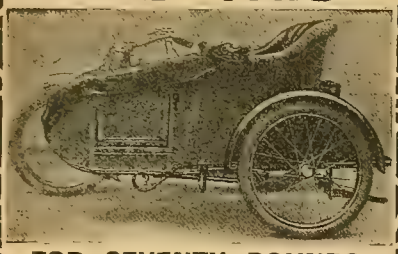

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SHOP-SOILED Unused 6h.p. A.J.S. Combination; makers' price £92/10, our price £82/10 cash; guaranteed.—The Motor Mart Co., Old Lancaster Rd., Morecambe. [0332

1913 (May) Special 3½h.p. T.T. Ivy Precision, ridden 150 miles, and absolutely as new, specially tuned by Bakers and Newmann; £33/10.—R.S.M., 18, Thomas St., Manchester. [1344

1913 4h.p. Kynoch and Coachbuilt Sidecar and accessories, complete, Sturmey-Archer 3-speed, free engine, run 700 miles; death cause selling; highest offer.—Beswick, Golborne. [X8185

SHOP-SOILED Zeniths.—We have several models, never been on road, which we are prepared to sacrifice at ridiculous prices for cash.—Particulars, Hitchens, Ltd., Morecambe. [1156

TO Scott Agents, and to agents in districts where not represented.—We can deliver Scott machines from stock on good trade terms. Write for our list at once.—Hitchens, Ltd., Morecambe. [0333

TRIUMPH, free engine, 1912 engine, just overhauled by makers, and not since used, £25; also sidecar, £3; seen after 8th September.—Sutcliffe, 30, St. Hilda's Rd., Old Trafford, Manchester. [X8030

RUDGE, 3½h.p., free engine, late 1911, guaranteed perfect, Clincher, Bates, both new, lamp, horn, etc., carefully used, 30 gns.; cane torpedo sidecar, with side door, £4/10, bargains.—10, Crescent Rd., Southport. [1139

3½h.p. Matchless, good order, £25; 1913 Morgan runabout, good order, £65; 1912 Clyno, £55, or offer; 4½h.p. Precision and sidecar, 2-speed, and free engine, £40.—Particulars, Chadborn, Motors, Ilkley. [1214

WE have a few brand new 1913 motor cycles of various makes, which we are interested in selling on best cash, deferred, or exchange terms, the latter only on low-priced machines.—Write, stating requirements and allowances, The Motor Mart Co., Old Lancaster Rd., Morecambe. [1171

1913 Premiers, 3½h.p., 2-speed or 3-speed models, £43 to clear; also 3h.p. Enfield, latest type, £42; 4h.p. New Hudson counter-shaft drive sidecar combination, £60; 6h.p. Enfield combination, coach body, £74; all perfectly new, shop-soiled only.—Timberlake, King St., Wigan. [X8283

3½h.p. 1910 Minerva, mag. ignition, good order; £12/10.—Timberlake, Wigan. [X8284

SCOTT, late 1912½, perfect order, condition as new, used demonstrations only, not done 500; £49.—Timberlake, Wigan. [X8285

2¾h.p. Humber Lightweight, 3-speed 1912 model, new; £36, list £52/10.—Timberlake, Wigan. [X8286

WHAT Offers for new unridden 1912 6h.p. Matchless, 3½h.p. Zenith, 3½h.p. Bradbury, ditto 2-speed, and Armstrong, 3-speed James; sole agents for P. and M., Scott, and A.J.S., delivery from stock; sidecars at a big reduction if supplied with a machine.—W.F. and Co., 5, Cheltenham Parade, Harrogate. [X8394

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1912 James, 2-speed, kick starter; £35.—Marston's, 50, Argyll St., Birkenhead. [X8353

1913 3-speed Triumph from stock, 1913 T.T. free engine Triumph from stock, 1913 F.E. roadster Triumph from stock, 1913 T.T. Rudge from stock; exchanges.—Marston's, 50, Argyll St., Birkenhead. [X8357

A.J.S., 6h.p. and 2¾h.p., in stock for immediate delivery.—Nelson, Gloddaeth St., Llandudno. [X8263

DOUGLAS, 1913, model R, free engine, kick starter, as new.—Offers to Southern, Friar Gate, Derby. [X8300

SCOTT, brand new 1913 model, unused, shop-soiled only; great bargain, £59/10.—Moss, Wem. [X8279

HUMBER, 3½h.p., 3-speed, 1913, absolutely new; reasonable offer wanted.—155, Gerard St., Derby. [1307

INDIAN, 7-9h.p., 1912¾, free engine, perfect condition; £40.—Stanton, Finchfield Rd., Wolverhampton. [1221

1913 3h.p. Enfield, run 200 miles, perfect condition, £42; 1913 Douglas, model O, £48.—Thos. Booth, Frodsham. [X8307

CALCOTT Lightweight, 1912¾, perfect, a really reliable machine; £23.—Pane, Fairmount, Deganwy, North Wales. [X8202

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JONES SPEEDOMETER (soiled).....	54/-
LEATHER BELTING, 3 ply, ⅞" 10½d., 1" 1/- ft.	
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All sidecars fitted with Hutchinson Tyres and quick detachable joints.

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REX, 3½ h.p., 1911, clutch model £30 0
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MINERVA, 2¾ h.p., splendid hill-climber.. £10 0
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HUMBER, 1913, 3 speeds, 3½h.p., and £12/12 Canoelet sidecar, shop-soiled; £58, complete. — P. J. Evans, Birmingham [X8225

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ZENITH, 1911, 3½h.p., Gradua gear, wicker sidecar; £30, perfect condition.—P. J. Evans, Birmingham. [X8229

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A.J.S., 2-speed, 2½h.p., 1911-12, perfect condition, lamp, horn, etc.; cost £45, accept £25.—Woodbines, Earlsdon Av., Coventry. [X8108

TRIUMPH, 1912, free engine, Lucas King Road, horn, spares, carefully used solo week-ends; £41.—Gardner, 25, Bowling Green St, Leicester. [X7946

ROVER, 1913, 3-speed, nearly new, all accessories, with or without sidecar; no reasonable offer refused, must sell.—Bett, East Kirkby, Spilsby. [X8320

RUDGE, 1912, F.E., 3½h.p., new Palmer cord new Dunlop belt, excellent condition, silent; £33.—Cole, 34, Constance Rd., Edgbaston, Birmingham. [1215

LEVIS, in fine condition, only re-bushed last week, new belt and tyres, lamp, horn, carefully used; a bargain, £15/10.—A. E. Shale, 22, South St., Coventry. [X8109

2¾h.p. Regal-Precision, 1913, Armstrong 3-speed, free engine, fast, as new, all spares; owner bought car; £33.—Cottisbrooke, Park Rd., Moseley, Birmingham. [X8239

ZENITH, J.A.P., 4h.p., 1911, spares, lamp, horn, clutch, lever, extra tank for paraffin, automatic lubrication; £27 cash; deposit system.—Robinson, Parade, Leamington. [X7651

RUDGE Multi, 1912¾, and cane torpedo sidecar, only done 1,500, perfect, speedometer, lamp, horn; £45; exchange considered for 2¾h.p. lightweight and cash.—Kelham, Bourne. [X8234

1912½ Scott and Canoelet de Luxe Sidecar (purchased last February), run 1,700 miles only, in splendid condition; price, lowest £60; owner buying cycle car.—Wilson, Garage, Loughborough. [X8024

TRIUMPHS, latest 1913 3-speed, free engine, and T.T. roadster models in stock for immediate delivery; cash, exchanges, or easy payments. — Premier Motor Co., Ltd., Aston Rd., Birmingham. [0334

1911 Triumph, recently overhauled, splendid condition, 2-speed, F.E., tyres excellent, 1 spare retreaded, lamp, horn, 70/- speedometer, £32/10; with sidecar, £35/10.—R. Houghton, Haxey, Doncaster. [X8301

1913 Bradbury, 3-speed gear, £49; 1913 Premier, 3½ h.p., 2-speed, and counter-shaft, £46; 1911 Indian, 7h.p., new 1913 clutch, new tyres, £38/10; 1911 Humber lightweight, good condition, £17.—Jas. Plastow, Osborne St., Grimsby. [X8267

LATEST and perfectly new free engine model Triumph motor cycle, fitted with 3-speed gear, never been on the road, the property of a private gentleman, and just recently purchased for £59/15; offer for immediate cash 50 gns.. no exchange, and not one farthing abatement.—Apply, Proprietor, 6, Clemens St., Leamington [X8132

ENFIELD, 2¾h.p., 2-speed, and free engine, chain drive, Brooks saddle, large padded top, new cylinders, new tank, fitted with drip feed lubricator, new frame, new back wheel with cush drive, 1912, engine overhauled by makers, and new pistons, etc., fitted; 1913, good tyres, new on back wheel, and new chains; a very reliable machine, sound, and in good order; £35, or nearest offer.—Box 3,912, *The Motor Cycle* Offices, Coventry. [X6690

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon and Bedford.

1911 Standard Douglas, in perfect running order; £18.—37, Searle St., Cambridge. [X8271

TRIUMPH, 1909¼, Philipson pulley, new Kempshall and belt; £26.—Cookson, Downs, Luton. [X8395

Collier's Motories,

Westgate, Halifax, England.

£46 REX FOR £35.

To make a final clearance of this model, we offer a Brand New 1912 4 h.p. Tourist **REX,** 84½ × 80, with Bosch magneto, B. and B. carburetter, push pump and feed lubrication, spring forks, Cantilever seat, 26 × 2¼ non-skid tyres, stand, carrier, toolbag, number-plates, pump, and tools, at **£35.** Makers' price of this model is £46. Cash offers or exchanges considered, as we wish to clear, **regardless of cost.**

SINGLES.

1913 3-speed **TRIUMPH,** excellent condition £49 10
1912 F.E. **TRIUMPH** £46 0
1912 **RUDGE** Multi and Sidecar £47 10
1911 3½ h.p. **ARIEL,** Amac, magneto £25 0
1912 F.E. **QUADRANT,** 3½ h.p. £35 10
1912 3-speed **BRADBURY** £47 10
1908 3½ h.p. **REX,** M.O.V., magneto £17 10
1911 2 h.p. **SINGER** Lightweight £19 19
1911 2 h.p. M.O.V. **MOTOSACOCHE** £19 10
1909 3½ h.p. **REX,** M.O.V., magneto £19 10
1912 4½ h.p. 2-speed **PRECISION** £44 10
1912 4 h.p. tourist **REX,** soiled £31 10
1911 3½ h.p. F.E. **ROVER** £32 10
1908 3½ h.p. **TRIUMPH** £27 10
1912 3½ h.p. 3-speed **SINGER** £39 10
1911 **SINGER** Lightweight £19 19
1911 3½ h.p. 2-speed **SINGER** £29 10
1908 3½ h.p. magneto **QUADRANT** £17 10

SPECIAL EXCHANGE QUOTATIONS.

1913 2 or 3-speed **BRADBURY** £60 0
1913 4 h.p. 2-speed **REX** de Luxe £56 10
1913 6 h.p. 2-speed **REX** £62 10
1913 6 h.p. 2-speed **REX,** chain drive £67 15
1913 6 h.p. 2-speed **REX-J.A.P.** £71 8
1913 8 h.p. 2-speed **REX-J.A.P.** £73 10
1911-12 twin 2-speed **REX** de Luxe, NEW £46 10
Callers receive special exchange quotations.

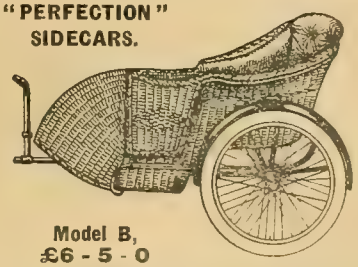
PASSENGER COMBINATIONS.

1913 2-speed **B.S.A.,** as new, and Sidecar .. £58 10
1913 8 h.p. **WILLIAMSON** and "Williamson" Sidecar, NEW £90 10
New twin **REX** de Luxe and New 10-guinea Sidecar. Spot cash. Bargain £55 0
1912 3-speed **BRADBURY** and Sidecar £50 0
1912 **RUDGE** Multi and Sidecar £47 10
1912 twin **CLYNO** and Sidecar £49 10
1909 5 h.p. 2-speed twin **REX** de Luxe and New rigid Sidecar £34 10
1911 twin **REX** 2-speed Sidette, chain drive, very smart, coach-built £47 10
1913 6 h.p. **REX** de Luxe and £12 12s. Montgomery Sidecar, only done 600 miles .. £59 10
1912 **WALL** Tricar £49 10
REXETTE converted to cycle car £14 10

TWINS.

1909 magneto **MOTO-REVE** Lightweight .. £13 10
1912 New 2-speed free-engine 6 h.p. **REX.** Offers.
6 h.p. m.o.v. **J.A.P.,** free engine £34 10
5½ h.p. 2-speed **N.S.U.** £27 10
1911 twin **REX** de Luxe, 2-speed, m.o.v. .. £38 10
Twin **N.S.U.,** 5½ h.p., spring forks, magneto £24 10
1913 6 h.p. **REX** de Luxe, specially good .. £49 10
1909 5 h.p. twin **REX** de Luxe, 2 speeds .. £29 10
1910 twin **ENFIELD** Lightweight £18 10
1913 **WILLIAMSON** (NEW) £75 0

"PERFECTION" SIDECARS.



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We are **Sole Wholesale Agents for PERFECTION Sidecars** (6 models). Trade supplied on liberal terms. If we have anything to suit your requirements, send your **cash** offer at once.

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SECOND-HAND MOTOR CYCLES

1216. 1911 **ZENITH,** 6 h.p. £45
1265. 1912 **BRADBURY,** 3½ h.p. £36
1276. 1912 **ZENITH,** 6 h.p. £52
1282. 1909 **BROUGH,** 5-h.p., twin cyl. £25
1283. 1912 **ZENITH,** 3½ h.p. £38
1285. 1912 **CLYNO,** 6 h.p., 2-speed £46
1302. 1911 **ZENITH,** 3½ h.p. £32
1311. 1912 **ZENITH,** 6 h.p. £50
1318. 1912 **ZENITH,** 3½ h.p. £38
1327. 1912 **BRADBURY,** 3½ h.p. £35
1332. 1911 **ZENITH,** 6 h.p. £42
1338. 1912 **BRADBURY,** 3½ h.p., free engine £38
1341. 1912 **ZENITH,** 6 h.p. £48
1342. 1912 **ZENITH,** 6 h.p. £50
1362. 1912 **RUDGE,** 3½ h.p., free engine £35
1403. **HENDERSON,** 4-cyl., 8 h.p., Model B, F.E. .. £60
1418. 1912 **BRADBURY,** 3½ h.p., F.E., and Sidecar £40
1421. 1912 **N.S.U.,** 3 h.p., twin-cylinder, 2-speed .. £32
1423. 1913 T.T. Free-engine **TRIUMPH,** as new .. £45
1424. 1913 **REX-J.A.P.,** 5 h.p., overhead M.O.V., T.T. roadster £35
1431. 1909 **TRIUMPH,** 3½ h.p. £24

CYCLE CARS.

1913 **CROUCH,** 8/10 h.p., w.c., 3-speeds and reverse, hood, screen, large flex horn, speedometer, 1 car and 2 cycle car headlights, acetylene tail light, large car generator, clock, Stepney with unused s.s. Hutchinson, large kit of tools including jack, etc. All as new and guaranteed Cost £175. Will accept £120

1913 **WALL TRI-CARRIAGE,** 5 h.p., 2-speed, shaft drive, speedometer, watch, horn, hood, luggage carrier, acetylene side lights, tail lamp and full kit of tools. Guaranteed in perfect order £75

We are open to consider reasonable offers for the following machines, which we are selling for various clients:

1395. 1912 **CHATER-J.A.P.,** 6 h.p., Maben clutch and wicker Sidecar with child's seat £42
1402. 1912 **BAT,** 6 h.p., 2-speed, chain drive, 1,200ft. F.F.S., Cowey speedometer, post horn, valise, and Millford radial castor spring wheel Sidecar with wicker canoe body, side door, and Lucas lamp, ridden 1,300 miles £62
1406. 1912 **A.J.S.,** 5-6 h.p., large P. & H. lamp, Jones' speedometer, post horn, watch, mirror, spares, and tools £55
1410. 1912 **BRADBURY,** 3½ h.p., 2-speed, belt drive, and Bradbury wicker Sidecar £45
1412. 1912 **HOBART,** 2¼ h.p., Miller lamp, serpentine horn, tools £22
1416. 1912 **TRIUMPH,** 3½ h.p., free engine, Cowey speedometer, post horn, black 1,000ft. F.F.S., belt and tube case with spare belt and tube, tools £42
1425. 1912 Standard **TRIUMPH,** with Cowey, lamp, horn, tools, and spares £37
1426. 1912-1913 **F.N.,** 5-6 h.p., 4-cylinder £36
1427. 1913 5 h.p. **RUDGE** Multi £52
1428. 1912 **TRIUMPH,** F.E. £39
1429. 1912 **B.S.A.,** 3½ h.p., 2-speed £42
1430. 1912 **F.N.,** 5/6 h.p., 4-cyl., 2-speed and closed side canoe front cane sidecar £45

BRAND NEW SHOP-SOILED MOTOR CYCLES and SIDECARS.

1913 Lady's **IVY,** 3½ h.p., 3-speed £44 0
1913 **ALCYON,** 3½ h.p. £36 0
1913 **EDMUND-J.A.P.,** 4 h.p. £42 0
1913 **NEW HUDSON,** 2½ h.p., 3-speed £39 0

MONTGOMERY Torpedo, sport £12 10 0
MONTGOMERY, No. 5, London body £13 15 0
MONTGOMERY, No. 7, Exeter body, hood, and screen £18 10 0
MONTGOMERY Standard £7 10 0
MILLFORD Corvette, storm apron, mat and luggage board £12 0 0
MILLFORD Spring wheel, No. 4 chair £12 10 0
MILLFORD Rigid, No. 4 chair £9 17 6
MILLFORD Rigid, No. 4 chair £9 17 6
MILLFORD Rigid, No. 14 chair £12 10 0
MILLFORD Rigid, No. 3 chair £12 10 0
BRAMBLE, No. 6 ..... £10 15 0
BRAMBLE, No. 4 ..... £11 15 0

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157, GREAT PORTLAND STREET, W.

MOTOR BICYCLES FOR SALE.

8 h.p. Twin Jap-Matchless, T.T. model, in topping order; £34.—156, Sturton St., Cambridge. [X8272

MATCHLESS, 3½h.p., 1909, good condition throughout; £20; offer considered.—38, St. Barnabas Rd., Cambridge. [X8031

1912 Rudge Multi, Lucas King of the Road lamp; cost £65, take £35, recently overhauled.—Foll, Woburn Sands. [1192

1913 3½h.p. Mead, Precision engine, new June last; offer; unexpected circumstances; must sell.—B. H. Sutton, Upwell. [X8364

HUMBER 1911 2h.p. Lightweight, little used, condition almost as new, accessories; £19/10.—Willoughby House, Newmarket. [1267

LINCOLN Elk, 3h.p., 1911, just re-bushed and overhauled, thorough running order, tyres good, lamp, horn, etc.; £14.—Bond, High St., Leiston. [X8162

OFFERS wanted for shop-soiled 1913 Matchless, 6 h.p., 2-speed; 1913 Rover, 3½h.p. T.T., free engine; 1913 Bradbury, 3½h.p., 3-speed; 1913 N.S.U., 3½h.p., 2-speed; 1913 torpedo, 2½h.p., free engine.—Willmott Bros., Norwich. [0329

1913 3-speed Triumph and Coach-built sidecar; list price £72/7, to clear £65; 1913 2-speed Bradbury, slightly shop-soiled, £45; 1912 2-speed Humber, to clear £32; 1912 free engine Quadrant, good as new, £30; 1910 (Sept.) Triumph, perfect condition, only £26/10.—Parker's, Motors, St. Ives, Hunts. [1349

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

3½h.p. Rover, clutch, late 1911, perfect; £29, lowest. —Lee, 23, Harbour Rd., Barry. [X8255

FOR Sale, 5-6h.p. twin Vindec Special, in excellent running order, mag.—Montague Harris, Abergavenny. [X8148

DOUGLAS, standard, late 1912, in first-class order; £28, absolute lowest.—G. H. White, Croft Rd., Evesham. [1277

PREMIER, 3½h.p., 1913, Armstrong 3-speed, practically new; bargain, £47.—Griffiths, 68, College Hill, Llanelly. [1224

DOUGLAS, 1909, perfect machine, new tyres, accessories; £15/10.—Robinson, Rockville Terrace, West Cross, Glamorgan. [X8081

1912 2h.p. Moto-Reve, 2 belts, horn, accessories; £18, or exchange for Douglas, cash adjustment.—Motorist, 2, Brodowel, Bedlinog. [X7670

1911 Scott, splendid condition, recently overhauled, all accessories, F.R.S. lamp, generator, Cowey speedometer; £32.—Dore, 14, Blakebrook, Kidderminster. [X8136

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

3½h.p. N.S.U., mag., good climber; £16.—Rackley, 12, Corn St., Witney, Oxon. [1324

1912 Douglas, model K, speedometer, etc.—Manager, 405, Commercial Rd., Portsmouth. [1283

1913 8h.p. Matchless, run 500 miles; owner cannot use.—Wigan, Bedhampton, Hants. [X8016

MATCHLESS, 1912, 6h.p., 2-speed, in perfect condition; £50.—Stanley Wilce, Cinderford. [X7352

MATCHLESS, 1913 models for immediate delivery.—Sole Oxfordshire agents, The Morris Garage, Oxford. [0313

PHELON and Moore, 1913 models for immediate delivery.—Sole district agent, The Morris Garages, Oxford. [0203

DOUGLAS, model P, used few times for trial runs, perfect condition.—Cycle Depot, 65, Bath Rd., Bristol. [1203

DOUGLAS, model R, used few times for trial runs, perfect condition; £47.—Leader, 223, Cheltenham Rd., Bristol. [1202

1912 3½h.p. Humber, lamp, horn, Stewart speedometer, capital order; £25, or offers.—Viggers, Bridge St., Banbury. [X8361

3½h.p. Triumph, in splendid order, new belt and tyres good; bargain, £23.—H.N., Silverburn, King Edward St., Slough. [1245

RUDGE Multi.—Deliveries from stock; trial runs given; exchanges entertained; trade supplied.—Official agent, Barnes, Slough. [9139

MOTOSACOCHE, real lightweight, mag., splendid condition, runs grandly; £14.—Particulars, Box 4,017, *The Motor Cycle* Offices, Coventry. [X8149

P. and M., 1913, good condition, little used, £55; with new Chater-Lea wicker canoelet sidecar, £60. —Baines, 65, Whiteladies Rd., Bristol. [1281

2¾h.p. 3-speed A.J.S., 1913, new last April, ridden 550 miles, Lucas lamp, speedometer, horn, tools, good as new; £45.—Pool, King's Rd., Fleet, Hants. [1163

1909 F.E. Triumph, P. and H. lamp and generator, 1912 piston and tools, thoroughly overhauled, and not ridden since May; £20, no offers.—T. K. Phillips, Pitcain, Basingstoke. [1274

£10-10-0

Ten guineas is all it costs to bring your mount up-to-date by the addition of the

1913½ ROC

SIDECAR PATTERN

Two-speed Gear.

(6 Days' World's Sidecar Record type)

The 1913½ big clutch type has been designed expressly for passenger work.

It solves all gear worries and guarantees you satisfaction.

The 1913 Roc gear was already recognised the last word in motor cycle gears for solo use.

The 1913½ big clutch type is just what thousands of "sidecarists" have awaited and expected.

The Roc gear was the first of all motor cycle gears—it is the first to-day. Nothing could be smoother, easier to operate, or be more reliable.

No better investment for the money is possible than in this 1913½ Roc dependable gear, fitted complete for ten guineas.

Write for particulars, stating make and h.p. of your machine.

No delay in delivery.

ROC GEAR Co.,

HAYMILLS, BIRMINGHAM.

London: Robertson's, 157, Gt. Portland St., W.

OTOR BICYCLES FOR SALE.

YTONS'.—Scott, 1913, brand new, soiled only; list price £68/5, offers wanted; easy payments, exchanges.—Laytons', Bicester, Oxon. [X8386

YTONS'.—Sunbeam, 1913, 2¾h.p., kick starter, 2-speed; catalogue price £63, offers wanted.—Laytons', Bicester, Oxon. [X8387

YTONS'.—Douglas, model O, 2-speed, just arrived; £48; exchanges, easy payments. — Laytons', Bicester, Oxon. [X8388

YTONS'.—Triumph, 1913, 3-speed model, just delivered; £59 15; exchanges, easy payments.—Laytons', Bicester, Oxon. [X8390

YTONS'.—James, 4h.p., 1912, 3-speed model, complete with sidecar, lamp, horn, thorough order; Laytons' Bicester. [X8391

YTONS'.—Scott, 1912, used 800 miles only, complete with lamp, horn, speedometer, spares, etc.; exceptional opportunity, £48.—Laytons' Bicester, Oxon. [X 8389

YTONS'.—Douglas, 1913 model, complete with lamp and horn; £43; fast machine. — Laytons', Bicester, Oxon. [X8393

ARTWELLS' Garage, Chipping Norton. — Triumph and Douglas agents; also agents for Swift cycles, Banbury, Burford, and Chipping Norton

IUMPH, 3-speed, 3½h.p., free engine, clutch; in stock; £59 15.—Hartwells'.

OUGLAS model O, £48; in stock model R, £52. —Hartwells'.

FIELD Autolette in stock, £138.—Oxfordshire agents, Hartwells'.

IUMPH, 1912, free engine, in fine order throughout, new 1in. Dunlop belt, lamp, horn, and tools; £—Hartwells'.

VIS, 2¾h.p., done 50 miles, with horn, new, beautiful machine; £30 for quick sale.—Hartwells. [1786

OTT, 1913, excellent condition throughout, had little and careful use, Palmer tyres, Lukin carburetter, lamp, generator, and horn; £52, lowest.—Morris Garages, Oxford. [X8019

IUMPH, 1911, free engine, good condition throughout, including belt and tyres, tools, spares; £—Morris Garages, Oxford. [X8020

UMBER, 1911, 3½h.p., 2-speed, free engine, splendid condition, lamp, generator, and horn; £25, lowest.—Morris Garages, Oxford. [X8021

VIS, 1912, Baby model, in perfect condition, splendid pulling engine, lamp, generator, and horn; lowest.—Morris Garages, Oxford. [X8022

IUMPH, 1908, new tyres and belt, recently overhauled by makers, with 1913 cylinder and piston ring £10, perfect condition, almost as new; bargain, £—Doxey Milner, Tewkesbury. [1304

COND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

SECTION VIII.

tford, Essex, Middlesex, Surrey, Kent, id Sussex.

h.p. Quadrant, mag.; £12, or offer.—159, High St., Teddington. [1280

AGLES.—Rudge, 1912 T.T. model, exceptionally fast, perfect condition; £28.

AGLES.—Bradbury, 1912, standard model, new condition, all accessories; £29.

AGLES.—N.S.U. 4h.p. twin, Bosch, 1911 spring forks, 2 speeds, free engine; £22.

AGLES.—Rudge, 1913, free engine model, as new; £35.

AGLES.—Bat-Jap, 1912, 3½h.p., spring frame, T.T. handle-bar, very fast; £27.

AGLES.—Bradbury, 1912, N.S.U. 2-speed gear, free engine, had little use; £35.

AGLES.—Enfield 2¾h.p. twin, late 1912, 2 speeds, free engine, chain drive, handle starting, footboards, nearly new; £31.

AGLES.—Zenith-Gradua, 3½h.p. J.A.P. engine, fine condition, all accessories; £27/10.

AGLES.—N.S.U. 3½h.p. Popular, improved spring forks, 1in. belt, adjustable pulley; £20.

AGLES.—N.S.U. 3½h.p. Popular, mag., adjustable pulley, 1in. belt; £16.

AGLES.—N.S.U. 3h.p. Popular, new 1911, magneto, spring forks, h.b.c., fine condition; £17.

AGLES.—Any of the above can be purchased by deferred payments, one quarter of amount down.

AGLES for prompt delivery of 1913 Bradbury, Douglas, N.S.U., Rover, Singer, Triumph, and other makes; best exchange terms.

AGLES and Co., High St., Acton.—N.S.U. West London District Agency. Tel.: 556 Chiswick. [X8187

h.p., low, excellent order, must sell.—Fisher, 11, Kinfauns Rd., Goodmayes. [1306

h.p. Trump, mag., B. and B.; bargain, £16/10.—8, Howard Rd., New Malden, Surrey. [1276

12-13 2½h.p. 2-speed F.N., run 1,000 miles, as new; £32/10.—Purcells (see advert). [0659

—the proved PERFECT Spring Fork

—It's the SCIENTIFIC DESIGN and PERFECT SPRINGING principle which places "The Druid" so far ahead of any other Spring Fork—that's the reason why it is adopted on the leading machines of the day—and the fact that it

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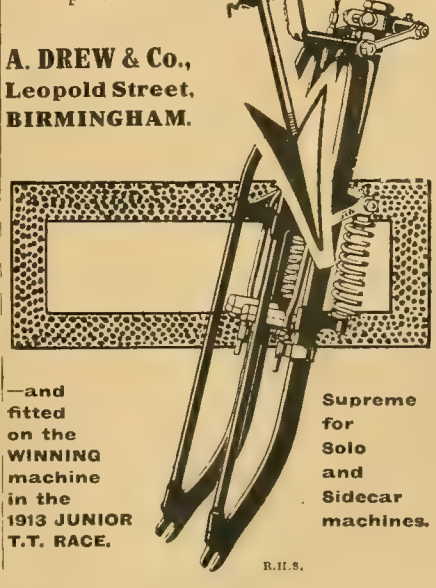
A. DREW & Co., Leopold Street, BIRMINGHAM.



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Supreme for Solo and Sidecar machines.

R.H.S.

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WOSTER.—3½h.p. Rex motor cycle, H.T. mag., in grand running order; £12/10.

WOSTER.—2¾h.p. Minerva motor cycle, recently overhauled; £12, bargain.

WOSTER.—3½h.p. De Dion motor cycle, recently won 3 races in France by owner; £14, bargain.

WOSTER.—5-6h.p. A.C. De Luxe cycle car, late 1912 model, H.T. mag., 2 speeds and in excellent condition; £70 bargain.

WOSTER.—3½h.p. Premier motor cycle, 1912 H.T. mag., head lamp, generator, horn, speedometer; £40, great bargain.

WOSTER Automobile Works, 27-29, Tooting Bec Rd., Balham. 'Phone: 791 Streatham. Telegrams: Woster. [1311

PALMER'S Garage, Tooting.—The pre-eminent providers of unprecedented bargains.

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PALMER'S Garage, Tooting.—2¼h.p. Royal Enfield twin lightweight, mag.; £14/10.

PALMER'S Garage, Tooting.—2h.p. Premier lightweight, nearly new machine; £25.

PALMER'S Garage, Tooting.—7-9h.p. Vindec Special, 2-speed, with sidecar; £32/10.

PALMER'S Garage, Tooting.—3½h.p. 1912 Triumph, F.E., grand condition; clearance, £35.

PALMER'S Garage, Tooting.—3½h.p. 1912 Singer, F.E., very nice condition; great bargain, £35.

PALMER'S Garage, Tooting.—3½h.p. L.M.C., F.E., 1913, brand new; £47/10.

PALMER'S Garage, Tooting.—2h.p. Minerva, £5; 2¼ h.p. Atlas, £4; 2¼h.p. F.N., £10.

PALMER'S Garage, Tooting.—4-5h.p. F.N., 2-speed and sidecar; £25.

PALMER'S Garage, Tooting.—4h.p. Stevens, Bat and sidecar, powerful lot; £12/10.

PALMER'S Garage, Tooting.—3½h.p. 1913 Rudge, T.T., grand machine; bargain, £35.

PALMER'S Garage, Tooting.—4¼h.p. Kelecom, and sidecar; cheap, great bargain, £9.

PALMER'S Garage, Tooting.—3½h.p. Rex, £7/10; 2¾h.p. Minerva, £10/10; 2¼h.p. Peugeot, £5; 2½ h.p. J.A.P., £8.

PALMER'S Garage, Tooting.—Sole address, L. N. Palmer's Garage, Merton Tram Terminus, Tooting (20 mins. Victoria, 10 mins. Wimbledon). Motor 'buses 48, 49, and 66.—'Phone: 208 Streatham. [1368

£23.—3½h.p. N.S.U. and new sidecar, or separate.—Hambrooke, Fernhill Park, Woking. [X8151

HUMBER, 2¾h.p., belt drive, H.H., battery, low position; bargain, £8.—Revell, Ewell. [X8332

LEVIS, famous 2-stroke.—Postcard Harry Walker, official agent, The Garage, Muswell Hill [X8153

1½h.p. Clement, Bosch mag., 2-speed gear, overhauled; £7/10.—76, South Park Rd., Wimbledon. [1273

TRIUMPH, 1907, perfect condition; £18, lowest.—L.H., 34, Northside, Clapham Common, S.W. [1183

ROVERS, all models, from £48/15, or 55/- monthly; deferred payments no extra.—Lamb's, below.

DOUGLASES, all 1913 models, from £48, or 55/- monthly.—Lamb's, below.

B.S.A.'s, all models, from £48/10, or 70/- monthly.—Lamb's, below.

HUMBERS, all models, from £35, or 40/- monthly; deferred payments no extra.—Lamb's, below.

JAMES, all models, from £48, or 50/- monthly; deferred payments no extra.—Lamb's, below.

ENFIELDS, all models, from 50 gns., or 60/- monthly; no extra for deferred payments.—Lamb's, below.

TRIUMPHS, all models, from £49/5, or £3/3 monthly. —Lamb's, 151, High St., Walthamstow. [0716

DOUGLAS, 1912, 2-speed, lamp, horn; £35, near offer.—4, High St., Stoke Newington. [X8195

TRIUMPH, 1909, just overhauled, enamelled, and plated, as new; £25.—4, High St., Stoke Newington. [X8196

B.S.A., 1912, N.S.U. gear, perfect machine; £35 nett.—40b, High St., Hampstead. [1289

5h.p. Twin Kerry, great bargain, £13/10; sidecar, £3.—40b, High St., Hampstead. [1290

DOUGLAS, 1911 model, in good condition; £25.—F. Spearman, Bridge St., Bishop's Stortford. [1348

3½h.p. T.T. Rudge (July, 1913), guarantee 63 m.p.h.; £38.—1, Sidney Rd., Waltham Cross, Herts. [1209

MOTOR BICYCLES FOR SALE.

MOTOSACOCHE, 2h.p., Whittle, Druids, good order; £12.—Older, 117, Brighton Rd., Croydon. [X8362

LATEST 1913½ T.T. Precision, 3½-4h.p., mag., as new; £32/10.—1, Ebner St., Wandsworth. [X8340

3½h.p. N.S.U., mag., tyres good, condition excellent; £20.—Humphries, 8, The Village, Old Charlton. [X8383

BROWN, 1912, T.T., overhead valves, fast, perfect condition; £21.—81, Drakefell Rd., New Cross. [1339

2h.p. Quadrant, mag., condition perfect; trial; £10/10. —F. Rogers, 19, Aldine St., Shepherd's Bush, W. [1336

TRIUMPH, free engine, 1910, fine condition; seen any time; £26.—Randall, 88, Church Rd., Barnes, S.W. [1238

NEW Hudson, 1913, 3-speed, very fast, in perfect condition; £45.—Randall, 4, Wickham Rd., Beckenham. [1172

DOUGLAS, Model R, 1913, almost new, accessories, splendid condition; £45.—56, Genesta Rd., Westcliff. [1143

3h.p. Motor Cycle, good running order, good tyres; £10, or nearest.—9, Roakes Cottages, Cheapside, Woking. [X7652

TRIUMPH, late 1910, standard, perfect every way, new tyres; any trial; £22/10.—C., 130, Brixton Rd., S.W. [X8163

BRADBURY, 1912, 3½h.p., excellent condition, all accessories, new Dunlop belt; £30.—Bruce, Iden, Staplehurst. [1206

MOTOSACOCHE, mag., free engine, spring forks, accessories; offers. — Addis, 12, Heath Rd., Hounslow. [1317

1912 Hobart-Precision, 2¾h.p., 3-speed, free engine, nearly new, patent lamps; £30.—29, Oxford St., Whitstable. [1185

IF You Want Bargains in 2nd-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet St., London. [X9705

CHATER-J.A.P., 1913, 3½h.p., splendid condition, new belt and tyres; sacrifice £25.—60, Mall Rd., Hammersmith. [1194

3½h.p. 1911 2-speed Humber, suitable for sidecar work; £28.—Wauchope's, 9, Shoe Lane, Fleet St., London. [X8211

DOUGLAS, 1913, T.T., very little used, and kept in good condition; £37.—Korna, Helenslea Av., Golder's Green. [1326

TRIUMPH, 1909, free engine, Lyso, Dunlops, recently overhauled; £23, or offer.—8, Howard Rd., New Malden. [1337

P. and M., 3½h.p., mag., B. and B., chain drive, new tyres and tubes; £17.—Ellis, 25, Markhouse Rd., Walthamstow. [X8141

TRIUMPH, 1911½, clutch, lately replated, re-enamelled, perfect; £30. — Yearsley, Chatsworth Rd., Brighton. [X8264

£8.—Rex, Palmers, Whittle, low, take sidecar; Montgomery sidecar 35/-.—Cabrine, 33, Wiltshire Rd., Brixton, London. [X7952

1910 Enfield Twin, 2¼h.p., perfect; any trial; £16. or offers.—Baker, Chesham Cottages, North Bank, Waltham Abbey. [X8017

KERRY-ABINGDON, 1911, 3½h.p., 2-speed gear, handle starting, nearly new tyres; £26.—Tilke, Horsmonden, Kent. [1164

T.T. Triumph, Oct., 1911, very fast, excellent condition; £35/10.—Garage, 6, Queen's Parade, Green Lanes, Hornsey, N. [1174

DOUGLAS, all models, for immediate delivery; trade supplied.—Rey, 5, Heath St., Hampstead, and 173, Gt. Portland St., W. [9668

LEA-FRANCIS, twin, chain drive, prompt delivery —Hucklebridge, 133, Sloane St., London, S.W. Tel.: 451 Victoria. [7543

1912 Triumph, free engine, £38; 1911 Humber, 2-speed, £34; both excellent condition.—Durling, Ightham, Sevenoaks. [1340

6h.p. Zenith-Gradua, 1912, new condition, fast, little used; £46.—C. Thomas, St. Bartholomew's Hospital, E.C. [1298

CONDOR, 3½h.p., mag., new back tyre and belt, low, fast, and excellent going condition; £21.—Fry, 10, Windsor Rd., Finchley. [X8138

3½h.p. Lincoln Elk, Bosch mag., variable pulley, lamp and spares, in good condition; £15.—White, 1, Zenoria St., E. Dulwich. [1199

REX, J.A.P. engine, in perfect condition, new Bosch mag., 6h.p., climb any hill; offers.—Price, Elm Garage, Wimbledon, S.W. [X8143

ROVER, 3¼h.p., 1913, Bosch mag., B. and B., handle-bar ignition, Dunlop belt, spares; £19.—5, Epsom Rd., Croydon. [X8412

TRIUMPH, 1912¾, free engine, not done 600 miles; £40, genuine bargain. — 228, Pentonville Rd., King's Cross, London, N. [1362

3½h.p. Triumph, recently thoroughly overhauled, Mabon clutch, B. and B. lamp, horn, tools, etc.; £22. —Mynton, Olden Lane, Purley. [X8345

MINERVA, 2¾h.p., Amac, spring forks, new belt; bargain, £12, or offer.—Garaged, 40, Allfarthing Lane, Wandsworth. [1310

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MOTOR BICYCLES FOR SALE.

CASS'S.—Trump-Jape, 1913, special bargain, 6h 3-speed, kick starter, decompressor, best frame market, 60 gns., list £69/10.

CASS'S.—Quadrant, 4½h.p., new, 3-speed, low; pri £48/10 accepted, list £59/10.

CASS'S.—F.N., 1912, as new, 5-6h.p., clutch mod special sale price £38; also 1910 model, £22.

CASS'S.—Triumph and sidecar, Kempshall tyres, go condition, £29/10.

CASS'S.—Wolf, 2h.p. A.J.S. engine, mag. ignitio £11.

CASS'S.—Motosacoche, 1912, 2½h.p., variable ge shop-soiled; list £44, only £29/10.

CASS'S.—Quadrant, 1912, 4½h.p., 3-speed, gold med winner, do 60; £38.

CASS'S.—Zenith, 1912, 8h.p., and £16/16 cane s car, Lucas accessories, Jones speedometer, in p fect condition; special bargain, £65.

CASS'S.—Hazlewood, 2¾h.p., J.A.P., 3 speeds, a accessories, nearly new; bargain, £32/10.

CASS'S.—All makes, new and second-hand, mot cycles and cycle cars supplied, sidecars, tyr accessories; deferred payments.—Cass's Motor Mart, Warren St., W. (opposite Tube Station). Tel.: 36 Mayfair. [13

KERRY-ABINGDON, 3½h.p., 2-speed and fr engine, 1911, splendid condition; £32/10 Knight, Church St., Reigate. [12

SINGER, 2½h.p., 1912½, P. and H. lamp set, rubbe footboards, spares, just overhauled; £22.—8a Westville, Northwood, Middlesex. [X82

CLEMENT-GARRARD, new engine, Hellesen, and B., ideal motocyclette; £7/10.— Brocklebank Rd., Wandsworth. [12

F.N., 4-cyl., splendid condition, just overhauled; powerful; £18, or exchange lightweight.—Pow 28, Norman Rd., Wimbledon. [1

F.N., 6h.p., very fast, splendid order, or exchan good 3½h.p., 2-speed, sidecar, and cash.—Banfi High St., Borough Green, Kent. [1

SCOTT, December, 1911, little used, perfect co tion; what offers? also B. and K. sidecar.— 291a, Oxford St., London, W. [X8

TRIUMPH, clutch, 1912¾, lamp, generator, ho spares, never used, not wanted; seen after 6; £ —121, Upper Clapton Rd., London. [1

1911 3½h.p. Clutch Premier, in splendid co tion; trial; bargain, must sell, £2 Scotchmer, 138, Bath Rd., Hounslow. [1

ROVER, 1912¾, 3-speed, free engine, with spa £38; with unscratched Canoelet sidecar, £47; ac sories, £3.—49, Rushey Green, Catford. [1

MINERVA, 2¾h.p. upright engine, Amac, h new belt, good tyres, perfect; £7; ride awa Baxter, 103, Greyhound Rd., Fulham. [1

4-CYL. F.N., 2-speed, good condition, horn, lamp, cessories, suitable for sidecar; £28, or near offe 4,011, *The Motor Cycle* Offices, Coventry. [X8

BAT, 1912, 2¾h.p., T.T. model, overhead valves, bearing engine, 3 speeds, low built; sacrifice, £ —Moto, 46, Chaucer Rd., Herne Hill, S.E. [X8

BAT-J.A.P., 8h.p., 1912, F.E., Cowey, Lucas h accessories, back seat for passenger, whole perfo cost £70, sell £40.—23a, Greville Rd., Kilburn. [0

1912 Bradbury, 2 speeds, free engine, new ty lamps, etc., ideal sidecar machine, in excell condition; £32.—55, Aytoun Rd., Stockwell. [X8

MOTO-REVE, twin, Druids, Continentals, Whi belt, excellent condition; cheap; bought sid machine.—40, Belleville Rd., Clapham Junction. [1

DOUGLAS, 1913, model O, with lamp and horn, in May, excellent condition; £37; owner g abroad.—Cave-Browne, Folkestone Rd., Dover. [X8

MOTO-REVE 2¾h.p. Twin, 1911, Bosch mag., stud tyres, horn, lamp, tools, very fast, perfect co tion; £16.—Goodship, Elm Rd., Ewell, Surrey. [X8

6h.p. Matchless-Jap, 1910-11, condition as new; gns., or exchange for Triumph and cash.—Baten Norfolk House, Lower Addiscombe Rd., Croydon. [1

3½h.p. Minerva, mag., £11: 3-wheeled chassis, ty and steering, £4; sidecar springs, as new, must sell.—4, The Broadway, Addiscombe, Croydon [1.

TRIUMPH, 1913, 3-speed, done 1,000 miles, spe meter, all accessories, perfect condition; must immediately, offers.—21, Highbury Quadrant, Lon [1

1910 Rex de Luxe, 5-6h.p., 2-speed, free, handle s ing, Bosch, Senspray, Whittle, excellent t Pillion; trial; lowest £25.—17, Argyle Rd., Mile E. [1

6h.p. Matchless, late 1912, twin belts, Chater- family sidecar; £60; any trial; owner buying —Beaubois, 2, Marlboro' Rd., Collier's Wood, Mer S.W. [X7

1912 T.T. Roadster Rudge, bought 1913, O.A B.S.A. carburetter, Miller lamp, knee grips, fect, exceptionally fast; £30.—Hollinghurst, Hornchu Essex. [X8

PREMIER Lightweight, bought from Olympic E bition, only run 200 miles; going in for sid combination; £29/10. — Rose, Clayton Rd., He Middlesex. [1

SEPTEMBER 11TH, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND FORTY-SIXTH CONSECUTIVE ISSUE.

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A.C.U. Trials. The Judges' Report.

SOMEWHAT belated, but none the less welcome, comes the judges' report on the recent Auto Cycle Union Six Days Trials at Carlisle, and perusal of it will well repay the time involved. We think the judges have done well to keep their report as short and concise as possible. Long technical details and explanations are nearly always tedious, and there is a pleasing brevity about this report. The great debated question of the routes selected is hardly referred to, except that the report says that there are many rough roads in the suburbs of London and Paris that are far more trying to the frames and fittings than any of the loose roads in Lakeland.

With regard to faults in the modern motor cycle, the points to which attention is more directly drawn are leaky tanks and badly fitted wire controls. We ourselves saw a good deal during the progress of the trials of these two, and we consider that it is not very much to the credit of the 1913 models that it should be necessary to draw attention to such defects. On many of the best makes such troubles are absolutely unknown, and the hardiest riders could drive them indefinitely without loss of petrol or failure of control wires. The judges very rightly point out that the defective wire controls were the faults of the fitters and not of the material.

The judges, we are glad to say, give a word of appreciation to the general appearance of the riders. We feel sure that this praise is well merited, for we particularly noted a great improvement in this respect over last year. One or two were penalised for carrying tins of oil flopping about attached to their belts. We confess to a little sympathy for the riders so penalised, for carrying a spare tin of oil is an awkward business, especially when the carrier is already loaded. We think makers would do well to try and provide some means of carrying a quart tin of oil on the machines for long-distance touring.

The judges pay great praise to the cycle cars which finished the course, and point out that not only did they get through, but that they finished in excellent condition. They also point out that it was not, generally speaking, the rough roads that caused the great number of retirements among the cycle cars, but usually engine defects. However, the fact that two out of the three successful machines were fitted with air-cooled motors does not point to air cooling being in any way unsatisfactory for this class of vehicle.

Automatic and Hand-controlled Lubrication.

THE question of lubrication of motor cycle engines is always a most interesting subject, and we do not know of any detail in connection with these engines, except perhaps carburation, on which more diverse views are held. Many contend that the ordinary hand pump is sufficient, others prefer semi-automatic oiling by drip feed and spring forced pump, some pin their faith to lubrication by crank case suction, while a few are only content with forced feed oiling by gear-driven pump and a perfect circulation of the lubricant through all the bearings.

The defects of the hand pump are that all depends on the knowledge of the rider; the spring forced pump feed is a step in the right direction, but it only feeds at a fixed rate and does not vary with the engine speed; true, the feed can be altered by the rider to suit different conditions, but here again skill or knowledge has to be employed to regulate the supply. The crank case suction type is more automatic, and the faster the engine runs the quicker the feed becomes, but again it cannot be depended on entirely, and a hand pump is nearly always added to give an extra dose of oil for emergencies. Now, unless a motor cyclist is thoroughly accustomed to his engine, he cannot be sure that he is lubricating correctly for all conditions, and the result is that he adopts a course which means that the engine is more often than not over-oiled, and the outside of the crank case becomes very dirty and carbon deposits collect too rapidly.

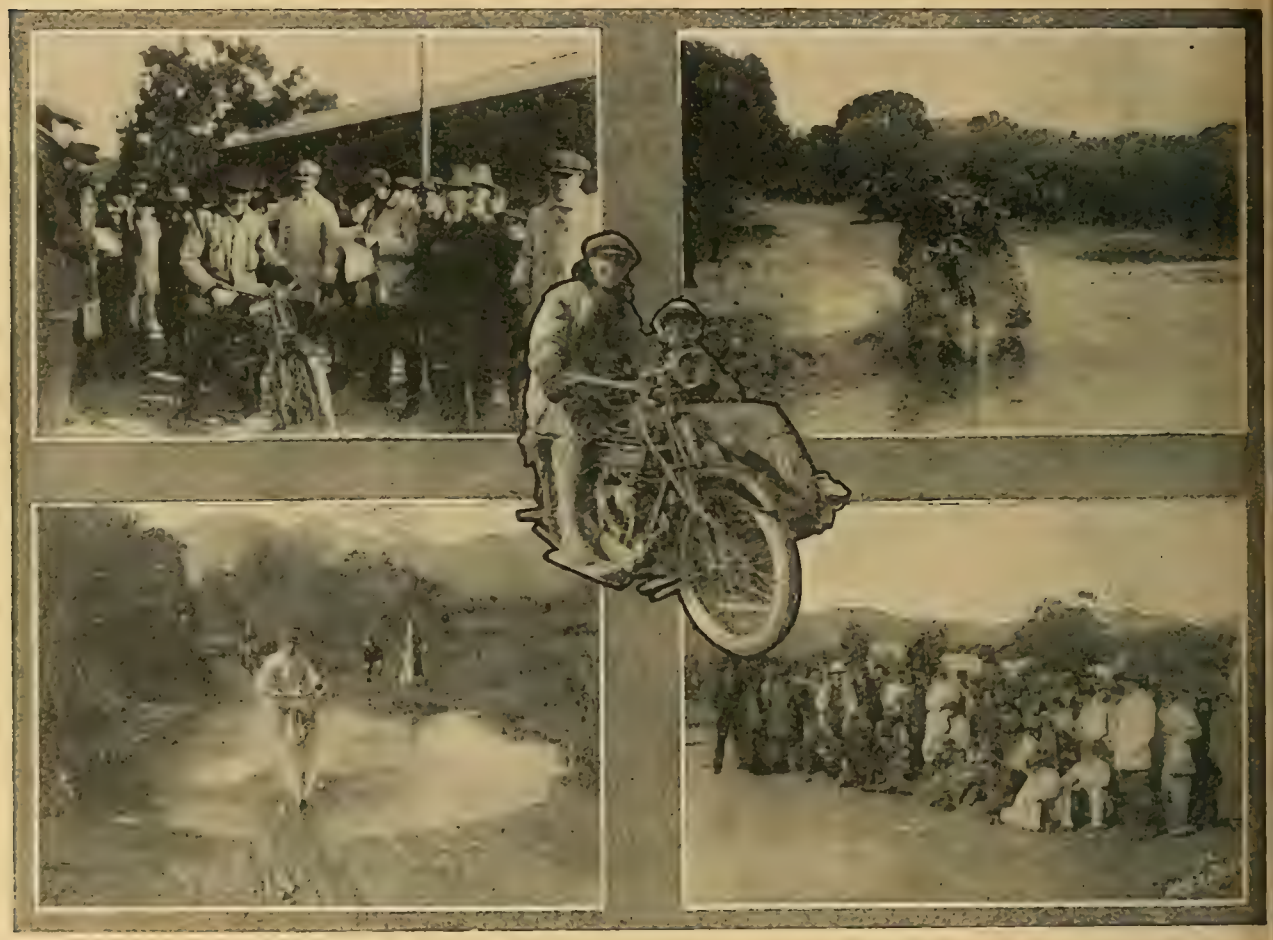
We do not advocate that a mechanical feed by pump should be adopted in every case as a cure for the above-mentioned disadvantage, but when one knows that in certain instances car engines have nothing more complicated in the way of lubrication than a small force pump, a sump from which the oil is drawn and whence it is returned by gravity, and that this system is employed on some of the best motor cars in this country, it makes one sorry that motor cycles are not more universally fitted with similar devices.

In addition, it is possible to drive a 12 h.p. four-cylinder car fitted with the above-mentioned system a distance of fifteen hundred miles with a consumption of one gallon of lubricating oil. Judging by the foregoing, some readers might imagine that no motor cycle possesses a mechanical system of lubrication; on the contrary, there are several employing some form of mechanical oiler, but they are in the minority.

A South African Reliability Trial.

GREAT interest was displayed in the second annual 100 miles reliability trial for the Continental Cup, which was held by the Cape Peninsula M.C.C. on June 3rd. Over forty competitors took part, including last year's winner, the Rev. J. B. Priston, who rode a P. and M. A speed of 20 m.p.h. for solo and sidecar machines had to be observed. The course was an exceedingly steep and rough one, and numerous mishaps occurred to several of the machines, such as wheels collapsing owing to the strain on the spokes, and sidecar frames breaking, while one or two sidecars overturned on the rutty roads. Only one minute was allowed in each control, riders being timed out directly this period of grace elapsed, so all adjustments had to be made during running time. It is interesting to note that pedalling gear is still fitted largely to Colonial machines, and highly useful it proved on several occasions on this trial, as extra power was often needed to get out of river beds and sand heaps.

The final results were as follows: Winner of the Continental Cup, H. Dreyer (6 h.p. Enfield sidecar), total error 30 seconds. Second place was taken by T. Widdowson (6 h.p. Clyde sidecar), while the Rev. J. B. Priston (3½ h.p. P. and M.) and W. Thompson (5 h.p. Clyde sidecar) tied for third place.



ANNUAL 100 MILES RELIABILITY TRIAL AT THE CAPE FOR THE CONTINENTAL CUP.

(1) The start at Sull River. Rev. J. B. Priston (3½ h.p. P. and M.), previous holder of the cup leaving.
(2) An Enfield sidecar being driven through the watersplash near Sir Lowry Pass.
(3) J. Davies (3½ h.p. Clyde) followed by de Krieken (3½ h.p. Emblem), crossing the river on the Gordon Bay road.
(4) A group of competitors and officials in the trial.
(5) The winner, H. Dreyer (6 h.p. Enfield sidecar), after being notified of his victory.

"THE MOTOR CYCLE" DIARY.

Sept. 13.—Banbury and District M.C.C. Run to Towcester and Buckingham.
" Bradford A.C. Speed judging or Village finding Contest.
" Cardiff M.C. Hill-climb at Cold Harbour.
" Cumberland County M.C.C. Speed Trials.
" Liverpool A.C.C. Gymkhana.
Sept. 13.—Middlesex County A.C. Fox and Hounds' Run.
" Middlesex M.C.C. Members' Hill-climb.
" N.E.A.A. Amateur Hill-climb.
" Yorkshire A.C. Pateley Bridge Hill-climb.
" Woolwich, Plumstead, and District M.C.C. Mid night Run to Weymouth.
Sept. 15.—Third War Office Subsidy Trials Commence

Spare Tube Carrying.

Spare tubes may be carried in many ways—round your neck, round your waist, in a kind of collarbox strapped to the carrier, or looped round the handle-bar. The "get-there" type of rider must carry a tube somehow somewhere, and the two latest accessories for storing tubes in strike me as improvements on their predecessors. One is a cheese-shaped case, made in two halves with hinge and lock, designed for fitting over a tube furled round the handle-bar, which certainly needs protection. The other is probably new to most of our readers, though I have been using it for a year or more. It is a sausage-shaped bag of soft leather, so spacious that the tube, when folded into four, can be readily slipped into place—a distinct contrast with the packing ingenuity required to house a tube in the average collarbox type of holder. When the tube is in the bag, the valve protrudes through a hole in the flap-closer; the bag is then loosely strapped to the saddle-pillar tube, and a couple of strokes of the inflator lock it securely in position. This tube case is known as the Robinson. A similar case should have a sale amongst car owners.

The 2⅜in. Tyre.

Loudly as we abused manufacturers when they were fitting small, flimsy tyres, I believe nobody has yet had the courtesy to express any public gratitude to the manufacturers for giving us 2⅜in. tyres of better quality, as so many of them have done this season, usually at a considerably increased cost to themselves, and without any increase of their catalogue prices. It is never safe to generalise on the tyre question, for one's luck varies so much from year to year. But I can make a boast which has not yet been possible for twelve long years. I have got into September without buying a new cover for the machine I work hardest, and without even removing one of the clinches from the rim. My 2⅜in. tyres have never sustained a single puncture in six months' hard work: the studs on the rear tread are not yet wholly non-existent, and if memory serves me aright, the tube has only had about two doses of extra air in this period. It is probably absurd to credit the fractional increase in tyre dimensions with the whole of this meritorious advance. I fancy the general quality of these tyres represents a very real advance upon the standard tyres of seasons, and the experience of my friends confirms my own impressions. Furthermore, I know of many sidecar and cycle car owners who have enjoyed quite unusually pleasant service from their 1913 tyres, so it would seem that motor cycle manufacturers are growing more generous, and tyre makers more conscientious. Competition is a wonderful thing.

Many 3½ h.p. Twins for 1914.

One of the features of the autumn show will be the number of twin-cylinder engines emanating from factories which have won their renown and earned their dividends with the 500 c.c. single. When I first "went dotty" on the two-step drive, as a kindly correspondent puts it, I scarcely foresaw how far the transmission question would take us. Some of the more recent perfectly balanced twins have bred a distaste for the slugging single-cylinder amongst fastidious riders, but I am quite sure that transmission factors accelerated, if they have not originated, the boom in small twins for which the autumn of 1913 will be remembered. The counter-shaft drive has proved its worth; but it has also proved to be too harsh for perfect riding when a high efficiency single-cylinder supplied the motive power. A couple of seasons may see the 500 c.c. twin installed as the touring mount *par excellence*. Three years ago I rode such a machine for a couple of months, and I implored its designer to persevere with it, for it was certainly a much sweeter and more docile mount than the super-compression single which was my daily fare at that period. He found riders in general did not want it, and so he surrendered his principles and imitated the fashion, instead of being courageously original.

Distinguished Debutantes.

Once again we enthusiasts who hoped that the future would bring us the perfect £100 four-wheeler on genuine cycle car lines are being given furiously to think. Scarcely a week passes but the motoring journals announce one or two *débutantes* in the miniature car class. The other week, for instance, brought the Wolseley and De Dion companies into this category. The Stellite car, designed by the Wolseley Co., is a miniature automobile, with a four-cylinder engine measuring 62 × 89 mm. with but two speeds, and the De Dion carette has a similar engine, with dimensions of 56 × 120 mm. and three forward speeds. Moreover, these cautious and deliberate propositions—put forth partly as an answer to the demand for cycle cars and partly as a retort to the Yankee invaders—are not cheap. The tiny De Dion, for instance, is listed at £221, for chassis with tyres but *sans* coachwork. When we contrast these specifications and figures, and the standing of the firms in question, with the ideal and the practical conception of what a cycle car should be, we may draw an obvious moral. In the opinion of some of the best automobile engineers, it is all but impossible to build up a successful business with a genuine £100 cycle car at the present juncture, supposing that customers expect such a standard of quality, comfort, and service as they are accustomed to find in a first class car or motor cycle.

A Stopping Problem.

I suddenly found myself up against the problem of my life the other day. I was descending a steepish and crowded street a shade faster than was wise, when my valve lifter wire broke. My throttle was adjusted so as just not to close, with the idea of keeping the engine ticking over with the clutch out. I had to stop in a hurry, I had to steer as trickily as a stage acrobat in a cycling show, and I could neither release the compression nor arrest the flow of combustible gas into the engine.

There was no time to think, but luckily my brain instinctively applied the knowledge latent in its subconscious pigeon holes. I threw the air lever wide open, and slung the ignition right back, simultaneously jamming on both brakes hard. The machine fetched up with an awful explosion in the silencer and a tremendous jerk, greatly to the alarm of the crowd, and to the amusement of the occupants of a passing sidecar, who, of course, were ignorant of my quandary.

The Improvement in Belts.

The season has now run more than three parts of its course, and I who owe a remunerative position in journalism to the frequent troubles I encounter, and the spicy copy that their telling makes, have not had a single belt stoppage! Apart from trade machines on loan, I have chiefly ridden a 750 c.c. single with a 1in. belt, and a 3½ h.p. single with a ⅞in. belt. The Forward fastener, of course, never breaks, but it is odd that neither of them has pulled out through a belt end in a combined mileage of 6,000 or so. The belts themselves have, of course, been flattered by the dry weather, but neither of them has so much as smelt a knife. The belt on the 750 c.c. machine is worthy of special honour, for it has no adjustable pulley to come to its aid: that on the 500 c.c. machine possesses an adjustable pulley, and naturally when I alter my gear ratios I set the pulley to give the belt its ideal tension. But even thus, I always try my belt after a long trip, and it has never been so loose that tightening seemed at all desirable: while the pulley has never been touched in the special interests of the belt, but only from a frank and sincere desire for a special gear ratio. Has the reduction in cost of rubber had anything to do with this new record of mine?

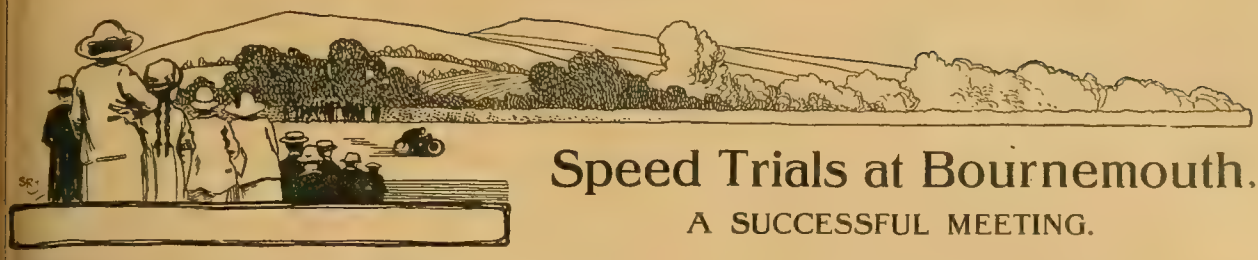
The North Derbyshire M.C.C. recently held a motor cycle Gymkhana at Chesterfield, at which the above two sidecars proved prize-winners in the decorated cars event. On the right is a 7 h.p. Indian which gained first prize while the second place was secured by the 6 h.p. Enfield on the left of the photograph.

Tank Filler Caps.

One or two accessory makers forwarded samples of patent tank filler caps, in reply to my strictures upon the many unsatisfactory patterns in use. Nobody ever questioned the fact that excellent stoppers are to be had; the point is that cheese-paring manufacturers apparently pass over the best examples, and go out of their way to buy inferior types, which are also made for them by accessory specialists in many cases. This mild insanity has one or two explanations. Either the makers in question do not know how bad the stoppers are, in which case they should inspect the store room issue book. Or they are aware that the stoppers are inferior, but grudge the fractionally greater outlay required for the purchase of the better article. The old round screw stopper was a very great deal more satisfactory than many new patterns at present in vogue.

"Acute Recurrent Bigenditis."

Such is the euphonious *nom de plume* adopted by one of my correspondents, who sends me a design for forced lubrication, which I think I have met on paper before. Briefly, his idea is that the bottom of the crank case should be dropped to form an oil sump, in which should be fitted an enormous oil pump of the ordinary type, operated by Bowden wire from the handle-bars, and provided with a very powerful coiled spring above its piston. The delivery pipe from this pump is to lead to the crankshaft bearings, and be of small bore: similar ducts are to be run from the crankshaft bearing to the crank pin bearing, and thence to the little end or gudgeon pin bush, by means of a thin pipe running up the connecting rod. The idea is that the rider fills the large pump in the sump by means of his Bowden wire and h.b. lever: the spring behind the pump piston will concentrate heavy pressure on the small oilways, and so we shall get a simple forced lubrication system, with no miniature working parts to cause trouble. Gravity would, of course, return the oil to the sump, and presumably some method of informing the driver that the pump was empty would be incorporated. I mention the idea to prevent others falling into the obvious pitfalls it contains. The pump would be required to maintain a fairly heavy pressure in order to keep a film of oil between the shafts and the bearings—were we not told the other day that some motor cycle big-ends bore a stress of 3,000 lbs. per sq. in. at the height of the explosive pressure? If the pressure on the pump were set at, say, 10 lbs., it would empty very fast, no matter how great its capacity, and how narrow the bore of the ducts. As a consequence the rider would be constantly refilling the pump, and the system would make greater demands on his intelligence and memory than the present admittedly makeshift method of a tank and a hand pump. In other words, this idea shows the need for all forced oiling systems to be mechanically operated, and indicates that many practical riders would welcome the adoption of some such methods as were introduced in the W. and D. engine. By the way, I rather object to my friend's psuedo-medical pseudonym. It is true that big ends do not last as long as they might, and that I myself seldom run an engine more than 5,000 miles before selling it. But although I generally run a machine about 5,000 miles, I scarcely ever rebush a big end.



Speed Trials at Bournemouth.

A SUCCESSFUL MEETING.

FROM the preceding weather one hardly dared expect a fine day for the Bournemouth club's speed trials, but no rain fell, though the morning broke dull and cloudy. In company with Mr. E. L. Herring, the club secretary, we made an early start for the scene of operations, and found preparations in full swing. The course lay in Canford Park, close to Wimborne, and had been kindly lent to the club for the day by Lady Wimborne. The actual surface of the threequarter mile track was excellent, though the gravelly nature of the soil combined with a slight head wind and a gentle rise prevented phenomenal speeds. The road was a wide one, and the two curves so gradual that it was decided to run the event on the knock-out principle, no times being taken. The organisation throughout was excellent, and Mr. Philip Grout, representing the A.C.U., is a great hustler, consequently the heats were quickly disposed of, and the last final was run off by 5.30. With the exception of the motor cycles belonging to two club officials no vehicles whatever were allowed on or near the course, a field being provided in which spectators could park their cars and motor cycles.

About twelve o'clock the sad news was brought in that S. L. Bailey, who has only just returned from Australia, had had a bad smash in King's Park while riding a competitor's machine. Unfortunately, he had broken his leg and smashed his wrist. This news cast a gloom over the proceedings at the start, but all were glad to hear that he was safely in hospital and progressing as favourably as possible.

A Punctual Start.

Punctually at 12.30 balloting took place for pairing and positions in Class I. Each competitor was handed a box from which he drew a number, each number being duplicated and marked either right or left, thus the men were automatically paired and took the side of the course allotted to them. At one o'clock the first pair, L. W. Adams and H. Springfield, both mounted on Douglases, were sent away. Adams led from the start, and won comfortably. The next heat was won by G. H. Fry (2¾ Douglas), Cocker's little 2½ Singer being considerably slower in getting away, though once under way it showed a good turn of speed. Kickham's Douglas has new "internals," which were hardly run in, but he managed to beat Colver (2¾ Enfield) by a smart get away. In the semi-final Adams beat Fry, Kickham having a bye, and in the final Adams proved the winner, making a fine performance for an amateur. In one heat his machine caught fire just before the start, but the flames were extinguished before any damage was done. Results :

CLASS I.—Motor Bicycles up to 350 c.c.

First Heat.—L. Adams (2¾ Douglas) beat H. Springfield (2¾ Douglas), G. H. Fry (2¾ Douglas) beat J. Cocker (2½ Singer), and E. Kickham (2¾ Douglas) beat H. Colver (2¾ Enfield).

Second Heat.—L. Adams beat G. H. Fry; E. Kickham a bye.

Final.—L. Adams beat E. Kickham.

The next event to be run off was Class VI. for passenger machines, and, curiously enough, all the heats were easily won, though the final was a good race, both McMinnies and Griffith travelling at high speeds. The former made fine starts on each occasion. In his heat against W. D. South, Douglas Hawkes was unlucky enough to stop his engine, whereupon his opponent sportingly returned to the start and the race began afresh. Results :

CLASS VI.—Sidecars and Cycle Cars.

First Heat.—G. Griffiths (8 Zenith sc.) beat A. E. Gadsden (7 Indian sc.), H. Walker (8 Bat sc.) beat Cecil Hann (G.W.K.), W. D. South (Morgan-Precision) beat D. Hawkes (D.E.W.), and W. G. McMinnies (Morgan) beat G. W. Trendal (Morgan).

Second Heat.—G. Griffiths beat H. Walker and W. G. McMinnies beat W. D. South.

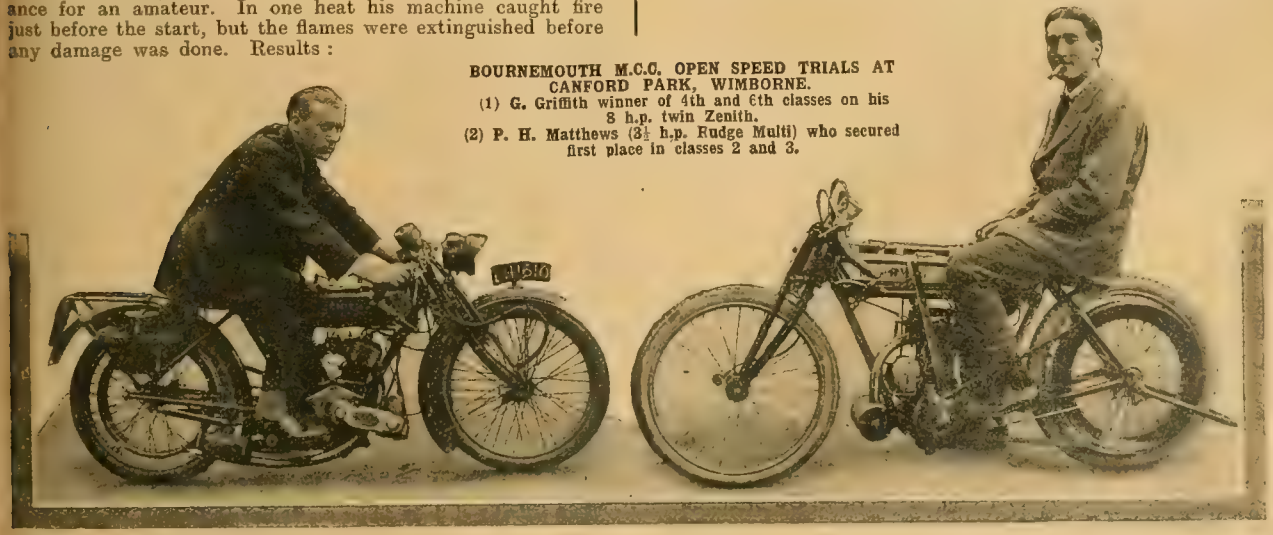
Final.—G. Griffith beat W. G. McMinnies.

Both McMinnies and South were driving Grand Prix Morgans.

There were only two runners in Class V. for sidecar combinations up to 650 c.c., and it seems odd that this class was not better supported. There were seven entries, but five failed to put in an appearance, C. T. Newsome's absence being accounted for by a spill during the previous week-end. Results :

Dixon Pollard (3½ Bradbury sc.) lost to A. E. Ede (3½ Rover sc.). The win was an easy one.

There was a good entry in Class IV., and the racing proved exciting, there being good finishes between Harvey Walker (8 Bat) and A. E. Gadsden (7 Indian); and P. Matthews (3½ Rudge) and H. Riddell (8 Matchless-Precision). Though Griffith beat Cocker (3½ Singer) easily, Cocker was travelling very fast and made a good fight, considering the



BOURNEMOUTH M.C.C. OPEN SPEED TRIALS AT CANFORD PARK, WIMBORNE.
(1) G. Griffith winner of 4th and 6th classes on his 8 h.p. twin Zenith.
(2) P. H. Matthews (3½ h.p. Rudge Multi) who secured first place in classes 2 and 3.

Speed Trials at Bournemouth.

difference in engine sizes. Crawley (3½ Triumph) rode magnificently and Carryer (3½ New Imperial) made a good show, especially considering the fact that he was new to his mount. The only unfortunate incident of the day occurred in this class, when there was a mistake in the pairing for the semi-finals, which caused a little friction and delay, though everything was finally smoothed over successfully. Results:

CLASS IV.

(Motor Bicycles up to 1,000 c.c.)

First Heat.—J. Cocker (3½ Singer) beat E. Kickham (2¾ Douglas), G. Griffith (8 Zenith) beat E. Baker (3½ Ariel), H. Walker (8 Bat) beat A. E. Gadsden (7 Indian), G. H. Fry (3½ Singer) beat T. W. Hart (6 Zenith), F. W. Carryer (3½ New Imperial) beat H. Gooden-Chisholm (3 Enfield), H. Riddell (8 Matchless) beat P. Matthews (3½ Rudge), S. Crawley (3½ Triumph) beat Mercer Simpson (3½ Rudge), and M. Burton (5 Matchless) beat O. B. Goodman (7 Indian).

Second Heat.—G. Griffith beat J. Cocker, H. Walker beat G. H. Fry, H. Riddell beat F. Carryer, and S. Crawley beat M. Burton.

Crawley and Walker stood down, leaving Griffith and Riddell in the final, the former winning with ease.

Class II. for machines over 350 and up to 600 c.c. was taken next, and provided the closest finish of the day, for in the second round E. Perkins and E. Baker, both on 3½ Triumph), E. Baker (3½ Ariel) beat H. Gooden-Chisholm (3 could tell who had won. Two other close races occurred, those between Crawley and Fry and Matthews and Cocker, both the last mentioned heats being run at very high speeds, while the final between Crawley and Matthews was won by the latter after a fine race. A curious incident happened in the first round when Goodman and Jones, both fellow club members, mounted on B.S.A. machines, drew together, the former winning after a fairly close race.

CLASS II.

(Over 350 c.c. and up to 600 c.c.)

First Heat.—E. Perkins (3½ Triumph) beat F. Beynon (3½ Triumph), E. Baker (3½ Ariel) beat H. Gooden-Chisholm (3 Enfield), P. Matthews (3½ Rudge) beat E. Buchanan (3½ New Imperial), J. Cocker (3½ Singer) beat D. Hawkes (3½ Ixion-Precision), F. Carryer (3½ New Imperial) beat M. Simpson (3½ Rudge), S. Crawley (3½ Triumph) beat G. H. Fry (3½ Rudge), O. B. Goodman (3½ B.S.A.) beat C. D. Jones (3½ B.S.A.), and F. Reynolds (3½ Triumph) beat F. Stocker (3½ Rudge).

Second Heat.—E. Perkins beat E. Baker, P. Matthews beat J. Cocker, S. Crawley beat F. Carryer, and F. Reynolds beat O. Goodman.

Third Heat.—P. Matthews beat E. Perkins and S. Crawley beat F. Reynolds.

Final.—P. Matthews beat S. Crawley.

Class III. was run off last of all, and was for those who had never won in a speed trial; machines from 350 to 600 c.c. In the second round, H. L. Jones, in the excitement of the race, drew across to the wrong side of the road, thus baulking Chisholm who was close behind him. The heat was re-run, but Chisholm lost by a few yards. Results:

CLASS III.

(Over 350 c.c. and up to 600 c.c. restricted).

First Heat.—O. Goodman (3½ B.S.A.) beat F. G. Stocker (3½ Rudge), F. Carryer (3½ New Imperial) beat C. D. Jones (3½ B.S.A.), D. Underwood (3½ Singer) beat F. Beynon (3½ Triumph), F. Reynolds (3½ Triumph) beat E. Baker (3½ Ariel), P. Matthews (3½ Rudge) beat G. H. Fry (3½ Rudge), E. Buchanan (3½ New Imperial) beat H. Mitchell (3½ B.S.A.), H. G. Chisholm (2¾ Enfield) beat B. Harman (3½ Bat), and H. Jones (3½ Triumph) beat —. Hiscock (3½ Triumph).

Second Heat.—F. Carryer beat O. Goodman, F. Reynolds beat D. Underwood, P. Matthews beat E. Buchanan, and H. Jones beat H. Gooden-Chisholm.

Third Heat.—F. Reynolds beat F. Carryer and P. Matthews beat H. Jones.

Final.—P. Matthews beat F. Reynolds.

Awards, will be as follows (subject to confirmation):

CLASS I.—First award, W. Adams (2¾ Douglas); second award, E. Kickham (2¾ Douglas).

CLASS II.—First award, P. Matthews (3½ Rudge); second awards, S. Crawley (3½ Triumph), E. Perkins (3½ Triumph), and F. Reynolds (3½ Triumph).

CLASS III.—First award, P. Matthews (3½ Rudge); second awards, F. Reynolds (3½ Triumph), F. W. Carryer (3½ New Imperial), and H. L. Jones (3½ Triumph).

CLASS IV.—First award, G. Griffith (8 Zenith); second awards, Riddell (8 Matchless), H. Walker (8 Bat), and S. Crawley (3½ Triumph).

CLASS V.—First award, A. E. Ede (3½ Rover sc.).

CLASS VI.—First award, G. Griffith (8 Zenith sc.); second award, W. G. McMinnies (Morgan Grand Prix).

Incidents of the Trials.

P. Matthews is a coming rider, if he has not already arrived, but what is it he mixes with his petrol?

Crawley (Triumph) was using a new carburetter with the jet between the slides, and Colver had an auxiliary oil pump fitted to his Enfield.

Riddell's Matchless-Precision was fitted with an Amac carburetter and a huge float chamber.

Carryer was riding the T.T. new Imperial, and Buchanan a small twin, which was going very well.

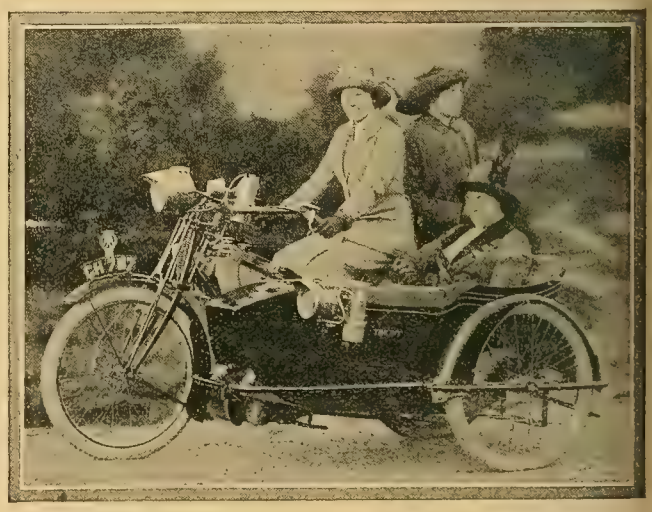
The G.W.K. driven by C. Hann had a racing body, but did not seem to be up to form.

F. Reynolds, with his Triumph, made some fine performances.

The officials of the Bournemouth club are to be congratulated on the results of their hard work and good organisation.

An Enthusiastic Lady Motor Cyclist.

Our illustration shows Miss Walmsley, of Derby, an enthusiastic motor cyclist. She rides an Ivy-Precision ladies' model. In place of the standard 3½ h.p. engine a 4¼ h.p. has been fitted, which has a remarkable turn of speed, and the Derbyshire hills are overcome with surprising ease even though the driver has a passenger also on the carrier. For this purpose a neat spring cushion has been fitted on to the carrier which makes quite a comfortable seat. Miss Walmsley recently undertook a 700 mile tour with a lady passenger and had no occasion even to open the toolbag, but, if necessary, this lady rider is quite capable of doing her own running repairs.



Miss Walmsley of Derby driving her 4¼ h.p. Ivy-Precision and sidecar, on which she recently undertook a 700 mile tour.

A Run on a New 5-6 h.p. 654 c.c. Twin Hazlewood.

ON the occasion of a recent visit to the Hazlewood Works, Coventry, Mr. William Hazlewood offered us a trial run on one of the new twin Hazlewoods, similar to the two machines which both recently obtained gold medals in the A.C.U. Six Days Trials. We fixed up an appointment, and Mr. William Hazlewood met us with a smart combination, the passenger being accommodated in a Canoelet sidecar painted to match the machine.

The engine is a new model twin J.A.P., having a bore and stroke of 70 × 85 mm., giving a cubic capacity of 654 c.c., and is fitted with side by side valves. An innovation for Hazlewood machines has been made in this model, for a ball bearing counter-shaft is driven from the engine by chain, while a 1in. belt running over a large diameter pulley on the counter-shaft transmits the power to the new Mark VII. Armstrong gear in the rear wheel.

Locking device for hub gear on the three-speed Hazlewood.

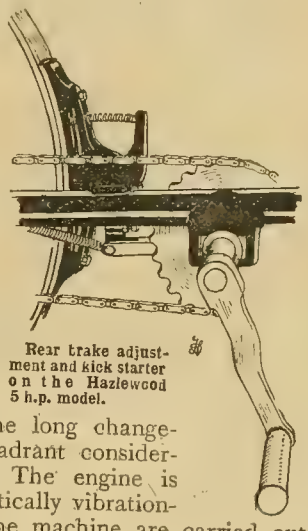
Having had a look round the machine, we took our seat in the sidecar and the combination glided smoothly away. Top gear (4½ to 1) was engaged as soon as the worst of the traffic was passed, and we sailed off to Warwick *en route* for Edge Hill.

Warwick en Fête.

The run to Warwick was uneventful, but on entering the town we encountered quantities of sheep and cattle, while the inhabitants were preparing for the cattle show. After Warwick we changed places with the driver, and soon discovered that the machine was easy to handle, the controls all being set in convenient positions. We were soon bowling along between Barford and Wellesbourne. Friz Hill gives a good idea of how a machine will perform on Edge Hill, as it is a deceptive rise and quite steep towards the top. However, the Hazlewood proved that it had ample climbing powers, though a sign of clutch slip was noticeable. This, we discovered, was caused by over-lubrication, and it was a matter of a moment to run out the superfluous oil, and thus put matters straight. The roads were in fine condition, but sidecar passengers should beware of the culvert about two miles from Kineton, for if taken fast a nasty bump will be felt. Soon the round tower came into view, and we began the long ascent to the summit of the Edge Hills, which is too well known to need description.

The Ascent of Edge Hill.

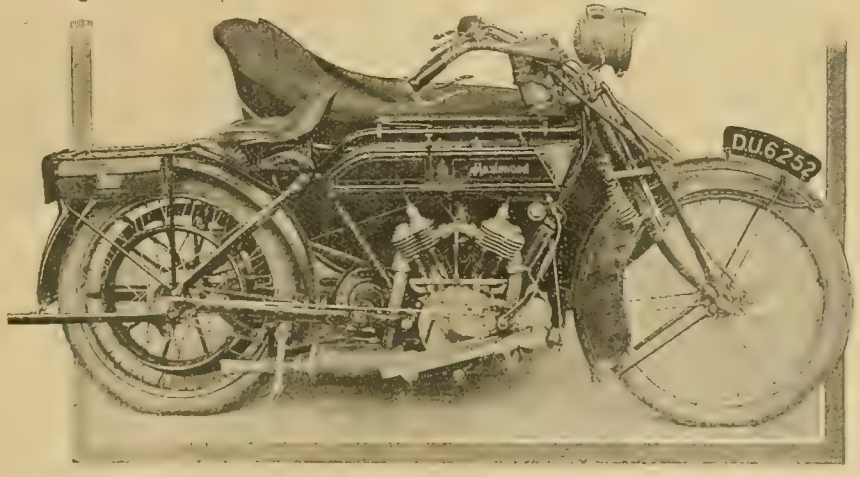
Changing into middle gear early, we were more than halfway up the hill before the low gear was required, and then there was so much reserve power that we only required about quarter throttle for the remainder of the hill. When one considers that the driver and passenger weighed together approximately 27 stone, and that engine capacity is only 654 c.c., the performance is distinctly good, and the silence and smooth running of the engine are remarkable. As we had not much time at our disposal, we returned by the same route, the descent being a fine test for the brakes, which proved excellent. The front brake is considerably above the average, and the rear brake, which consists of a large Ferodo-lined shoe acting externally on a steel drum, is very powerful.



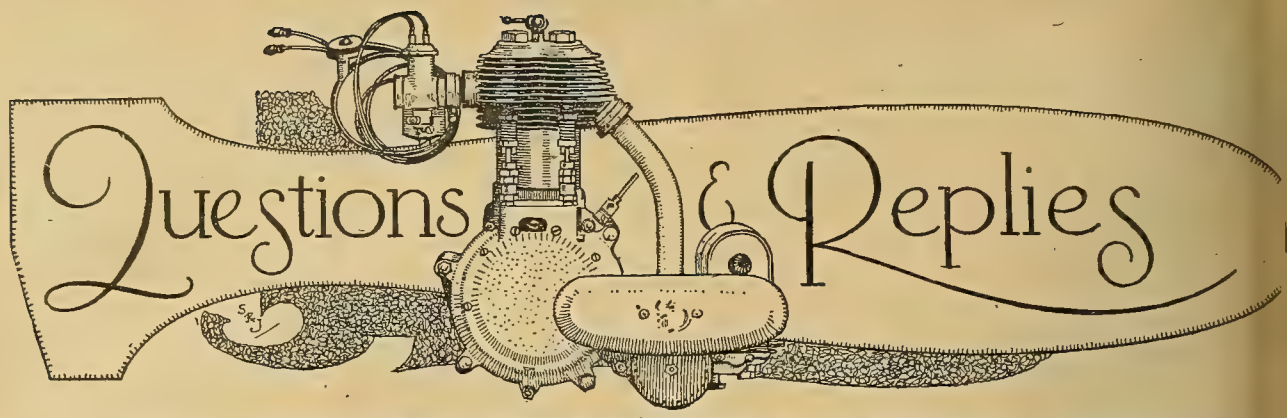
Rear brake adjustment and kick starter on the Hazlewood 5 h.p. model.

The Mark VII gear is a more robust edition of the Mark VI., and the long change-speed lever and large quadrant considerably simplify changing. The engine is pleasant to drive and practically vibrationless, and the details of the machine are carried out in a very thorough manner, all bolts being either split pinned or lock nutted. A Cowey speed indicator was fitted, and we found that to average the legal limit was a matter of ease even with the full load.

We returned to Coventry without any untoward incidents and later went out again for an evening run, when the machine ran equally well, so that it was with some regret that we returned the outfit to the works on the following morning. Those who require a moderate powered sidecar machine and are particular about silence would do well to examine the 5-6 Hazlewood, on which they will find many points of considerable interest.



The 5 h.p. Hazlewood twin cylinder sidecar model with three speed Armstrong hub gear and combined chain and belt transmission. The sidecar is a Canoelet



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

The Midlands to the South Coast.

Will you kindly furnish me with particulars respecting the best route from Market Harborough to Eastbourne, avoiding London? My machine is a 3½ h.p. J.A.P., single gear, with sidecar. —J.G.G.

Your best route is Market Harborough, Northampton, Newport Pagnell, Woburn, Dunstable, Tring, Amersham, Beaconsfield, Slough, Windsor, Staines, Chertsey, Guildford, Dorking, Reigate, Crawley, East Grinstead, Uckfield, Hailsham, and Eastbourne. This is not quite the shortest route, but it is a good one, as it avoids London.

A Question of Licences.

My son has just received a summons for using a motor cycle without having paid the annual tax. The machine belongs to me, and when I took out the £1 licence I had only acquired the machine twenty days previously. (1.) I understand that twenty-one days are allowed from first riding the machine to getting the licence; is this so? If so, what Act does this come under? (2.) Is it a fact that if no notice of intending prosecution is given within twenty-one days of the alleged committal of the offence no case can be brought against one? (3.) I have not ridden the machine at all, but my son took it without my knowledge. Ought I, and not my son, to have been summoned? It was over ten weeks from the alleged offence being committed to receiving the summons, as my son was not stopped by the police, and this is absolutely the first we have heard of the matter.—P.A.

(1.) It is quite right that twenty-one days are allowed from the time you begin to use the machine. See the Customs and Inland Revenue Act of 1869, Section 32. (2.) You are wrong here. This twenty-one days' grace only holds good when you are prosecuted for having exceeded the speed limit. (3.) Certainly you, and not your son, ought to have been summoned. The summonses are issued by the County Councils and not by the police for offences of this kind.

How to Find Cubic Capacity.

Please answer the following questions: (1.) The meaning of the term "c.c." as in 500 c.c., and how it is arrived at by the bore and stroke. (2.) Tim Wood's average miles per hour on his two-stroke Scott in this year's T.T.—R.J.V.

(1.) The meaning of c.c. is cubic centimetres. This is found from the formula .7854 D^2S, which, put more plainly, means that the diameter in centimetres is multiplied by itself, then by the stroke (also in centimetres) and by .7854. For example, an 85×88 mm. engine works out as follows: $8.5^2 \times 8.8 \times .7854 = 499$ c.c. (2.) T. Wood's average speed in the T.T. Race was 48.28 miles per hour.

Motor cycling in the Tyrol. A rider of a 3½ h.p. Triumph photographed on the Stelvio Pass, 9,184 feet above sea level. The boundary between Italy and Austria is marked by the frontier stone shown.

Starting Difficulty with old Engine.

I have a 3 h.p. N.S.U., fi with low tension magneto coil. I do not know the of engine, but it has mechar valves with the exhaust directly u the inlet and slightly cambered pi top. I have a lot of trouble to st even after an injection of petrol its cylinder, but once upon the it is all right, except at slow spe when it will knock badly. I been altering timing gear of v and have made a mess of it, should be glad to know what is correct position of pinions and for timing? What is about dat engine?—W.G.

If there is no air leak at the inlet unions and the carburetter is adjusted to give too much air at speeds, starting should be quite If, however, you cannot trace the d in the carburetter, it might be pos that the magnets require to be magnetised. Possibly the timing pi are marked. If not, set the exh valve to close with the piston dea the top of the exhaust stroke, and inlet valve to open when the pisto $\frac{3}{16}$ths down the suction stroke. The of the machine will be about 1905. N.S.U. Co. can tell you if you send t the engine number.

Level Crossings and Motor Cyclists.

I should be greatly obl by your legal opinion on following. The other evenir was out for a run near bridge, when I had to over a level crossing, and on cor up to the gates, which were close blew my horn, but no one cam open them. So I shouted, and a the man in charge to come and the gates, to which he replied, " you can go through the cycle gat which eventually I had to do, and my machine is a fixed engine and gates were small, it was no easy m to get it through. Can I force man in charge to open the gates a motor cycle, or was he right making me go through the cycle ga —W.L.G.

We have submitted your letter to legal adviser, who replies as follo

It is difficult to answer this query. here may be some special stipulation ith regard to the gate referred to and the user of the level crossing in the ecial Act of Parliament under which e railway was constructed. Subject to is, the Railway Act of 1845 provides at when a railway crosses a public ad on a level, the company shall main-in gates across such road, and shall nploy proper persons to open and shut hem, and such gate shall be kept closed xcept when carriages, etc., wish to oss the railway. It is certainly the uty of the man in charge of the gates open them unless a train is approach-g, and I have no doubt that it would possible to maintain an action against he railway company if a member of the ublic were wrongfully obstructed in assing, especially as your correspondent as no right to open the gates himself. robably the simplest way is to threaten report the matter to the station aster, or, if necessary, to the head fice."

Hampstead, N.W., to Southend-on-Sea.

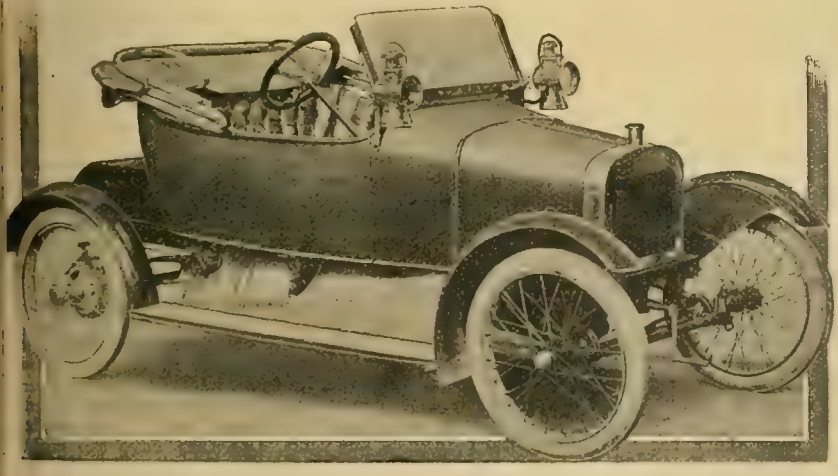
I should be obliged if you could inform me which is the best road from Hampstead, N.W., to Southend-on-Sea, avoiding tram-lines and traffic as much as possible. Any information as regards bad and dangerous roads would be appreciated. I do not mind going a mile or two extra to keep to good roads. Also as much detail as possible regarding the route out of London would be acceptable.—H.D.

ou had better purchase a copy of the A.C. official map of Recommended outes round London (obtainable from ese offices, price 1s. 7d. post free), and ke the following route: Hampstead, shops Wood, East Finchley, down swell Hill, through Hornsey, turn ght where there are central standards about twenty yards, and then left, aving the tramlines altogether and ing absolutely straight on; cross the ondon-Ware Road, past the "White art," Tottenham Hale, straight on, llowing the tramlines past Black Horse ad Station into Woodford Road; here rn right down Snake's Lane, continuing raight on as far as Chigwell Row, here turn right and go through Collier Row to Romford; then go through Upminster, Orsett, Horndon-on-the-Hill, Stanford-le-Hope, Hadleigh, to Southend. This is a most complicated and tricky route and all tramlines cannot well be avoided.

Touring in Scotland.

I want to motor cycle to Edinburgh from Newark, and would be much obliged if you could send the route taken by the competitors in the London-Edinburgh run. I believe they turned west at Scotch Corner, but I do not know the route from there. I will return *via* the old route, which, I understand, is through York and Newcastle, but would be obliged if you could give me some further particulars of the towns passed through. I note that "Ixion" gives a description of a tour in Scotland, but I want to avoid the ferries that he mentions. His route is as follows: Edinburgh, Granton, Perth, Pitlochry, Blair Athol, Kingussie, Carrbridge, Inverness, Fort Augustus, Spean Bridge, Fort William, Ballachulish, Shian Ferry, Chan, Inverary, Arrochar, Stirling, Edinburgh. This means ferrying at Ballachulish, Shian, and Connel. Also taking steamer across Loch Lomond and Loch Katrine, but I should like to avoid ferrying, if possible; could I do so by a slightly different route: Any information you can let me have will be most welcome. —G.K.C.

When going from Newark to Edinburgh, go straight up the Great North Road through Ferrybridge and Aberford to Wetherby, then go through Boroughbridge and along Leeming Lane to Scotch Corner, then on through Bowes, Brough, Appleby, Penrith, Carlisle, Longtown, Langholm, Teviothead, Hawick, Galashiels, Edinburgh. If you follow the route suggested in your letter we do not see how you can possibly avoid ferries, though, of course, you need not take the steamer across Loch Lomond and Loch Katrine, if you are prepared to miss seeing the Trossachs altogether. It would, however, be a pity to do this as the scenery is very fine. On the return journey there is no necessity to go through York.



The latest pattern Ranger cycle car with 8 h.p. twin water-cooled engine.

READERS' REPLIES.

Engine Stops when Hot.

I recently met with rather a puzzling experience which may perhaps interest your readers. Riding a 1912 Douglas, I was for some time sorely perplexed by a sudden "petering out" which invariably occurred after opening the throttle for a hill. The engine would suddenly lose all power, but continue to fire weakly on half throttle, and if opened out more the carburetter would start spitting in a violent and most impolite manner. I naturally suspected valve trouble, and changed and well cleaned the valves, but with no better results. The trouble continued till I bethought me of a cheap plug I was using in the rear cylinder, the said plug having rather thin electrodes. I changed it for a more substantial one, and the trouble stopped at once. It was evidently caused by the thin electrodes getting red hot when the engine was under heavy load and igniting the incoming charge. This may explain your correspondent "J.C.'s" trouble (page 1142 in the issue of August 28th).—Lt. 2563.

In reading your Questions and Replies I noticed a letter complaining of overheating and sudden stoppage from "J.C." Might I supplement your reply, as a short time ago I suffered from his complaint exactly? After making numerous experiments with no good effects, I eventually traced my trouble. The sparking plug I was using shall be nameless, but it had a very thin point, which projected into the cylinder, and after a few miles got hot and caused pre-ignition and a quick pull-up. I changed it for a Bosch four-point, with points inside the body of the plug and not projecting, and lo! my trouble vanished into thin air, and every time I replaced my old plug, which was a good one (by name) and cost 3s. 6d., the same trouble reappeared. I trust my experience may be of interest to the readers (especially "J.C.") of *The Motor Cycle*, to which paper I feel I owe a good deal. I have learnt a lot by going through the queries under Questions and Replies, and endeavouring to solve them by myself and then reading your reply. Has any other reader tried this? I am using benzole, costing 1s. 2d., at the present with a B. and B. carburetter, and am getting 120 miles to the gallon with a 25 jet. My machine is a 3½ h.p. and weighs 210 pounds. I may say that fitting so small a jet has rendered my carburetter an automatic one at anything up to twenty miles an hour—a little relief after being used to "twiddling" two levers, so I shall not trouble to fit a smaller choke tube, which, by the way, I think might solve "J.K.'s" trouble. —A. ELLIOTT.

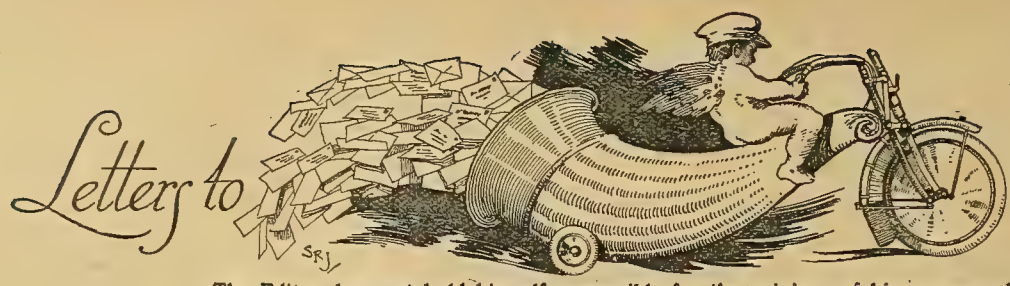
EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"W.M.C." (Higham Ferrers).—Wall Auto-wheel. Power, safety, reliability, and effect on bicycle.

"F.T." (London).—Most suitable rubber belt for Brampton gear. Wear, etc.

"D.B." (Halifax).—6 h.p. A.J.S., three speeds. Engine and gear reliability.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Wet Tan.

Sir,—I should like to give your readers the benefit of the following experience: Riding along the Watling Street late on Sunday, 31st ult., I came across a stretch of the road covered with a layer of tan, presumably with the idea of deadening the noise of the traffic. Immediately I had a tremendous side-slip, and was sent flying off my machine, fortunately, however, without serious results.

While realising the necessity in cases of serious illness for treating the road in some such fashion, I think the authorities concerned should be persuaded to adopt some less treacherous material, such as straw. Tan is quite safe to ride over as long as it is dry, but when wetted by rain is certain to cause a bad side-slip.

As this is the second experience of this sort I have had I shall in the future treat wet tan with more respect. The trouble is that at night it is almost impossible to detect it till too late. I shall be interested to hear whether any of your readers have met with mishaps due to the same cause.

F. VINER.

Carburetter for Scotts.

Sir,—I have read with interest the letter in the issue of the 21st ult. from Mr. R. F. G. Kelly. I also am a Scott enthusiast, and, like him, have fitted the Binks carburetter to my machine. I, however, did not get the same satisfactory results as achieved by Mr. Kelly.

I certainly found that the Binks carburetter did effect an improvement, but my chief cause of complaint was that the combination of jets required for perfect running one day were by no means the same combination required another day. I also found that it did not give me more m.p.g. than the Scott carburetter.

Hearing very good accounts of the Lukin, I then decided to fit this, and can honestly say that it effected a great improvement in all respects. I can now average 50 m.p.g. with sidecar at an average running speed of 25 m.p.h.; solo about 70.

My machine, like Mr. Kelly's, will now start at the third kick down from cold, while the slow running is such that I have done away with the half compression valves, there being absolutely no need for these.

The great charm of the Lukin carburetter is the ability to tune it up for any one point without affecting any other point. For instance, adjusting the carburetter for slow running has no effect whatever on full throttle position, whilst the acceleration is simply marvellous.

I certainly think that this carburetter should be more widely known, as, although it is only a single lever one, it seems to me to perform anything that a two lever carburetter will do without any disadvantage whatever.

I also, like Mr. Kelly, have no financial interest in either C. Binks or Lukin, Ltd.

GEORGE BAX.

Carburetters and Flexibility.

Sir,—Mr. Binks's idea of an A.C.U. trial of carburetters is an excellent one, but I entirely dissent from him that a big mileage cannot be obtained except at the expense of flexibility. This may be correct in the case of a fixed, single jet instrument, but not in that of a good variable jet type for the reasons given in my previous letter and "N.R.C.'s."

Failing an A.C.U. test, I would be happy to compete in a friendly private match, using my universal model B. and B. (which, like the cycle, is absolutely "unfaked") against a single-lever two-jet Binks, the trial to be held under the surveillance of a member of the staff of *The Motor Cycle*, say "Ixion." I would accept Mr. Binks's conditions (1), (3), (5), (6), (9), and likewise (11), provided that this does not prevent altering the jet lever and air ports from the saddle whilst riding. As regards (7), a shorter stretch than five miles should suffice to test the speed, and (2) and (4) are impracticable with my own bicycle, being a fixed gear T.T. Both carburetters to be tested on the same machine.

No doubt "N.R.C." might like to join in with his Norton.

I have no financial interest in any individual type of carburetter, having used during the past three years the Amac, Triumph, Universal, B. and B., and Senspray. Hence, if the Binks proves superior no one would be better pleased than myself. If it does I will undertake to order one in November on my 1914 machine, but if the B. and B. wins I suggest that Mr. Binks should pay for such other type as may be ordered (at a price not exceeding that of his own make).

AUTOBORE.

[As already pointed out we think the idea of an A.C.U. carburetter test is excellent.—ED.]

Military Motor Cyclists.

Sir,—It appears to me that some of the critics of the War Office scheme are tackling this question from the wrong point of view, as they continually labour the point that there is no money to be made while in camp with the machine. Surely no motor cyclist who is patriotic enough to join the force wants to see his way to clearing a profit on the thing before going further with it.

Another idea that seems to me totally wrong is that one must go all out the whole time when employed on this service. This is a most mistaken notion, and a rider conducting his campaign on these lines is almost certain to render himself useless to his officers before many days have passed. Of course, it was all very well to show what *could* be done while the War Office were hesitating, but a messenger who can average 30 m.p.h. on decent roads will be far ahead of anything now at the disposal of the authorities, and it takes a lot of miles to run up to 8s. per day at 30 m.p.h.

My idea is that the annual camp work is one of the very best types of holiday that a motor cyclist can wish for. He is kept free of charge during his fortnight (or so much thereof as his time permits of) in camp, and ranks as a non-commissioned officer among excellent fellows from the time of his acceptance. If he likes a bit of speed he can have it at less than it usually costs him, while if he is a steady rider he can still be of much service, and see a lot of most interesting work at the very minimum of holiday cost. Added to this is the fact that annual training camps are almost always in fine situations, and, from the nature of a camp, within easy reach of civilisation, and the wonder is that there has not been a rush to fill the few vacancies that remain.

Some doubt has arisen as to the availability of various machines, and I shall be delighted to help anyone in this district (Leeds) who may be hesitating on this or any other score.

It should not be forgotten also that there are two sections available—the Royal Engineers Special Reserve and the Territorial Motor Cyclists. The main difference is that in the former the age of enlistment is confined to between 18 and 30, while the latter is open, and the Special Reserve draw slightly higher pay and travelling expenses to camp. Either section may *with their own consent* be employed on military duty at any time, *i.e.*, they have the right of refusal should circumstances make it impossible for them to attend.

J. STUART WHITE.

Hub & Counter-shaft Gears.

Sir,—In regard to the letter by the Sturmey-Archer Gear Co. on "Hub and Counter-shaft Gears," I should like to give my opinion as I am a user of the counter-shaft type.

My mount is a 1913 Premier with two-speed counter-shaft gear. Their objections are: (1.) The gear runs at a high speed and considerable noise is created. I agree that the gear runs at a higher speed than the hub type, but only makes a slight hum when in low gear (the top gear driving solid); there is no noise whatever when changed to high. (2.) The front chain on my machine I never hear. It is silent and runs in an aluminium case, and has run 1,430 miles to the present, has only been adjusted once (not really necessary), and is as good as new. I know an Indian rider who only changed his front chain quite recently after two years' use with sidecar attached. (3.) The drive is a little fiercer only at slow speeds and is not noticeable otherwise. My back tyre wore out at 400 miles (due to a fault), and I have now fitted a heavy non-skid Kempshall, and have had no trouble since. It is almost as good as new. (4.) I have not noticed the vibration referred to. (5.) They say the only point in its favour is that the back wheel can be removed more quickly for tyre repairs, and this, they say, only applies to the novice. Then, does the expert love to take an hour to change a tyre when he can do it in ten minutes? Surely it is easier to slacken two nuts and drop the wheel out than take off the free engine and change-speed rods, all of which need replacing. The expert is like the rest of us, he likes to take out and replace his wheel as quickly as he possibly can. Then they outline the advantages of the hub gear. Let me outline the counter-shaft advantages.

(1.) The gear is more central, therefore weight is evenly distributed between the two wheels.

(2.) Should anything go wrong the gear box can be detached and more easily inspected than the hub type, one rider of which spent nearly six hours (see page 1057) trying to repair.

(3.) The belt is practically everlasting.

(4.) Ease of detaching the rear wheel for tyre changing and puncture repairing. No double belt rims to interfere with tyre levers, nor messy pedalling chains that are always in the way. No *free* wheels to get grit in their insides and grind themselves useless or cause the pedals to revolve and knock the heel off you when you don't expect it. The rear wheel is *free* in every way (which most, if not all, riders want).

I have had two three-speed hubs, and they both struck work on one or other of their gears, and I was left with two speeds.

I shall plump for the counter-shaft gear every time, which is the gear which must oust all others. In appearance, too, it is miles ahead of the hub type, and everyone I meet admires the appearance of the machine with the counter-shaft gear. The chain, of course, must be protected. It would be interesting to hear the opinion of others.

WILLIAM McLEAN.

Sir,—Having been an owner of eleven different motor cycles during the last ten years, might I be allowed to give my opinion on the controversy now taking place *re* hub and counter-shaft gears.

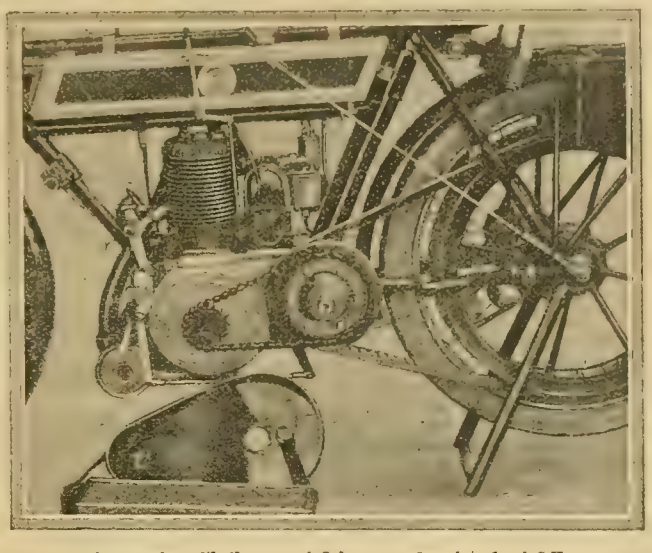
In 1911 I bought a three-speed Sturmey-Archer Premier for sidecar work, and which was very satisfactory with the exception of the belt, which would persist in breaking or pulling through every 140 or 150 miles. That, in itself, was not surprising, considering that I studied comfort before weight, and the latter was 402 lbs. In addition I weigh 11 stone, my wife 9 st. 6 lbs., and my son 3 st. 10 lbs., and my sidecar was seldom off.

We used our machine mostly for going to Worcester every week-end, *viâ* Newton, Bishop's Castle, Ludlow, Tenbury, and Witley = 75 miles, and the worst gradients were: 1 in 7, 1 in 8, two of 1 in 9, two of 1 in 10, three of 1 in 11, four of 1 in 12, three of 1 in 13, and four of 1 in 14. Except for adjusting the gears I experienced no trouble for the whole of 2,000 miles.

For 1912 I decided to fit a counter-shaft drive (as per photograph) solely to do away with the trouble of broken belts, and, strange to say, 1,100 odd miles were covered before the fastener pulled through. The drive I found was much more harsh than with belt alone, so much so that it burst the collar on hub spindle which locks into forkends and cone on left hand side.

A few words about the machine might be of interest, and also help to show what the hub had to stand.

The compression of my engine was originally high, but I made it higher by taking $\frac{3}{32}$ of an inch off the bottom of cylinder to give me a faster engine speed. My top speed was geared $5\frac{5}{8}$ to 1, and the bottom about $11\frac{1}{2}$ to 1, yet I could touch 38 to 40 m.p.h., with sidecar, owing to my enormous engine speed. The engine kept very cool, and knocked less than before, while carbon on piston was conspicuous by its absence.



The Premier with three-speed S.A. gear referred to by A.C.H.

Perhaps some of your readers can tell me why this should be, but I put it down to the auxiliary valve.

The counter-shaft drive was turned and screwed to fit in the bottom bracket, and, in addition to the two pinch bolts, was also held by a large nut on the right-hand side, which screwed up against the bottom bracket shell face. It had a $\frac{3}{8}$in. eccentric to allow for the chain adjustment, while the chain was $\frac{3}{8}$in. × $\frac{3}{8}$in. The pulley was 8in. diameter, cast solid, and was mounted on two large ball journals, and the large sprocket was bolted on the pulley. The two ends of the shaft were drilled and tapped $\frac{3}{8}$in. to allow for bolts holding back footrests for the footboards.

In the photograph the machine is shown with the chain case off, and inside this case are a funnel and pipe, which after catching the oil blown through the crank case release, allow it to drip on the chain, thus keeping it well oiled and in good condition.

Reverting to the first part of my letter, I absolutely agree with the two writers in your issue of August 21st, with the exception of the last sentence in "Through the Mill's" letter, which should read: "That the chain-cum-belt three-speed counter-shaft gear box has it all the time."

After selling the above machine I tried my hardest to get a three-speed counter-shaft gear box chain-cum-belt single-cylinder model and failed, and finally bought a three-speed all chain James, which is very satisfactory, although it wears out the back tyre 40% quicker than the belt model.

To sum up, I would not go back to the all-belt or counter-shaft and three-speed hub, neither would I have a two-speed counter-shaft gear box chain-cum-belt model (three speeds are essential for sidecar work), but if someone were to make a three-speed counter-shaft gear box chain-cum-belt single-cylinder model, well, I would sell my James to-morrow and order one, as, in my opinion, it is the finest transmission on the market.

I cannot make any statement as regards time for changing back tyres, as both jobs are easy to me, but would think it is quicker on three-speed hub models, because the controls are fixed easier and quicker than chain cases.

I have no interest in any motor firm whatever, but I am a motor mechanic of thirteen years' (ten in private service) experience, and all the above work was carried out by me entirely.

A.C.H.

Sir,—Our attention has been drawn to a widely published letter written by Mr. Paskell, of the Armstrong Triplex Three-speed Gear Co., in respect to the above controversy.

The deductions that Mr. Paskell makes are, from our point of view, altogether erroneous, and the percentages he gives altogether misleading, as regards the above controversy.

The question of the gaining of a gold medal in this trial was, to a great extent, a matter of pure luck. That is to say, if a rider happened to be sufficiently skilled to get round the hairpin bends he stood a very good chance of getting a gold medal. We do not think for one moment that anything beyond a very small percentage of any of the machines were incapable of climbing all the hills easily as regards the gradients, but it is admitted that the road conditions, owing to the excessively dry weather, were abnormal.

Mr. Paskell gives a 63% result of gold medals awarded to machines fitted with hub gears, and only 18% with other gears. We have stated above that it is only a mere chance as to whether a rider of either type would get a gold medal. A mere accident of a tyre or belt even would spoil the rider's chance. We could prove just as conclusively if it were a question of hub versus counter-shaft gear, that the counter-shaft gear is far and away better and shows a better result, as out of four machines of our make, all with counter-shaft gears, three obtained awards, showing a result of 75%.

Most of the marks which were lost and spoilt competitors' chances of gold medals were not due to trouble or inefficiency of either the engine or the gear, but due to accidents in tumbling off and breaking such things as control wires, and cutting up the tyres.

For strength and reliability it is only natural, we maintain, that the counter-shaft gear is far in advance of the hub gear.

THE LLOYD MOTOR ENGINEERING CO., LTD.

The A.C.U. Trials.

Sir,—I herewith enclose copy of letter which I have written to Mr. Loughborough *re* the recent Six Days Trial.

In my opinion this ill-advised trial has done more to set back the sporting side of motor cycling than anything in the whole history of the movement.

CHAS. H. R. NORRINGTON.

[Copy.]

Bowyers House, Longham, Wimborne,
Aug. 29th, 1913.

Dear Sir,—I desire to enter a protest against the manner in which the A.C.U. misled entrants for the Six Days Trial just concluded. To have stated in the preliminary regulations that no freak hills, abnormal or dangerous surfaces would be included, and then to take competitors over a course which included, as I am told by a local motor cyclist, all the known freak hills in the Lake District with the exception of two is scandalous. To require sidecar machines, or even solo, to average 20 m.p.h. over such a course and to perform the acrobatic tricks necessary to get around shows such a lack of commonsense that one can hardly credit the A.C.U. making such an absurd rule.

To expect a man to risk his neck, as undoubtedly everyone did, makes the whole trial a farce.

As a private owner, I was one of those who protested on Monday night, and it seemed to me that the protest was treated in a very light manner. Immediately the trade take the matter up concessions are made, but the officials do not meet the competitors at their meeting and reason the point, as they should have done, but grant a few bonus marks and some minutes' extra time. That in itself is far from satisfactory.

Seeing that the A.C.U. did not carry out their own statements on page 5 of the preliminary regulations, it is apparent the entry fees were obtained under false pretences.

I must request that my entry fee of £3 3s. be immediately returned to me, and I reserve the right to sue for expenses incurred whilst in Carlisle, including journey there and back.

Yours faithfully,

CHAS. H. R. NORRINGTON.

T. W. Loughborough, Esq.

Sir,—I have just returned from the hardest week's work in my life—the A.C.U. Six Days Reliability Trials.

Before the event I believed the aim and objects of the trials were:

1. To enable manufacturers to discover weak points in the design of their engines and the equipment of the machine.
2. To prove the all-round reliability of the modern motor cycle, and to act as a guide to prospective buyers in search of a powerful and reliable machine.

Let me say at once that I have been disillusioned. I will state my own experience briefly—which has been the case of many others.

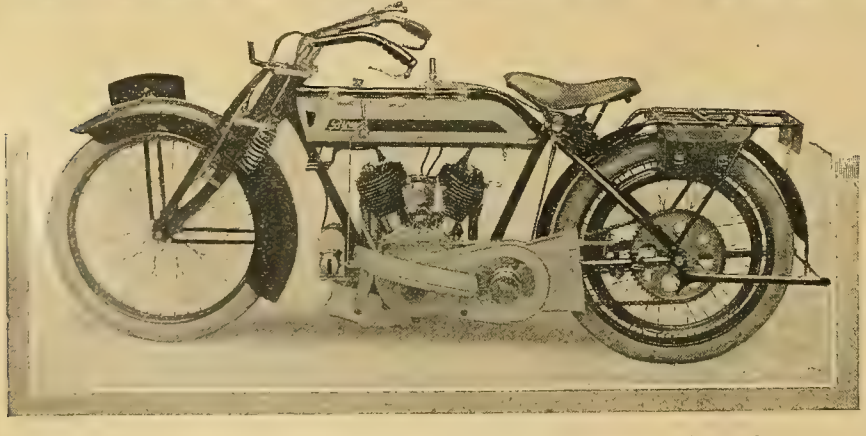
I made a clean ascent of every hill on the course. I arrived on time at every lunch control, and at Carlisle every night. I only stopped once in a non-stop section, through having run out of petrol. On the first day after the lunch control, at Keswick, I experienced some trouble with my clutch, and spent some little time in adjusting it, which I, however, made up later, and arrived at Carlisle on time. But I was twenty minutes late at Aughertree Fell, thus losing twenty marks. Now the point is this. If I had failed on every hill and stopped in every non-stop section each day, and arrived every night one and a half hours late, I should have obtained the bronze medal which the A.C.U. have awarded me. Is this a fair guide to the general public as to the best machine?

I do not quarrel with the judges or committee, and I was not a signatory of any of the numerous protests sent in. I consider that they acted in a fair and considerate manner throughout, hearing most patiently each case that came before them. The existing conditions are wrong, and the general opinion of the competitors is that it would be fairer in future to deduct one mark per minute over the fifteen minutes allowed. Surely it is absurd that being fifteen minutes late one has a clean sheet, and if only sixty seconds later you lose your gold medal.

In conclusion, I would say that my machine was the oldest of the lot, and has done about 11,000 miles, and weighs 2 cwt 56 lbs. all on. I maintain, therefore, that in awarding a bronze medal for any performance similar to mine, the objects of the trials have been defeated.

FRANK MAY (NO. 93).

[Since the above was written Mr. May's award has been changed to a silver medal.—Ed.]



A new model 6 h.p. twin Brough which is fitted with chain drive and two-speed counter-shaft gear.

Testing Benzole.

Sir,—I notice in *The Motor Cycle* a letter, signed F. E. Thomas, on "Benzole." In his letter he states the benzole he uses is 90% spirit, also he says that he tests this himself. I should esteem it a favour if he would kindly say how and by what means he does this, and I am sure it would confer a boon to many readers of your valuable paper.

ARTHUR FISHER, R.P.C.

The Motor Cycle as an Aid to Business.

Sir,—Having heard a good deal about the use of motor cycles for business purposes in *The Motor Cycle*, I send you a photograph of a Rex Sidette which I have for some months used for the purpose of delivering bread, and after a fair

E. Woolgrove, who uses his 6 h.p. Rex sidecar for business purposes, as mentioned in accompanying letter.

trial in all weathers I find it most useful. It is very easy to start and control, and is quite a novelty in the district. The machine can be seen at work almost any day in and around Bedworth. E. WOOLGROVE.

Consideration.

Sir,—On Wednesday, September 3rd, the quiet village of East Meon was invaded by a noisy horde of some twenty or more motor cyclists and cycle carists, hailing from Southampton and Portsmouth. They came, presumably, to hold a hill-climb on a hill some two miles from here; but from 2 p.m. until nearly 7 p.m. our narrow and twisty High Street scarcely ever seemed to be free of them. I am a motor cyclist myself, and from my knowledge of the dangers of our street I am sure that it is not a safe one to traverse at a higher speed than 15 m.p.h. Most of these persons careered through it at speeds nearer 25 or 30 m.p.h., and practically all with cut-outs open. I am no spoil-sport, and quite believe in the value of club outings and hill-climbs, but I do think that secretaries might try to restrain the rowdy element in their clubs from actions of this kind. Might I suggest to the wearers that red night-caps, however becoming to the head when it is on a pillow, are just a little ridiculous when worn inside a racing cycle car; and that a tartan tam o' shanter surmounting motor goggles makes its owner look—to put it mildly—something of a jackass. AA 1160.

Motor Cycle Taxation in France.

Sir,—In a recent issue I noticed a paragraph *re* the taxing of motor cycles in France which might lead your readers to think that some change has been made. This is not the case. Motor cycles and bicycles are, and have been for many years, treated in the same way. Every cyclist or motor cyclist has to obtain, before January 1st of each year, a plaque, which must be fixed to the head of the machine. A plaque has to be affixed for each person the machine may carry; for instance, a tandem bicycle has to have two plaques, and a motor cycle with sidecar will have to have at least two plaques. The plaque for a bicycle costs 3 frs., and that for a motor cycle 12 frs.

There has been some difficulty with the authorities as to what is a motor cycle. Many years ago, I think in 1899, the Chambre Syndicale des Cycles et de l'Automobile was asked by the authorities, owing to the very large quadricycles that were being constructed, to define a motor cycle. This was carefully considered, and the definition accepted was that a motor cycle must have means of propulsion by pedals. This, of course, brought the modern motor cycle having no pedals into the category of an automobile. This question was brought before the authorities in July of last year, and I must say that the deputation representing the manufacturers, of which I had the honour to be a member, was received in the kindliest manner.

The changing of any law is, I suppose, in every country a lengthy matter, but we have recently been informed that, subject to confirmation by the Conseil d'Etat, we may consider that all motor cycles, with or without pedals, will be only taxed as motor cycles. I may say that during the past year no action, so far as I know, has been brought against motor cyclists having machines without pedals.

Although not so far advanced, I believe I may say that we shall be shortly successful in getting the tax on cycle cars not weighing more than 300 kilos. fixed at a much lower rate than is at present the case, probably 40 frs.

F. G. FENTON.

Dispensing with a Differential.

Sir,—In reply to Mr. R. D. Dunlop, I beg to state that over-running clutches have been very frequently used on experimental cars. One cycle car was recently fitted with this arrangement, which has now given place to a construction in which a solid axle is used, one wheel being fixed to the axle whilst the other is coupled to the axle by a friction clutch. Incidentally, a good illustration of this type appears on page 438 of *The Autocar* for September 6th.

The automatic clutch gear was frequently suggested in the early days of motor cars, when a light motor vehicle was a motor car. I do not know any case where it was actually used, and my article does not suggest that this was the case. This construction was merely described as a substitute for a differential gear. ERIC WALFORD.

Power for Sidecar Machines.

Sir,—From the letter of Mr. Walburn, published in your issue of the 4th inst., it would appear that he did not read the article in your journal on the Scottish Six Days Trial. A doubt was there expressed whether the 3½ h.p. Bradbury and sidecar would have done so well in other hands than Mr. Gibson's, and Mr. Gibson's record is so good, and his performance in this case so excellent, that one is indeed more impressed by the personal skill exhibited by the driver than by the qualities of the machine. That seems to be the view taken in your article, and it certainly was mine, hence my expression of regret that there was not an opportunity of seeing what a 3½ h.p. motor cycle and sidecar would have done in ordinary hands in this trial.

Without any prevous experience I went in July last year on a trial run with a 3½ h.p. Humber and sidecar with a passenger and luggage, and selected North Wales for our tour. I drove 800 miles in the week, took all the hills we came across, including the Berwyn mountains, which we went over at nine o'clock one night, and which I have since seen illustrated in your journal as being a severe climb, had no trouble, and went 80 m.p.g. This experience as a complete novice satisfied me as to some of the capabilities of the 3½ h.p. and of my choice of machine, but, after all, this is child's play compared to a run like the Six Days Trial, in which, unfortunately, owing to an accident, I was unable to take part. Mr. Walburn does not appear to appreciate the difference between driving 900 miles a month under normal conditions and 600 miles in six days under the special conditions of the Six Days Trials.

CHARLES D. WRIGHT.

LOST AND FOUND.

We receive many letters regarding accessories, etc., both "Lost and Found," which we are unable to find space for. As these particular matters are of interest to two persons only, viz., the finder and the loser, we have decided to keep a list of such articles, and all that are notified to us will be inserted in this list. Should we receive a letter from the finder which corresponds to the article lost, the two persons will be put into communication, but it must clearly be understood that we cannot enter into correspondence on the matter beyond this.

SPEED TRIALS AT GAINSBOROUGH.

Successful Meeting held by A.C.U. (East Midland Centre).

THE officials of this centre of the A.C.U. are to be congratulated on the successful meeting which they held on Saturday last. The various officials worked well and stuck to the posts allotted them, with the result that there were no irritating waits. It is as well there were not, for racing did not conclude till after six o'clock, a start having been made at one o'clock.

Sir Hickman Bacon, Bart., very kindly lent a private road leading to his estate, Thonock Park, Gainsborough, for the meeting, and took a great interest in the various events and machines. Sir Hickman is a pioneer motorist himself, and he appeared to find the racing motor cycles as interesting as cars. The surface of the road was admirable for the motor cycles, but there was rather a sharp camber, which, as the road was rather narrow, proved a difficulty for the only two racing cycle cars entered.

There was quite a large attendance of the public, rails which ran down the side of the road forming a fine barrier and at the same time a sort of grand stand. Cinematograph operators were on the spot, and the crowd were evidently hugely pleased when the machine was directed on them. Mr. Loughborough was in attendance, and he soon found his services utilised as a timekeeper, for the car conveying the timekeepers from Nottingham took the longest course from Newark and arrived an hour or so late.

The Passenger Machines.

The sidecar class amused the spectators, as some of these fitments were of the most curious shapes. One sidecar was a practically exact model of a soup tureen, and much amusement was caused by someone asking if the passenger would like the lid on!

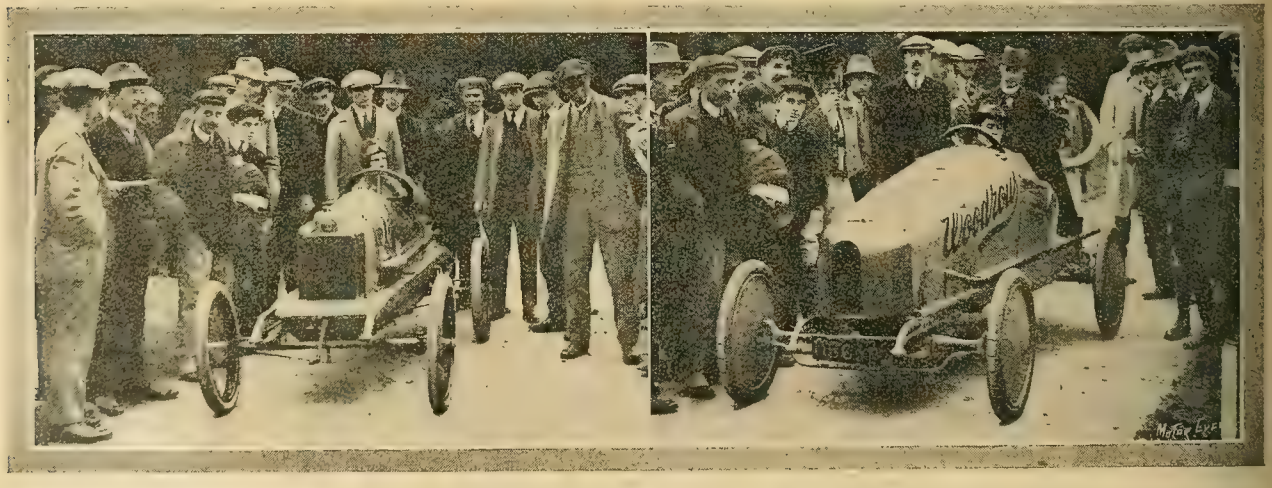
The two cycle cars engaged were a Calthorpe Brooklands racing model, with a highly polished aluminium speed body and the most beautifully finished little honeycomb radiator, and a newcomer to racing, the Woodrow, named after its maker. It had a racing single-seated body and disc wheels. The power unit was a twin J.A.P. (90 mm. × 77 mm.) with overhead valves, the engine being set across the pressed steel frame, the drive being then taken by shaft to the gear box and thence by overhead worm to the rear live axle. It was a very pretty little machine, but appeared to be geared too high. The silencer was set across the frame at the rear, and one exhaust pipe was taken along each side of the frame to it. On its last run down the course it appeared likely to get out of hand and wobbled in rather a terrifying manner, and the driver told us he found on finishing that he had jumped the shackles of his front springs in returning to the starting post after his first run along the grass track provided for this purpose. Thus the front springs were useless. G. W. Hands seemed rather uncomfortable on the Calthorpe, and he complained to us that he found steering at speed very tricky where the road was cambered. On his last run he gave up the wheel to another driver, who improved on the previous time by a couple of seconds.

B. Rhodes, Lincoln M.C.C. (8 h.p. Zenith), who was the most successful competitor of the meeting. He is shown winning the sidecar event.

The sidecars in the standing start events, it is interesting to note, beat the racing cycle cars, the fastest time in the sidecar sections for the half-mile being done by B. Rhodes on a 986 c.c. Zenith in 38⅘s. against G. W. Hands, on a 1,086 c.c. Calthorpe racer, 39⅖s.

An Exciting Duel.

Everyone was allowed two runs in each event, and the fastest time counted. Naturally the greatest interest was taken in the big classes, and B. Rhodes, on a Zenith, and G. Brough, on a machine of his own make, had a rare tussle. In the flying start half-mile both men tied with 25s. dead, and on the run off another dead heat followed in 25⅖s., so a third try was arranged, when the Zenith rider, by superior acceleration at the start, won somewhat easily in 25⅗s. against Brough's 26⅗s. The Gradua gear was undoubtedly the agent to be thanked, as at the finish Brough seemed to be rather the faster. These were the highest



A.C.U. EAST MIDLAND CENTRE SPEED TRIALS.

(1) G. W. Hands on the 8-10 h.p. Calthorpe, winner of the experts' class in the cycle car race.

(2) J. Woodrow (Woodrow cycle car), who won the "general" section of the same event.

Speed Trials at Gainsborough.—

speeds of the day, 25s. being equal to a mean speed of 72 m.p.h. All events were run over a measured half-mile. Details of the racing are as follows :

EVENT 1.—Motor cycles not exceeding 350 c.c.

Experts.—1, F. G. Edmond (2 Humber, 345 c.c.), 40⅖s. ; 2, J. R. Sylvester (1 New Hudson, 293 c.c.), 43⅖s. ; 3, J. Cocker (1 Singer, 299 c.c.), 44⅖s.

General.—1, J. R. Sylvester (1 New Hudson, 293 c.c.), 43⅘s. ; 2, H. F. Barr (2 Humber, 239 c.c.), 52⅗s.

EVENT 2.—Motor cycles not exceeding 500 c.c.

Experts.—1, J. Cocker (1 Singer, 499 c.c.), 36⅘s. ; 2, N. O. Soresby (1 Rudge, 499 c.c.), 41¼s. ; 3, E. Hawkes (1 Rudge, 499 c.c.), 42⅗s.

Cocker broke his pulley just as he finished his first run, but his time gave him an easy win, so his second try was not wanted.

General.—1, H. O. Wood (2 Scott, 486 c.c.), 38s. ; 2, F. Lamb (1 Premier, 499 c.c.), 38⅕s. ; 3, W. F. Waddington (1 Campion-Precision, 499 c.c.), 38⅘s.

The Tourist Trophy winner's machine gave him a little trouble to start, but, once under weigh, it ran with a beautiful note and swept over the line at a tremendous pace, and everyone seemed to be delighted at the apparently effortless manner in which it ran.

EVENT 3.—For the East Midland Centre A.C.U. Challenge Trophy. Open to clubs affiliated to this centre of the Union who nominated teams of three riders mounted on machines of 350 c.c., 500 c.c., and 1,000 c.c. respectively.

The Lincoln, Nottingham, and North Derbyshire Clubs competed, the latter having two teams engaged. The result was arrived at by giving marks for each of the three sized machines, thus the fastest 350 c.c. was credited one mark, the second fastest two marks, and so on through the other sizes. Thus the club scoring the lowest number of marks won. Actual fastest time was done by George Brough, of the Nottingham Club, on a twin Brough, in 32⅖s., and in the result the Nottingham Club proved the winners, the results being as follow :

1. NOTTINGHAM M.C.C.

Rider and machine.	Time.
J. R. Sylvester (1-cyl. New-Hudson, 350 c.c.)	42⅖s.
N. O. Soresby (1 Rudge, 499 c.c.)	41⅗s.
G. Brough (2 Brough, 998 c.c.)	32⅖s.

Total marks, 4.

2. NORTH DERBYSHIRE M.C.C.

W. Bown (2 Douglas, 350 c.c.)	44⅖s.
A. Clay (1 Triumph, 499 c.c.)	38⅕s.
R. Carter (2 Brough, 998 c.c.)	35⅘s.

Total marks, 6.

3. LINCOLN M.C.C.

H. F. Barr (2 Humber, 350 c.c.)	50⅘s.
E. Allwood (1 Triumph, 499 c.c.)	42⅘s.
B. Rhodes (2 Zenith, 986 c.c.)	32⅘s.

Total marks, 10.

4. NORTH DERBYSHIRE M.C.C. (second team).

O. Smoothy (1 Singer, 350 c.c.)	45s.
G. Dearle (1 Triumph, 499 c.c.)	42s.
W. Waddington (2 Campion, 1,000 c.c.) ...	38s.

Total marks, 10.

EVENT 4.—Motor cycles not exceeding 1,000 c.c.

Experts.—1, B. Rhodes (2 Zenith, 986 c.c.), 31⅕s. ; Rhodes had a walk over.

General.—1, B. Rhodes (2 Zenith, 986 c.c.), 31⅗s. ; 2, G. E. Sanders (2 Indian, 994 c.c.), 34⅗s. ; 3, L. W. Forrington (2 Indian, 994 c.c.), 35⅘s.

Rhodes found his Gradua gear very useful for acceleration at the start and gained a considerable advantage thereby.

EVENT 5.—Motor cycles and sidecars any c.c.

Experts.—1, B. Rhodes (2 Zenith, 986 c.c.), 43⅖s. ; Rhodes had a walk-over.

General.—1, B. Rhodes (2 Zenith, 986 c.c.), 38⅘s. ; 2, A. W. Grocock (2 Zenith, 770 c.c.), 42⅗s. ; 3, R. Lucas (1 Triumph, 499 c.c.), 47s.

EVENT 6.—Cycle cars.

Experts.—1, G. W. Hands (4 Calthorpe, 1,088 c.c.), 39⅖s. This was a walk over.

General.—1, J. Woodrow (2 Woodrow, 986 c.c.), 49⅗s. Another walk over.

Both cycle cars seemed to be steered with difficulty, and wobbled alarmingly. The Woodrow appeared to be overgeared, and made a very slow start.

EVENT 7.—Motor cycles, sidecars, and cycle cars, any c.c. Flying start.

Experts.—1, B. Rhodes (2 Zenith, 986 c.c.), 25s. ; G. Brough (2 Brough, 998 c.c.), 25s. ; 3, G. W. Hands (4 Calthorpe, 1,088 c.c.), 30⅖s.

Brough and Rhodes ran off again and dead-heated a second time in 25⅖s., but on the decider Rhodes got off the faster and won in 25⅗s. against Brough's 26⅗s.

General.—1, G. Brough (2 Brough, 998 c.c.), 25⅕s. ; 2, B. Rhodes (2 Zenith, 986 c.c.), 25⅘s. ; 3, G. Williamson (2 Indian, 994 c.c.), 27⅘s.

It will be seen that B. Rhodes was by far the most successful competitor. His big Zenith ran wonderfully well throughout the afternoon, and his Lincoln clubmates were very delighted at his frequent successes. The weather was delightful, except for one short shower early in the afternoon. Lunch was provided by the Leicester Rubber Co., makers of the John Bull tyre.

H. O. Wood (3½ h.p. Scott), this year's Senior T.T. winner, who won the "general" section in the 500 c.c. class, awaiting the signal to start. Behind him is W. L. Guy, another Scott rider.

A.C.U. SIX DAYS' TRIALS.

THE JUDGES' REPORT.

ENTRIES.—The entry of 162 machines was a record for A.C.U. trials, and it is satisfactory to be able to state that only one of the entrants out of this record number failed to start.

INTERNATIONAL TOURING TRIAL.—This trial very appropriately included the first International Touring Trial held since the resuscitation of the *Fédération Internationale des Clubs Motocyclistes*. In view of this, the classification of the entrants was made according to the F.I.C.M. ruling. This led to some apparent anomalies, such as the inclusion of three-wheeled cycle cars among the sidecars and the limitation of their engine capacity to 1,000 c.c. Only two entries, namely, one from France and one from Great Britain, were received for the International Touring Trial. The members of the French team were probably unaware of the difficulties that they had to face, and their machines were unsuitably geared. The judges hope, however, that their want of success will not deter them from entering future A.C.U. trials, at which they will always receive a hearty welcome.

The British team, composed of Messrs. Gibb, Little, and Collier, deserve the most hearty congratulations, not only on their victory as a team, but also on the excellence of their individual performances.

COURSE.—A very stiff course was selected, with Carlisle as a centre. There were many long and trying hills with bad corners and bends, and places with very rough surfaces. Some of the roads were narrow, but not too narrow for motor cars to go round the whole course. The modern motor bicycle has such great hill-climbing powers that it is extremely difficult to find hills that are any real test for it unless steep gradients are combined with sudden turns and poor surfaces.

The competitors, however, may congratulate themselves that they did not have to traverse such bad stretches of roads as are found in the neighbourhood of London or Paris, many of which are far more trying for frames than those actually encountered in the Trials.

The routes selected were calculated to develop the machine which will go anywhere, rather than the mere high speed machine.

WEATHER.—Three of the running days were fine and two were wet, with high winds.

ROADS.—Dry and dusty for the first three days. Wet, heavy, and generally greasy on the last two.

FAILURES AT WATERSPLASHES.—The judges regret that so many failures occurred in these. There are so many splashes, within 25 miles of London, for instance, that it should be possible for machines to go through them with impunity. Magnetos, however, appeared to be more nearly waterproof than at the previous Six Days Trial.

AWARDS.—The following is a summary of the awards :

	Class	Entries.	Medals. Gold.	Silver.	Bronze.	Retirements.
Div. 1	B	18	4	2	3	9
	C	61*	27	5	14	14
	D	26	6	7	7	6
	E	16	7	1	1	7
Div. 2	G	1	—	—	—	1
	H	13	4	3	—	6
	I	18	2	2	2	12
Div. 3	K	9	1	1	—	7
		—	—	—	—	—
		162*	51	21	27	62

*One non-starter.

NOTE.—If the original regulations had not been relaxed there would have been earned, so far as it is possible to judge, a total of 36 gold, 36 silver, and 27 bronze medals.

NUMBER OF RETIREMENTS ON VARIOUS DAYS.—Monday, 12; Tuesday, 17; Wednesday, 16; Thursday, 10; Friday, 7. Total, 62.

WEIGHTS.—The published weights tell their own tale—possibly, in some cases, to the surprise of the entrants.

GEAR RATIOS.—The figures published afford very interesting reading. The judges are of opinion that the low bottom gears generally fitted are not in any way "freak" gears, but form a very valuable asset, not necessarily for straightforward hill-climbing, but for emergencies.

TRANSMISSION.—A great increase is to be noted in the number of machines with all-chain drive or belt and chain drive. The premier award went to a machine on which the chains ran in an oil bath.

CYCLE CARS.—The cycle cars which finished the course are worthy of the highest commendation, not only for their performance, but also for the condition in which they finished. Many of those which gave up were not really eliminated by the severity of the course, but by engine troubles.

RIDERS.—The majority of the riders were very expert, which makes it all the more difficult to find hills that are sufficiently stiff to test their machines. A certain number of competitors showed poor judgment in not changing down soon enough, or in taking corners too fast.

APPEARANCE OF RIDERS.—The fact that marks were to be deducted for appearance had a most marked effect, as practically no riders wore outlandish costumes, but were content to wear workmanlike clothing suitable for the weather conditions met. A few, however, who carried oil tins, etc., on their persons had to be penalised.

APPEARANCE OF MACHINES.—This was a difficult point on which to judge, as so many competitors cleaned their machines as they went along. Many, however, gave evidence of too much oil leakage.

CONDITION OF MACHINES.—For the first time in the A.C.U. trials a whole day was devoted to the examination of the machines at the conclusion of the trial. When it is remembered that the judges had to examine 100 machines in the space of seven hours it will be obvious that the examination could only be an external one, and in some respects superficial. It is probable that from this cause a certain number of defects failed to be observed by the judges, but much interesting matter was brought to light.

To get a real criterion of the conditions of the machines it would probably have been necessary to ride each of them for a short distance to see how the engines pulled and what condition they were in. The report on the condition of the individual machines will be sufficient to make clear the nature of the majority of the defects. Some of the defects noted are of a trivial nature, and surprise may be expressed that notice should have been taken of them. On the other hand, this appears to be a good opportunity to bring to the makers' notice the fact that these small defects do take place so that they can be remedied.

A few of the more important defects may be noted in general here :

ROAD WHEELS AND VARIABLE SPEED GEARS.—Damaged.

PETROL TANKS.—Leaky.

WIRE CONTROLS.—These were broken or defective in many cases. The faults would appear to lie with the faulty fitting rather than with the system.

BICYCLE PARTS.—Many of the hub bearings and steering heads were loose. Many motor bicycles have no provision for lubricating the steering heads.

SPRING FORKS.—On some of these there was considerable lateral play, while others of exactly the same design remained in good order.

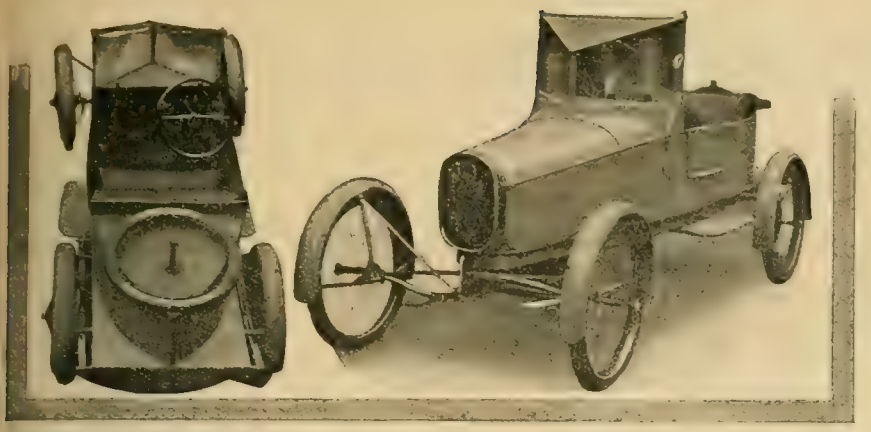
FRONT BRAKES.—Many of these at the final examination were found to be inoperative, or practically so.

MAGNETO CONTROLS.—In far too many cases these were partially or wholly jammed.

Several machines had suffered from falls or collisions, and allowance as far as possible was made for these in the marking. The judges regret, however, that in a few machines vital parts of the control mechanism should still be attached to foot-rests, foot-boards, etc., which are bound to suffer if a machine falls. A fall should not adversely affect parts necessary for driving and control.

ACCELERATION AND FLEXIBILITY TESTS.—These were a new feature. The tabulated results will well repay the time spent on their examination, as they afford in a concise form valuable information respecting important features in a touring machine. The careful observer will note that the schedules of speeds set for the various classes of machines were accurately forecasted, with the result that the average figure of merit for each class is practically identical

(Signed) A. E. DAVIDSON, Capt. R.E.
ARCHD. SHARP.



The Carter cycle car which has a four-cylinder engine 50 × 94 mm., and can be started from the seat through an overhead camshaft.

THE CARTER CYCLE CAR.

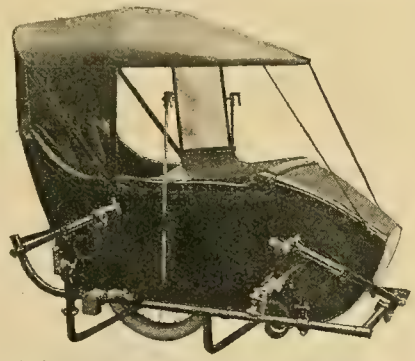
Our illustrations show an interesting cycle car in course of construction at the present time. The engine has four air-cooled cylinders with a bore and stroke of 50×94 and overhead valves. The valves are operated by a central overhead camshaft driven by chain, the shaft lying between the valve pockets and being used also as a starting shaft, a handle protruding through the dashboard for this purpose. A fan is fixed on each end of the camshaft for cooling purposes, and each valve is detachable complete with spring and pocket. The drive is by friction through a fibre faced flywheel to a steel wheel on a counter-shaft, six speeds and reverse being provided, and large thrust bearings being used throughout. Chain drive is employed to one rear wheel, an intermediate counter-shaft being used to give a reduction and divide the chain length. A friction plate is used in the rear axle instead of a balance gear. Springing is semi-elliptical at the rear and by a single cross spring in front. The whole front axle is pivoted centrally, and in the first model direct steering is used, but this will probably be replaced by rack and pinion. The frame consists of a single piece of pressed steel somewhat in the shape of a narrow U, and the whole construction is extremely light and accessible. A neat sheet metal body is fitted, and a V shaped wind screen, the total weight being about 4½ cwt. It is made by Mr. Carter, of Selly Oak, Birmingham.

A STURDY TYRE.

For some time past we have been using a 2½in. Palatine tyre on the rear wheel of a single geared 6 h.p. machine. It will be remembered how well one of these tyres performed in a 3,000 miles R.A.C. trial, and the one we have in use bids fair to last considerably over this mileage. At the present time it has travelled something over 2,000 miles, and the grooves are still well defined, while the sum total of trouble has been one puncture caused by a very long sharp flint. Besides this there is only one slight cut in the tread, and from the looks of the tyre we should say it has quite another 2,000 miles life. However, on this subject we hope to say more later on when the tyre has completed a considerably greater mileage.

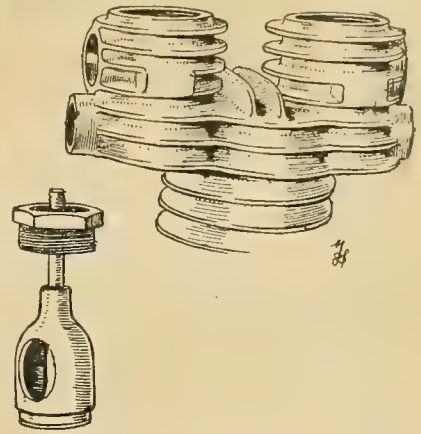
A NEW MODEL SIDECAR.

The P.M.C. Model No 21 is the description applied to the very serviceable sidecar which we illustrate herewith. It has been specially designed to suit the spring



A new model P.M.C. sidecar which was primarily designed for use with spring frame Indians.

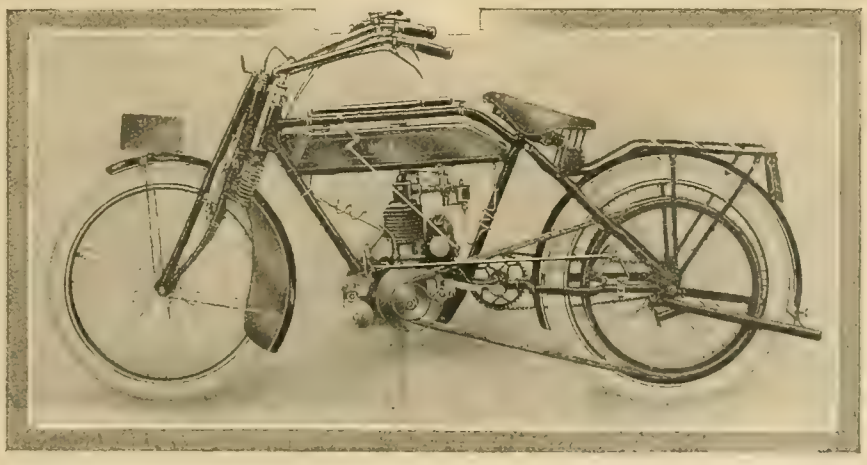
frame Indian machines, and, as will be seen, has five points of attachment. These attachments are, of course, of the well-known Quickfit type, which are one of the firm's specialities. The chassis is carried right round the body and carries lugs on which the springs are mounted, thus saving the frame from rubbing friction. The five point attachment ensures perfect rigidity, and the central front chassis attachment is an excellent feature. The coachbuilt body is well carried out, and the hood may be easily raised or lowered by the passenger without leaving the sidecar, and side curtains can be supplied at a small extra charge. This type of sidecar can be supplied to suit almost any make of machine. The Premier Motor Co., Ltd., Aston Road, Birmingham, are the manufacturers.



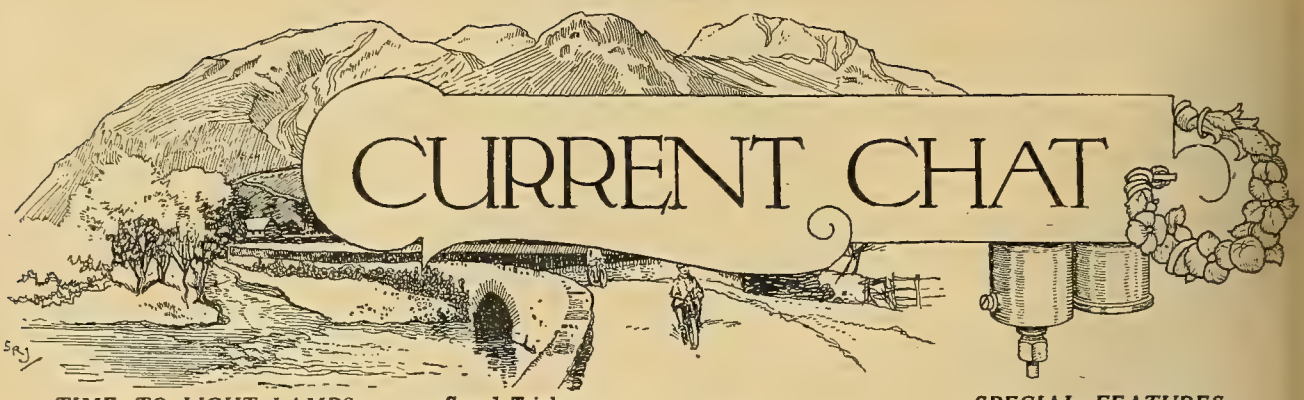
Cylinder head and valve pocket of Carter engine, showing detachable valve seating.

A LOW-PRICED LIGHT-WEIGHT.

The Wulfruna Engineering Co., of Wolverhampton, have decided to market a 2½ h.p. motor cycle which, though fitted throughout on the best modern lines and neatly finished, is to sell at 24 guineas. The engine, which the firm have tested throughout the last twelve months, has an overhead inlet valve, and is fired by an enclosed magneto placed behind the cylinder, either Amac or Senspray carburetter being fitted at option. Footrests, brakes, carrier, and control are all of approved pattern, and Pilot spring forks are used, the wheels being shod with 26in. × 2in. tyres. For 32 guineas the machine may be fitted with either Sturmey-Archer or Armstrong three-speed gear, handle starter, and large footplates.



The 2½ h.p. Wolf lightweight, which is being marketed by The Wulfruna Engineering Co., of Wolverhampton. Its chief features are low cost, overhead inlet, and enclosed magneto.



TIME TO LIGHT LAMPS.

September	11	...	7.24
,,	13	...	7.19
,,	15	...	7.15
,,	17	...	7.10

Paris-Nice Trial.

Rex Mundy has received a cheque from *L'Aero* for 500 francs (£20) as the first award in the Paris-Nice trial.

Accident to Well-known Rider.

It is very much to be regretted that S. L. Bailey's return to this country should be almost immediately followed by a nasty accident, which he suffered on the day of last week's speed trials at Wimborne. We wish him a speedy recovery.

Bad Roads in the West Country.

The West-country route from Andover, *via* Amesbury, Hindon, Mere, and Wincanton, is in very bad condition and practically impassable for motor cycles, as the road is very much cut up through heavy military traffic. Motor cyclists should travel *via* Salisbury and Shaftesbury.

Coventry and Cut-outs.

Last week the first prosecution under the Act prohibiting cut-outs was brought in Coventry and a conviction ensued, though but a nominal penalty was inflicted. The case was interesting, inasmuch as the police constable who brought the prosecution showed both a knowledge of the Act and of the technical construction of motor cycle silencers. The point on which the defendant was convicted was that the cut-out lay between the exhaust port and the silencer.

A Valuable Discovery.

During the past few weeks the Petrol Substitutes Joint Committee has discovered a process by means of which it is hoped that fully 40,000,000 gallons of British motor spirit will be available annually without further depleting the country's mineral resources. Briefly the process claims to extract a high percentage of efficient motor spirit from a commodity at present produced in this country in enormous quantities, but hitherto quite unsuitable for motor car fuel. Full and most careful investigations have been carried out by the committee's experts, and so far as a small demonstration plant is concerned, the results are excellent. It is confidently hoped that the full-sized commercial plant now in course of building will be equally successful.

Speed Trials.

It is somewhat of a coincidence that descriptions of speed trials held in the North, South, and East appear in this issue.

A Level-minded Statement.

The coroner for Birmingham (Mr. Isaac Bradley) recently remarked that he did not think there were more accidents now than there used to be before the advent of motors, but more attention was paid to motor accidents. People had to get accustomed to motors as they had got used to bicycles.

The Motor 'Bus.

What will our roads become like when motor 'bus journeys are undertaken from town to town all over the country? Is it not time these public service vehicles paid a sum commensurate with their weight and road destroying capacities?

S.E. motor cyclists will be relieved to hear that a projected service of motor 'buses to Westerham, *via* Bromley, and Cudham, has been abandoned owing to the state of the roads.

SPECIAL FEATURES:

SPEED TRIALS:
NORTH, SOUTH, AND EAST.
THE JUDGES' REPORT OF THE A.C.U. TRIALS.
ASCENT OF SKIDDAW.

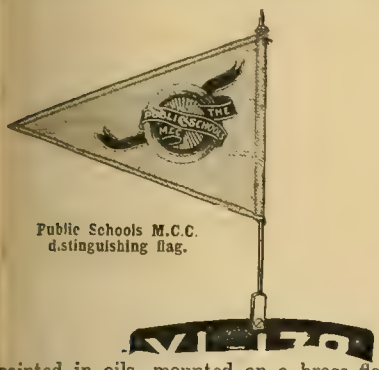
Record Turnout for Club Run.

America is noted for never doing things by halves, and it evidently extends its enthusiasm for big things to motor cycle club outings. Recently the Los Angeles Motor Cycle Club held its annual run to Venice, Cal., which is only twenty miles from Los Angeles. Over 1,700 motor cycles turned out for the run, carrying between them over 3,400 people, 90% of the machines having passengers, generally of the fair sex, on the carrier or sidecar, and sometimes on both. So great was the number of riders that the first machines had arrived at their destination before the last ones had departed. Four years ago the members of the club numbered four hundred, and it is expected that there will be two thousand next year.

THE HALF-WAY HUT ON SKIDDAW.
W. B. Little (3½ h.p. Premier) passing through the gate during the ascent. One minute over the hour was required for the six-mile climb to this point. (See pages 1196 and 1197.)

A Distinguishing Flag.

The Public Schools M.C.C. has brought out a flag, by means of which members may be distinguished. This flag is red, with the crest of the club



Public Schools M.C.C. distinguishing flag.

painted in oils, mounted on a brass flag-staff, and is designed to clip on to the number plate.

The club, which, though young, is very energetic, is entering a team to compete in the Streatham and District M.C.C. speed trials at Brighton on the 20th inst. The following have been invited to compose the team: Victor Wilberforce (3¾ Douglas), R. L. Keller (3½ Triumph), E. Tallboys-Getting (8 Bat) and A. J. Luce (8 Bat sc.). After the speed trials it is proposed that the party should proceed to Dymchurch for the week-end.

Reckless Driving at Harrow.

The Surveyor of the Harrow Urban District Council has complained to the A.C.U. about frequent dangerous driving about Harrow-on-the-Hill.

The Special Reserve in Liverpool.

The Liverpool Amateur M.C.C. is holding a special meeting at the Imperial Hotel, Liverpool, at 7.30 p.m. on September 17th, in conjunction with Capt. Apletre, secretary of the West Lancashire Motor Cycle Committee, who will explain fully to all motor cyclists who attend the details of the War Office scheme for the Special Reserve of Motor Cyclists.

Accident to Prominent Scottish Official.

An unfortunate accident somewhat damped the spirits of the competitors and officials at the Scottish speed championships at St. Andrews on Saturday last. On the Friday evening several of the leading officials, after having made all the arrangements, retired to their rooms shortly after midnight. About 2 a.m. Mr. Campbell McGregor was discovered by the hotel boots in a well adjoining the hotel, having, it is conjectured, fallen out of his bedroom window, a distance of thirty-five feet. Mr. McGregor sustained severe injuries, both internal and external, but the latest report is that he is gradually improving.

Awards in the Six Days Trials.

We regret that an inaccuracy occurred in the amended list of A.C.U. Six Days Trials medal winners, published last week. J. D. Drysdale, who rode a 5-6 h.p. Hazlewood, is mentioned as winning a silver medal. This should have been stated to be a gold medal. Thus both the new 5-6 h.p. Hazlewood machines which competed in the trials gained the coveted highest award

FUTURE EVENTS

Sept 13.—Mersey M.C. Open Hill-climb at Pen-y-Ball.
„ 13.—B.M.C.R.C. Race Meeting.
„ 19-20.—Birmingham M.C.C. Open Trial to Carlisle and Back.
„ 20.—Streatham M.C.C. Open Speed Trials at Brighton.
„ 27.—Liverpool A.C.C. Open Reliability Trial.
Oct. 4.—B.A.R.C. Brooklands Meeting.
„ 4.—Bristol M.C.C. OPEN SPEED TRIALS.
„ 11.—Coventry & Warwickshire M.C. Annual Open Hill-climb.
„ 11.—B.M.C.R.C. Meeting and A.C.U. Championships.

The Army Manœuvres.

The Auto Cycle Union has been requested by the Chief Constable of Bucks to warn motor cyclists to avoid the roads as far as possible round Wendover, Chalfont St. Peter, and Leighton Buzzard during the forthcoming army manœuvres. These roads are narrow, and large bodies of troops and service waggons will be on these roads almost continuously during the military operations.

Coventry and Warwickshire M.C. Hill-climb.

The following classes have been arranged for the above club's eighth annual open hill-climb:

Class 1.—Touring lightweights up to 350 c.c.

Class 2.—Standard touring machines exceeding 350 c.c., but not exceeding 500 c.c.

Class 3.—Variably-geared machines—*(a)* up to 500 c.c., *(b)* over 500 c.c.

All the above classes are expert barred.

The following are open classes:

Class 4.—T.T. machines up to 500 c.c.

Class 5.—Cycle cars and sidecars.

Class 6.—Any motor bicycle.

Prizes will be awarded in each class for the best performance on formula and fastest time. A special team prize is also offered for teams of three (club, manufacturers', or agents' team), and a separate run will be allowed in each class.

Further particulars may be obtained from the organising secretary, Mr. J. F. Spencer, Priory Street, Coventry.

A Pressmen's Handicap at Brooklands.

At the B.M.C.R.C. meeting on Saturday next a Pressmen's Handicap will be included. The prizes will consist of medals. Further details will be published in the programme.

MOTOR CYCLISTS AND THE MILITARY MANŒUVRES.
Outposts of the 1st Batt. Rifle Brigade, near Winslow in North Buckinghamshire. The machine is a 3½ h.p. P. and M. and sidecar.

TOURING TOPICS.

A Trip to Rosedale Abbey and Rosedale Abbey Bank.

EVERY now and again mention is made of a really stiff hill called Rosedale Bank or Rosedale Abbey Bank, the foot of which is situate in a magnificent valley on the north-east Yorkshire moors. The hill runs direct from the little village of Rosedale, at one time possessed of an abbey, but very little now remains. From what little information I could gather, I find that the hill rises from about 550 feet to nearly 1,000 feet in close on one mile; the surface is atrocious, being a mass of loose stones, fortunately not of the sharp variety, but which have been ploughed up into ridges by the slipper brakes of carts, and woe betide the motor cyclist who enters one of the ruts.

There are two very nasty bends, both worse than right angles, and the stiffest gradients appear to be just on rounding the first bend and shortly after the second. There are also three or four awful gulleys running diagonally across the road, made of a species of small paving stones, on which a low built machine is in danger of damaging its crank case.

In its present condition the hill is not worth riding, but, nevertheless, there are some who think it their business to try all the freak ascents they can, and I was one of a party who succeeded in taking a 3½ h.p. Bradbury and a 3½ h.p. Premier, both with empty sidecars, to the top. The ascents were not made non-stop, but they were very good.

A trial was then made with passengers, but was a complete failure owing to the driving wheel refusing to grip, and on every occasion the combination came to a standstill with the back wheel whizzing round. Apart from the hill, the run to Rosedale is well worth taking, the road is good, and on either side there are towering hills, at this time of the year bedecked with gorgeous purple heather.

The first really bad corner of Rosedale Abbey Bank. Note the loose state of the surface.

A portion of Rosedale Abbey Bank. The photograph does not give the full idea of the gradient, but shows the deep ruts caused by the slipper brakes of carts. These ruts have to be crossed in several places as they are found on both sides of the road.

I believe a good road can be taken from Pickering, *viâ* Wrelton Hall and Cropton, but certainly the following road leaves nothing to be desired.

How to Reach Rosedale.

Start from Kirkby Moorside and proceed as if to Pickering; about two miles out there is a left turn for Hutton-le-Hole and Lastingham. Do not, however, take this road, but take the next turn to the left, and again the first left, and straight on through the village of Appleton-le-Moor. On leaving this place take the first right turn, and at a small bridge by a farm house again turn right and then left at the signpost. This road leads straight to Rosedale.

Touring Topics.—

The ordinary tourist should return by the same road, but those who are not afraid of a little rough riding should proceed through Rosedale to Castleton, take the first turn to the right at the signpost to the latter place, go up a long and stiff hill with two gates, and bearing left until the road divides, where a right turn brings the old stone cross called Ralph Cross into view. Just after this cross either road may be taken, the one straight forward to Castleton or the one to the left for the same place *viâ* Westdale. This left turn takes one down a hill with bad surface and steep gradient; I have yet to hear of any motor climbing this ascent. Nearly at the bottom of the village a right turn should be taken, and Castleton is soon reached. From here a good road can be obtained to Guisborough, or should one wish, the seaside town of Whitby is only sixteen miles away, and can be reached by running through Glaisdale and Egton. This makes a pleasant variation, as it is always more interesting to return by a different route from that taken on the outward journey. H.W.F.

Dover to Calais by Motor Cycle.

A PEEP INTO THE FUTURE.

THE possibility of motor cycle trips on the Continent unattended by any of the complications now involved in getting one's machine across is foreshadowed by a recent article in a leading daily newspaper. Since the recent revival of the oft-suggested Channel Tunnel scheme its possibilities as a road, as distinct from a railway, have claimed some attention. It is felt by leading authorities in the motor world that in view of all that has happened in connection with motor vehicles during the past few years the mere provision of a railway connection under the sea between France and England would only partly fulfil the actual purpose for which its construction is intended. In this country, road transit, whether of passengers or goods, is now a necessary and increasingly important complement of the railway. Therefore no scheme of improving communications with the Continent by means of a tunnel beneath the Straits can be considered complete unless provision be made for road traffic as well as the railway.

The Possibilities of a Road Tunnel.

It is believed that the practical and financial questions incidental to a road tunnel are less difficult than in the case of the more familiar railway proposal. There is no doubt that it would be used by a great volume of traffic, of which present figures of merchandise and passengers afford only a slight indication. The facilities that it would offer would attract to the North of France visitors of all kinds who would otherwise never have gone there. Excursions from the Kentish seaside places to the nearer French coast and hinterland would become an everyday feature; motor cyclists in their thousands would go to swell the great stream of traffic, for would it not give to their hobby an altogether new and wonderful range of possibility? To all intents and purposes it would bring Nearer Europe within the scope of a week-end tour, with no more material complications than now go with a run from London to York. Of course, a toll would have to be paid for the use of the tunnel, but it would not need to be large. On the basis of quite a moderate levy per vehicle a Channel Road Tunnel could be made self-supporting, repaying the outlay and meeting its expenses.

At the present time, it is true, the scheme can only be considered as an idea, but as such it has for some time existed as an under-current, coming only recently to the surface. This now achieved, one may be sure that the subject will not be dropped. The time may come, sooner than would generally be anticipated, when the "road" from Dover to Calais is an accomplished fact.

THE MOTOR CYCLE IN RHODESIA.

The first motor bicycle—a lightweight Singer—in the Ndola District of Rhodesia. This machine is used by the district doctor, who has never ridden a motor cycle previously.

Camberley M.C.C.

A meeting was held on the 2nd inst. at Camberley. It was well attended, and the proposal to form a club of the above name was well received. It is hoped to arrange an inaugural run on the 14th inst., and all those interested in the club's development should get in touch with the hon. sec., Mr. A. Ninnis, Victoria Hotel, Camberley.

Cumberland County M.C.C.

A hill-climb will be held on Warnell Fell, Welton, Carlisle, on Saturday, September 13th, instead of the speed trials previously announced, commencing 2.30. The usual classes will be held, and several special prizes are offered. Members of the Westmorland M.C.C. are eligible. Entries must be sent to Mr. H. A. Rhodes, Barrock Park, Carlisle.

Hunslet M.C.C.

The results of the reliability run to Stamford and back for the Greenwood Cup are as follow :

1, H. P Hodge (6 Enfield) ; 2, F. W. Mell (3½ Bradbury) ; 3, W. Wood (3½ Premier) ; 4, F. Langhorn (6 Martin) ; 5, C. F. Clark (4¼ Calthorpe) ; 6, J. C. Broughton (3½ Bradbury) ; 7, C. L. Benn (6 Enfield) ; 8, J. Mawson (6 Rex) ; and 9, C. E. Arundel (6 Rex).

Motor Cycling Club.

A paperchase was run off, starting and finishing at the Red Lion, Digswell, Great North Road, on the 6th inst. A very intricate course of about twenty-seven miles was laid through the Hertfordshire lanes by H. Karslake (3½ Rover sc.) and D. Rothwell (3½ Rover). The "hares" started ten minutes before the "hounds" and finished fourteen and a half minutes in front of them. The best times were :

Solo Class.—1, G. T. Gray (3½ Rudge), 1h. 34½m. ; 2, A. J. Dixon (3½ Singer), 1h. 52m. ; 3, H. F. Edwards (6 Enfield), 2h.

Passenger Class.—1, B. Alan Hill (7 Indian sc.), 1h. 38m.

Of the others to finish not one had followed the whole course.

Middlesex M.C.C.

A speed trial over a course of about fourteen miles was run off on September 7th, and of an entry of twelve the following were the best performances :

	Position on Time.	Position on Handicap.
T. A. S. Brown (3½ T.T. Triumph) ...	1	1
H. E. Parker (3½ Rudge-Multi) ...	2	3
P. Dangerfield (2¾ Douglas)	4	2
G. T. Gray (5 Rudge-Multi)	3	6
M. G. Abraham (2¾ Douglas)	5	4
S. A. McCarthy (2¾ Douglas)	6	5

Brown's Triumph was in remarkably fine form, averaging just over 57 m.p.h. from a standing start and including a turn at the half distance.

Wolverhampton M.C.C.

Nearly twenty competitors took part in the Corke Cup reliability trial last week. The route was *via* Bridgnorth, Chelmarsh, Highley, Farlow Bank, Bridgnorth, and Shipley. This circuit was covered twice. Distance, 95 miles. Results :

	Total error. m. s.
1. Harry Stevens (6 A.J.S. sc.)	28 51
2. C. F. G. Boyes (2¾ A.J.S.)	35 27
3. A. E. Hartill (3½ Calthorpe)	46 17

*Winner of Corke Cup.

Passenger class

1. L Inscoe (A.J.S. sc.)	47 2⅖

First private owner other than winners :

S. F. Morrell (8 Bat sc.)	61 0⅖

Sutton Coldfield and Mid-Warwickshire A.C.

In connection with the club's open reliability trial on October 4th a special team prize, or prizes, have been offered by Messrs. Collier and Sons, Ltd., for teams composed of any three riders irrespective of type of machines.

Calgary M.C.C. (Canada).

A race meeting was held at Victoria Park on the 16th ult., when two track records were broken by Bain. Results :

Five miles, novices, under 560 c.c.—Walker (Bradbury), 7m. 14⅖s.

Five miles, novices, under 1,000 c.c.—Burns (Indian), 7m. 15s.

Five miles championship of Alberta, single-cylinder.—Walker (Bradbury), 7m. 12s.

Five miles amateur open.—Munroe (Excelsior), 6m. 26⅖s.

Ten miles championship of Alberta, amateur open.—1, Bain (Indian), 12m. 34s. ; 2, Munroe (Excelsior).

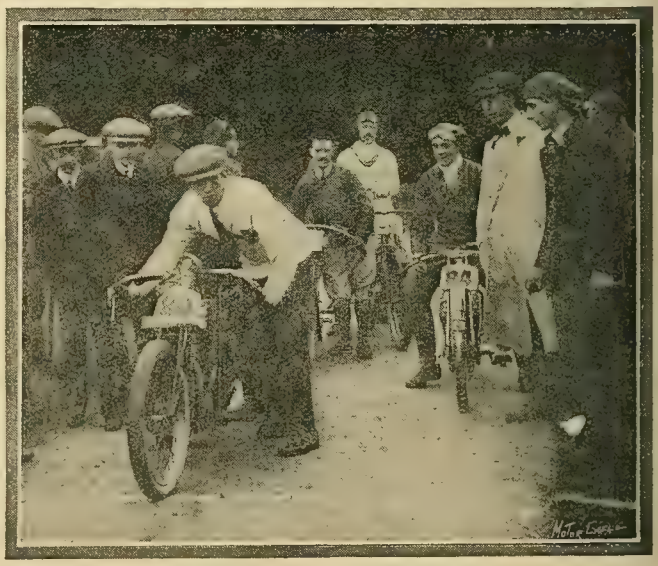
Finsbury Park C.C. (Motor Cycle Section).

A speed-judging competition was held on Saturday, the 6th inst., over a course totalling fifteen miles in length. The distance between each check was two and a half miles, schedule speed 18 m.p.h. The use of watches and speed indicators was prohibited. Results :

1. J. Evans (5-6 Bat) ... ... 94 marks
2. R. Gordon Barrett (3½ Motosacoche) 91 ,,
3. C. F. Revelle (3½ B.S.A.) ... ... 75 ,,

This was the final competition for the Touche Challenge Cup and gold medal, which are presented this year to the member scoring the best aggregate in the three events. In order to obtain results for the speed-judging competition commensurate with the figures of merit in the fast and slow hill-climbs (which were reported in the issue of August 14th) the number of marks was divided by 320, giving results : J. Evans .293, R. G. Barrett .284, and C. F. Revelle .234. Adding these figures to those of the hill-climbs, the results are :

1. R. Gordon Barrett (3½ Motosacoche) ... .679
2. J. Evans (5-6 Bat) ... ... .579



SPEED TRIALS AT GAINSBOROUGH.

B. Rhodes (8 h.p. Zenith), J. R. Sylvester (2¾ h.p. New Hudson), G. Brough (8 h.p. Brough), and N. O. Soresby (3½ h.p. Rudge) waiting to start in Class III.

Club News.—

Hampshire M.C.U.

A half-day non-stop reliability trial was held on the 27th ult. The course was *vid* Fordingbridge, Cranbourne, South Damerham, Combe Bisset, Shaftesbury, and Ringwood, starting and finishing at Cadnam; approximately eighty miles. The following gained first awards: C. Bennett (3½ Rover sc.), J. V. Druitt (6 Enfield sc.), R. C. Pearson (3½ Premier sc.), and M. W. Holland (4 L.M.C. sc.)

Southampton and District M.C.

The above club held a hill-climbing contest at East Meon, near Petersfield, on the 3rd inst., in connection with the Hampshire M.C.U. The condition of the hill was excellent, and some good times were made. The results are:

Class I. (lightweights).—1, F. Thompson (2¾ Douglas); 2. C. Jeffries (2¾ Humber).

Class II. (up to 600 c.c.).—D. Ash (3½ Triumph), fastest time of the day.

Class III. (any touring motor cycle, on time).—R. C. Pearson (3½ Premier). This rider also secured first place in the sidecar class for similar machines.

Class V. (passenger machines and cycle cars).—W. Fleetwood (6 h.p. A.J.S. sc.)

Colchester and District M.C.C.

The inter-club hill-climb held on the 30th ult. at Fiddler's Hill, Fordham, *v.* Ipswich and District M.C.C., resulted in an easy win for Colchester by 11 points to 1. Details:

Touring Class up to 500 c.c.

1.	E. Herdman (3½ Rudge-Multi) ...	23⅗s.	(C.)
2.	A. Medcalf (3½ B.S.A.) ...	29s.	(C.)
3.	H. Berry (3½ Triumph) ...	29⅕s.	(C.)
	F. E. N. Crosby (3½ Swift) ...	29⅗s.	(C.)

Any Machine up to 500 c.c.

1.	E. Herdman (3½ T.T. Rudge) ...	22s.	(C.)
2.	W. E. Scott (3½ Triumph)	24s.	(C.)
3.	S. T. Wilkin (3½ T.T. Rudge) ...	24⅕s.	(C.)
	D. W. Poppelwell (3½ T.T. Singer)	24⅕s.	(I.)

On the tie being re-run, S. T. Wilkin's time was ⅗s. slower.

Purley and District M.C.C.

The night trial for the Murray-Scott Cup and other prizes is postponed to September 27th, to avoid clashing with the Streatham speed trials at Brighton.

Surrey M.C.C.

The results of the hill-climb held on Saturday last are as follow:

Class 1.—Touring machines up to 350 c.c.

		Time.	Fig. of merit.
1.	C. A. Crow (2½ Singer) ...	39s.	... 464
2.	S. H. Crow (2½ Zenith) ...	42⅘s.	... 359
3.	T. G. Meeten (2 Levis) ...	44⅘s.	... 290

Class 2.—Touring machines up to 550 c.c.

1.	T. G. Meeten (3½ Rudge) ...	27⅕s.	... 495
2.	P. Mitchell (3½ Premier) ...	34⅕s.	... 377
3.	A. Chalcraft (3½ Rudge) ...	31⅕s.	... 372

Class 4.—Any machine, on formula.

1.	T. G. Meeten (3½ Rudge) ...	26⅘s.	... 508
2.	C. A. Crow (2½ Singer) ...	37⅕s.	... 499
3.	F. W. Barnes (6 Zenith) ...	25s.	... 408

Class 5.—Sidecars.

1.	T. G. Meeten (3½ Rudge) ...	36⅗s.	... 465
2.	F. W. Barnes (6 Zenith) ...	29⅗s.	... 462
3.	P. Mitchell (3½ Premier) ...	51⅘s.	... 324

Class 6.—Any machine, on time.

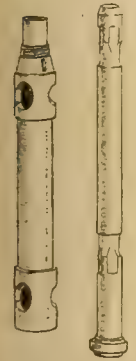
		Time.
1.	F. W. Barnes (6 Zenith)	23⅕s.
2.	T. G. Meeten (3½ Rudge)	27⅕s.
3.	A. Chalcraft (3½ Rudge)	29⅖s.

Class 7.—Any touring machine, standing start and re-start on hill.

		Time.	Fig. of merit.
1.	C. A. Crow (2½ Singer) ...	57s.	... 232
2.	S. H. Crow (2½ Zenith) ...	57⅘s.	... 244
3.	T. G. Meeten (3½ Rudge) ...	43⅘s.	... 238

The Toroga Two-speed Gear.

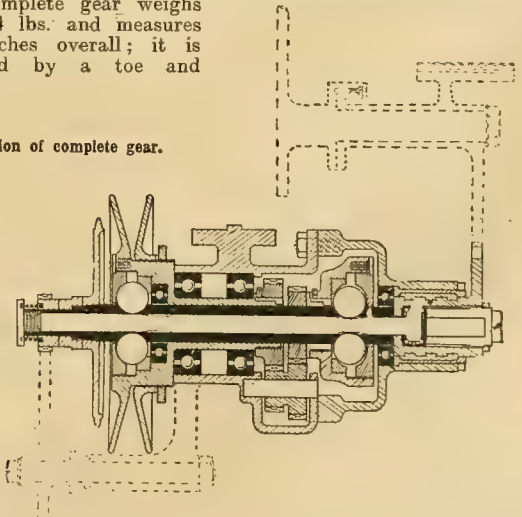
THE object of the designers of this gear was to produce a simple and efficient two-speed gear which could be easily attached to almost any make of motor cycle. In this they have fully succeeded, and further have evolved a gear which, on account of its simplicity, can be sold at a comparatively low figure. The gear is of the counter-shaft type and is designed for chain and belt drive.



Internal spindle and sleeve of Toroga gear.

The most unusual feature of the device is the type of clutch employed, which is of the ball and cone type, somewhat similar to that used in machine tool practice. Two of these clutches are employed, and they each consist of three large steel balls which may be forced out against cones by the action of inclined planes on an internal wedge bar. The main shaft runs on Hoffmann type ball bearings, and below it is mounted a small counter-shaft, which, in combination with the gears on the main shaft, provides the low ratio. Reference to the line drawings published herewith will make the action of the gear quite easily comprehensible. A 45° reduction is employed and all parts are enclosed in an oiltight and dustproof casing, which, by means of an adapter plate, may be fixed to nearly any type of bottom bracket. The clutches may be adjusted for wear by a simple screw adjustment, and a kick-starter of the pinion and quadrant type is fitted to the left side.

After a thorough examination of one of the early gears which had run for a considerable distance, we were given a demonstration on the road and finally took charge of the machine ourselves. The clutches are beautifully smooth in action and grip firmly when sent right home. The machine was fitted with a 2½ Toroga engine, and we found it quite a simple matter to start from a standstill on an up slope, even on the top gear of 6 to 1, and on the low gear we saw two persons, scaling about 24 stone, started uphill with ease. The complete gear weighs only 14 lbs. and measures 10⅝ inches overall; it is operated by a toe and heel pedal and the price will be £6 10s. only. The makers, the Toroga Motor Engine Co., Ltd., St. George's Terrace, Brearley Street, Birmingham, are also manufacturing a neat and solidly constructed 2½ h.p. engine. In future this engine will be rated at 2¾ h.p., and will have a bore and stroke of 70 × 90. The valves are placed side by side and have adjustable tappets, and the magneto lies behind the cylinder.



Section of complete gear.

The First Ascent of Skiddaw on a Motor Cycle.

By GEORGE D. ABRAHAM, author of "Motor Ways in Lakeland," "The Complete Mountaineer," etc.

SOME time ago thoughts of the lines of an old Cumbrian rhyme

"Auld wives and bairns on jackasses
To tippy twop may ride"

suggested the idea that Skiddaw, our most famous English mountain, might be climbed by motor cycle. But the suggestion met with scant encouragement from the experts. The lofty peak whose "red glare . . . roused the burghers of Carlisle" in long-past Armada days was a familiar sight during the Six Days Trials, but none stayed behind to essay its conquest. With its 3,054 feet of height and tremendous and continuously pathless gradients, Skiddaw may well be called the limit in hill-climbing; in fact, really "the worst hill in England."

However, news came that two local enthusiasts, T. Blair Westmorland and Raymond Drinkall had made two plucky but unsuccessful attempts, and thus plans, which had often been discussed with W. B. Little, of the Cumberland County M.C.C., were brought to fruition. The famous motor cyclist mountaineer had never even walked up the mountain. The writer's party, after passing through Applethwaite, travelled up into the heights as far as possible on four wheels. The wall-jumping motor car is not yet, thus we finally walked up to the "half-way hut." The great mountain was a mass of common glory; no pen or picture can do justice to the wondrous colouring of the sun-flecked heather or the marvellous outlook over mountains of a thousand forms with the lake of Derwentwater enfolded in their purple hollows.

W. B. Little (3½ h.p. Premier, Armstrong gear), the first motor cyclist to reach the top of Skiddaw. This photograph was taken at the highest point, 3,054 feet above sea level.

Attacking the Gradient.

There was just time to gather bunches of wild white heather for luck to the rider ere, from far underneath us, came the sound of his throbbing engine. Then, a thousand feet below, a tiny dark speck sped over the green breast of the lower slope and seemed to fling itself at the first steep gradient. For a few minutes man and machine were out of sight hidden by the underlying bulge of the mountain. This section we knew was to prove the test of the climb. There was a height of 1,750 feet to be climbed in less than a mile, practically an average gradient of 1 in 3 for that distance. Steep steps of almost 1 in 2 had to be negotiated. No plain pathway was available, for most pedestrians choose their own way up the wide front of the slope, and patches of heather hid the loose rocks. Still the daring climber came up towards us without a falter, and the little crowd assembled on Skiddaw assisted him by an outburst of encouraging cheers at the little hut, which is the half-way landmark from Keswick.

The final climb to the top of Skiddaw. Note the stony nature of the surface.

Buck-jumping on a Motor Cycle

Then came the real test. About five hundred yards above the hut, the numerous tracks led most steeply up to the left amidst deep ruts and stony channels. In mid-air most of the time and seldom in the saddle, the rider's position now seemed desperate. The machine bounded and jumped like a bucking horse. At times the front wheel lifted so much that a backward somersault seemed scarcely preventable. Then suddenly all hopes of a non-stop climb were dashed to the ground and the rider with them. The front wheel swung round on the rocky slope—rider and machine skidded bodily into the heather—a bad skid indeed. It was an exciting moment. A certain too adjacent spectator was so moved literally as to aver that the meaning of the word "Skiddaw" was at last explained.

The First Ascent of Skiddaw on a Motor Cycle.—

However, no damage resulted, and Little was soon wriggling his way sinuously and bumpily up to the easier crest of Jenkin Hill, which really marked the end of the most difficult portion. The summit was now in sight, and far northwards stretched that familiar prospect away over towards Carlisle and the Scottish Lowlands. The well-known gate through the iron railings was found to be securely fastened with thick iron bands. Fortunately, a strong file was carried, and willing hands soon opened the way summit-wards. A slight use of the second gear was here possible, and after the passage of the second gate all vegetation was left behind. The rocky wilderness was now climbed and traversed over the lower peaks to the highest point. A cold nor'-easter swept over the summit, and there was just time to note the gleam on the sea, 3,054 feet below, before the descent was begun. Thanks to the splendid brakes this was achieved successfully and safely. Possibly my readers may think that the descent was easy in comparison with the ascent, but if anything it was the more difficult of the two; it requires considerable nerve to sit on a bounding motor bicycle when descending a mountain side.

The Victorious Machine.

A word of tribute must be paid to the machine which stood the test of this remarkable climb. This was the 3½ Premier which Little rode in the Six Days Trials, the same Stelastic tyres being still in place and giving a splendid grip on the steep, shaly slopes. Without a first-class three-speed gear the ascent would surely be impossible. The Armstrong gear came out of the ordeal with flying colours.

For the information of those who will assuredly attempt to repeat the climb, it may be interesting to note that the six miles between Keswick and the summit were covered in one minute over an hour. Of this time quite ten minutes were lost unfastening the two upper gateways. The heather season is not the best time for an ascent; during a dry springtime a better route could undoubtedly be found.

Descending the slippery heather-covered slope of Skiddaw after the climb
The vale of Derwentwater is seen far below.

LUBRICATION: A FOOTNOTE.

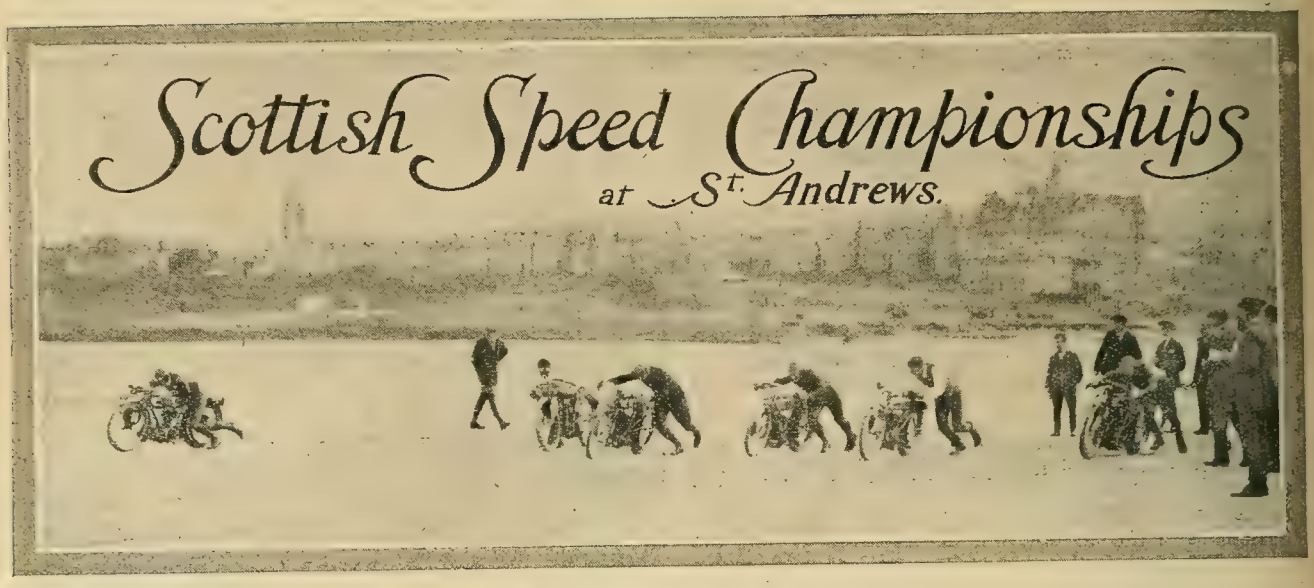
DURING the last year or two a great amount of attention has been directed to the subject of lubrication; not, perhaps, before time. We are now considerably more advanced on the subject than we were, say, two years ago, but one point, which appears to the writer to be a most important one, does not seem to have received as much consideration as it deserves. The point I refer to is this—that under all existing automatic systems the lubricant is fed to the engine in proportion to the speed of the latter, and not, as it should be, in proportion to its load. To explain fully: Take the case of an engine in which the oil is delivered to the crank case by some form of mechanical pump driven by the engine. When descending a decline at a good speed with the engine running free very little lubricant is required indeed; yet because the speed is high the pump is giving a large supply. Conversely, imagine the same machine to be ascending a long, steep hill. Now we all know that when the speed begins to fall off an extra dose of oil will be of the greatest assistance to the labouring engine, but with the present systems of forced feed that is just what it does not get. In fact, the supply is actually diminished in direct proportion to the decrease in speed, and it is only reasonable to suppose that such a machine will often quite needlessly fail on hills where an old machine whose rider happens to know when to use his hand pump will sail up without any great difficulty. The same case, of course, applies to machines fitted with the vacuum feed system.

I shall, of course, be told that in such cases it is up to the rider to increase the oil supply either by pumping in an extra charge by hand, or by re-adjusting his feed regulator. While it is perfectly true that he can obtain the results desired by such means, it is also painfully obvious that the system rendering them necessary cannot truthfully be described as automatic. No, if motor cycles are to be ridden by everybody ("everybody" including the hopelessly unmechanical and muddle-minded), then motor cycle lubrication must be utterly and entirely automatic; not automatic with manual assistance. And I might add here that there should be some more than easy means of judging whether the automatic oiler is really delivering its goods other than by listening for cries of agony from the engine, else trouble is likely to ensue. More than one manufacturer please note

At present, therefore, the matter stands thus. We have already several machines in which the oil is forced into the crank case, and at least one in which it is forced directly to all the bearings; in each case, however, the supply of lubricant is regulated by the speed at which the engine is running, and not by the actual work it is doing. A semi-automatic hand pump, the feed of which was determined by the throttle opening, was shown at Olympia last November by Messrs. Best and Lloyd, but, unfortunately, it does not appear to have attracted anything like the attention it undoubtedly deserved.

RED WHEELS.

Scottish Speed Championships at St. Andrews.



The start of the medium weight event.

MAGNIFICENT weather favoured the speed contests under the auspices of the Scottish A.C.U. on the West Sands at St. Andrews on Saturday last. The Union officials had left nothing to chance, all the arrangements being very well organised, and it only required a fine day to make the event memorable as far as Scottish motor cyclists were concerned. Being the first meeting of an international character some very fine performances were anticipated, and those present were not in any way disappointed. From two to three thousand spectators lined the course, which was one mile in length, the sandy surface being in very fine condition. A very slight breeze blowing from end to end of the course somewhat tempered the heat of the sun, which shone with great brilliance throughout the day. The famous golfing town was *en fête*, and the varied dresses of a large number of ladies who graced the event with their presence lent a touch of colour which was decidedly pleasing. Several of the local councillors were officials of the meeting, and this, no doubt, helped towards the success of the afternoon.

A Late Start.

For a first attempt at running an event of this nature on such a large scale, the S.A.C.U. deserve to be congratulated, and the one or two little failings which were apparent on Saturday will, in all probability, be remedied at the next meeting. Chief among these was the delay in running off the preliminary trials, which, although advertised to start at 11 a.m., did not do so until midday, this delay necessitating the abandonment of the luncheon interval. This may, however, have been a blessing in disguise, since the spectators were thus enabled to see all the racing at the one time, without the monotony of waiting while the officials refreshed themselves.

The following were the eight classes run off: Class 1, Scottish lightweight speed championship for motor bicycles having engines not exceeding 350 c.c.; distance, twenty miles. Class 2, Scottish medium-weight speed championship for machines having engines exceeding 350 c.c. and not exceeding 560 c.c.; distance, twenty miles. Class 3, Scottish heavyweight speed championship for machines having engines exceeding 560 c.c. and not exceeding 1,000 c.c.; distance, twenty miles.

The Passenger Classes.

Class 4, one mile sidecar race, engines not exceeding 560 c.c. Class 5, one mile sidecar race, engines exceeding 560 c.c. and not exceeding 1,000 c.c. Class 6, one mile cycle car race, engines not exceeding 1,100 c.c. Class 7, three lap race for machines having engines exceeding 350 c.c. and not exceeding 560 c.c.; experts barred. Class 9, three lap race for machines having engines exceeding 560 c.c. and not exceeding 1,000 c.c.; experts barred.

S. Crawley (3½ h.p. Triumph), winner of the medium weight championship.

Class 1.

There were one or two non-starters in Class 1, and those who survived the preliminary trial were Hugh Mason (2¾ N.U.T.), J. Steel (2¾ Douglas), D. S. Alexander (2¾ Enfield), A. H. Alexander (2¾ Douglas), J. Roy (2¾ Douglas), J. R. Alexander (2¾ Douglas), W. K. Gulland (2¾ Douglas), and O. G. Braid (2¾ Martin).

The riders were started at minute intervals, which, from a spectator's point of view, was disappointing. It was easily seen that Mason and Steel would, bar accidents, qualify for the final, as their respective mounts appeared a great deal faster than any of the others.

The next event was the preliminary heat for the medium weight championship. A. J. C. Lindsay (3½ Rover) won this, but had S. Crawley (3½ Triumph) not stopped owing to his oil plunger sticking, he would have secured first place. Even as it was, he was only seven seconds slower than the Rover expert, and looked to have an excellent chance of the championship. The following riders, in addition to those named, qualified: E. W. Cheshire (3½ Triumph), J. L. Rankin (3½ Singer), J. G. Beveridge (3½ Rudge), K. J. P. Laing, Hawick (3½ Triumph), A. H. Alexander (3½ Indian), and J. Darlock (3½ Rudge).

A Fine Race.

The championship in Class 1 was now run off, and resulted in a very fine tussle between Hugh Mason (2¾ N.U.T.) and J. Steel (2¾ Douglas). Although Mason had the faster machine of the two, the Edinburgh rider was the better on the corners, and managed to hold his own for a few laps. Leaving nothing to chance, however, the Newcastle exponent took no risks and gradually drawing away from his opponent on the straight, won a fine race in 25m. 42⅕s., being about 500 yards ahead of Steel, who finished second. The leader lapped one or two of the other competitors at the end of ten miles, and was never passed during

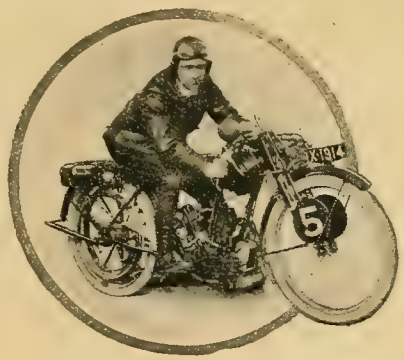
R. J. Braid (8 h.p. Martin-Jap) travelling well. Braid eventually won the heavy weight championship.

the race. His win was a most popular one, and he was accorded a great ovation on finishing. Mason's machine, unlike those ridden by the majority of the competitors, was fully equipped, even to having a belt guard somewhat on the lines of that standardised on the Bradbury. The officials had rather peculiar notions with regard to equipment, as although they allowed competitors to ride their machines without mudguards and in some cases stands, they made them all carry horns. Rather a funny idea, to our mind.

A Narrow Escape.

The next race on the programme was the championship for the medium weights. Crawley and Lindsay were the fancied men for this event, and right from the start it was seen that unless something unforeseen happened the race lay between the two. Both were leading at the end of the first mile, but at this point they nearly came to grief, a collision being narrowly averted. For the first few miles the duel was a ding-dong one, but, as before stated, Crawley was on the faster machine, and gradually leaving the Rover rider, won by close on a mile in 24m. 35⅖s., Lindsay being second in 26m. 6s. The latter might have been nearer the winner, but on seeing that he could not beat the Triumph crack, he took matters easily, and made certain of second place. The finest race of the afternoon was that for third place between J. G. Beveridge (3½ Rudge) and E. W. Cheshire (3½ (Triumph). First one would lead and then the other, only a matter of twenty yards separating them at the most. On the last lap, however, Cheshire got away, and led his opponent over the line by about thirty yards. The spectators showed their appreciation of the sporting zest of the competitors by giving both riders a great cheer. It was rather unfortunate that A. H. Alexander was unable to use the new 3½ h.p. Douglas in this event, as the first appearance in competition of the new Bristol product would have been worth noting. Scottish riders may, however, have an opportunity of seeing the new machine at the remaining few open events.

The heavyweight event was a little disappointing, only four entrants starting. A. H. Alexander was again unlucky, as he was unable to ride his 8 h.p. Matchless, having damaged it in practice, one



Hugh Mason (2¾ h.p. N.U.T.), winner of the lightweight championship of Scotland.

of the cylinders having a hole blown in it. Contrary to general expectations, R. J. Braid (8 h.p. Martin-Jap) won, riding a fine race, and beating J. R. Alexander (7 Indian) by fully half a mile.

The other events resulted in runaway victories with the exception of the 1,000 c.c. sidecar class, which F. J. Hutchison (7 Indian) won by a narrow margin.

Other results were as follow:

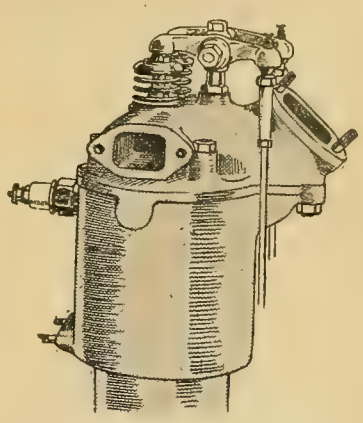
Class 8.—1, J. G. Beveridge (3½ Rudge); 2, J. Nicoll (3½ Rudge); 3, K. J. P. Laing (3½ Triumph).

Class 9.—1, A. J. Carlow (6 Zenith); 2, P. Galbraith (7 Indian); 3, A. F. Downie (6 A.J.S.)

Class 4.—A. J. C. Lindsay (3½ Rover sc.); 2, T. Stevenson (3¾ Scott sc.); 3, J. Christie (3½ Kerry-Abingdon sc.)

The result of the mile cycle car race for engines not exceeding 1,100 c.c., was as follows:

1, H. Alexander (10 Calthorpe); 2, P. G. Pye (7 Swift). Time, 1m. 24⅖s.



Cylinder and valve gear of the Buckingham water-cooled cycle car engine, which was described last week (see page 1167).

INTERNATIONAL SPEED TRIALS AT BRIGHTON.

The open international speed trials which are being held on Madeira Drive, Brighton, on September 20th, by the Streatham and District M.C.C., promise to be very interesting. Efforts have been made to attract foreign entries, and now that the Continent is experiencing something like a boom in the pastime it is to be hoped that some of the best men will come over. The programme is a long one, and a start is to be made at one o'clock. No less than twenty classes are down for decision. These will be sub-divided into classes for experts and non-experts, and it is also interesting to note that there is a special class for three-wheeled cycle cars.

Hugh Mason leading the field at one of the turning points

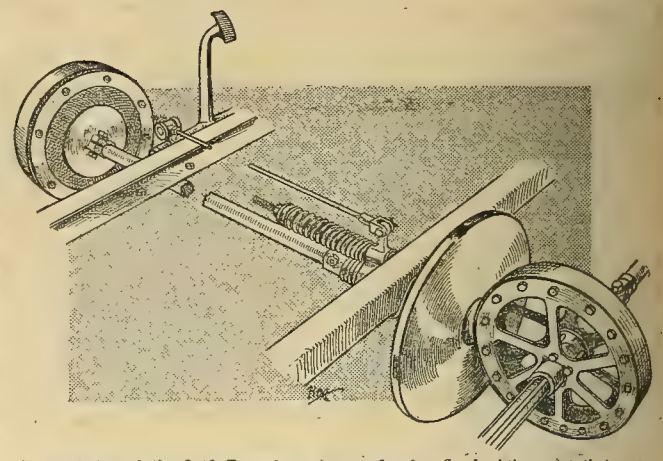
THE TWEENIE CYCLE CAR.

THE Tweenie two-cylinder cycle car is sold in this country by Messrs. Jozot and Co., the French House, 59-61, New Oxford Street, W.C. The 8-10 h.p. Tweenie is quite an interesting little vehicle. Its motive power is a two-cylinder V type water-cooled engine, 72 × 120 mm., with the cylinders set at an angle of 30°. The magneto, which is a new one to readers of *The Motor Cycle*, is a large size gear-driven Rugère. As this magneto runs at half engine speed, it is purposely of a larger size than usual, so as to give a fat spark for easy starting. The carburetter is the well-known Solex, which gives great flexibility and ample power. The cooling is arranged on the thermo-syphon system, and an ample supply of water is carried.

The chief interest in the vehicle, however, lies in the drive. In the first place, it may be mentioned that the engine has internal flywheels in addition to an external flywheel, incorporated with which is a universal joint, shown in the accompanying sketch. This universal joint is of the most simple and effective type, consisting of two portions jointed together by a sheet of thick rubbered canvas or leather. Thence the drive is taken through a propeller-shaft to a friction disc, kept in tension against the disc by means of a powerful spring, and supplied with the usual ball thrusts. Ball bearings are, in fact, found everywhere in the vehicle except in the engine. The friction wheel is shod with compressed paper, and is of much greater width than usual.

The final drive from the cross-shaft to the rear wheels is by a single chain, while the rear axle is solid, as there is no differential. The chassis is of channel steel, while the springing is particularly interesting, the front spring being of the transverse laminated pattern, each extremity of which is attached to rods sliding in guides supporting the stub axles. The rear springing is on Lanchester lines, each spring having a shackle at the forward end, being held solid in the centre. Adjustable radius rods are provided.

The brakes consist of an external foot-controlled band brake on the cross-shaft and two internal expanding hand-operated brakes in the rear wheels. The control is absolutely standard, and similar to that used in car practice. The whole of the mechanism from stem to stern is particularly accessible, while there is ample locker room. The petrol tank holds about three gallons. The steering is by rack and pinion, while it is interesting to note that the steering wheel is of large dimensions. 650 × 65 mm. tyres are fitted.

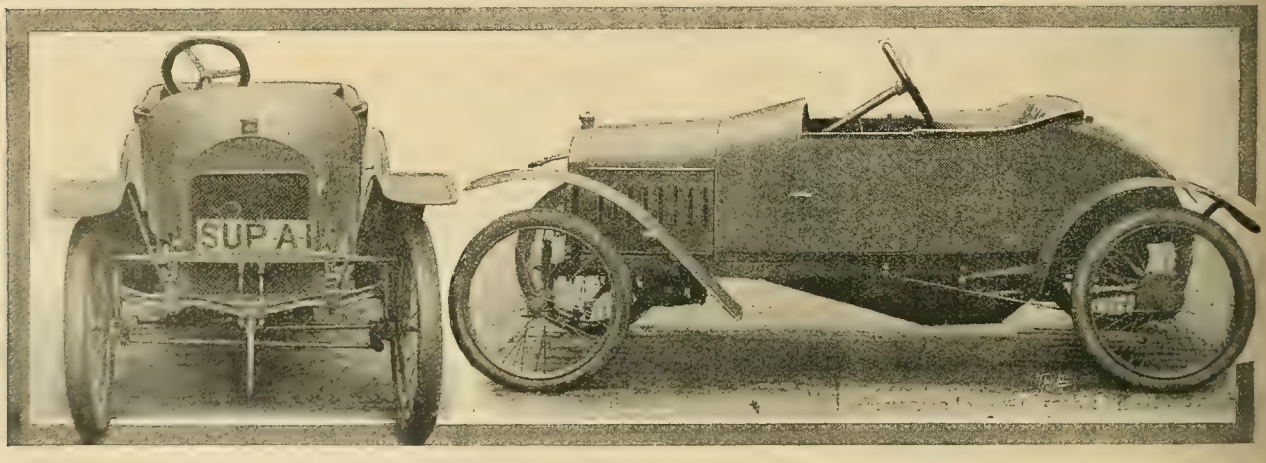


Transmission of the 8-10 Tweenie cycle car showing flywheel incorporating the universal joint. Note the width of the friction wheel tread.

BRITISH IMPORTS AND EXPORTS OF MOTOR CYCLES.

The value of imports of motor cycles for the month of August, 1913, was £19,284, or a great increase over the amount for the corresponding period of 1912, which was £14,568. For the eight months ended August 31st, 1913, the value of imports was £184,930 against £114,989 in 1912, thus showing the growing trade in motor cycles

The value of the exports for the month of August, 1913, was £67,714—a slight decrease from the amount for the corresponding month of 1912. For the eight months, however, the amount for 1913 was £651,424, or an increase of £250,082 over the eight months of 1912. As will be seen, both the imports and exports are steadily increasing, for in 1911 the import figure for the first eight months reached only £79,651, and the export figure £181,418.



The twin-cylinder 8-10 h.p. Tweenie cycle car. Note the specially-designed front springing.

Dry Cleaning Brush.

Motor cyclists occasionally soil their clothes either by oil flung from the engine, chains, or belt, or whilst cleaning their machines. To enable soiled clothing to be readily cleaned, Messrs. H. Taylor and Co., 21a, Store Street, Tottenham Court Road, W., have lately

The "Mutax" dry cleaning brush sold by Taylor and Co.

introduced a dry cleaning brush, known as the Mutax, which we illustrate. The handle of the brush consists of a small reservoir for petrol, or a patent non-inflammable spirit, known as Westrosol, can be inserted. The filler cap is provided with a push-button valve, which, when open, allows the petrol to flow through the bristles of the brush.

A Cycle Car Trunk.

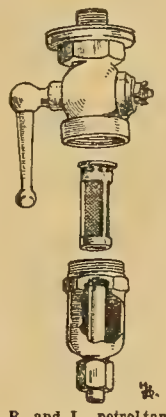
A capacious and well-made trunk for attachment to cycle cars has been produced by J. B. Brooks and Co., Great Charles Street, Birmingham. A tray fits into the upper part of the trunk for the purpose of carrying light articles.

Brooks's Cycle Car Trunk.

and snap-down catches secure the lid, a stout lock being supplied for additional security. Strong spring holders secure the trunk, which is made of best materials, to the luggage carrier.

The B. and L. Combined Petrol Tap and Filter.

The combined petrol filter and tap which we illustrate is the product of Messrs. Best and Lloyd, Ltd., Cambray Works, Handsworth, Birmingham. It will be noted that the petrol can be shut off by means of the tap, which is above the filter. This enables the well and gauze to be rapidly cleaned. The construction of the well, with raised nipple in the centre, is worthy of comment. This acts as a trap for dirt or water, which collects round the bottom of the well, the lighter spirit finding its way through to the carburetter, and leaving any undesirable matter behind. This article, like all B. and L. fittings, is well constructed, the tap being provided with a spring-controlled lock which automatically holds it in the "On" or "Off" positions. An advantage of this form of tap is that the handle can be turned to the right or to the left to shut off.



B. and L. petrol tap and filter.

An Exhaust Cap Cooling Device.

Messrs. Brown and Holland, 77, Prince of Wales Road, Kentish Town, N.W., have introduced a water-cooled exhaust

The B. and H. water-cooled valve cap fitted to a 3½ h.p. Triumph engine.

valve cap. The valve cap is a special one with a rod brazed in the centre. Above the cap is fitted a hollow sleeve supplied with a union, and above that is another cap and union. Copper and asbestos washers render the joints watertight, and the whole is secured by a nut and washer. The two unions are coupled to a small gilled tube radiator attached to the side of the tank. It is claimed for the device that it enables an engine to retain greater efficiency, as it keeps cool that portion which assimilates the greatest heat, and saves the valves from pitting. In case of any trouble with the device it can be disconnected and ordinary air-cooling be resorted to. We made a test during which we rode as a passenger in an 8 h.p. Zenith sidecar, which was twice taken up Westhill, Highgate; the engine kept noticeably cooler when the auxiliary water-cooling apparatus was used.

New Dunlop Tyre.

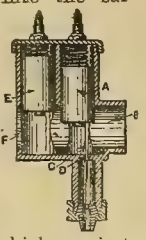
We are enabled to give some details concerning a new type of tyre introduced for the coming season by the Dunlop Tyre Co. We saw the first of these tyres in the Six Days Trials, when it was ridden by one of the firm's testers all round the course. The tread is a combination of the ribbed and rubber-studded patterns, which allows the maximum thickness to be found in the centre of the tread, the point where the greatest wear takes place. It will be noticed that the centre rib is of ample width, and has studs placed in a staggered position along its surface, while midway between the two outer ribs studs

A new pattern Dunlop studded tyre which will be ready in October.

are also situated. The studs give an excellent driving and braking effect, and, being placed alternately, they do not become clogged on greasy surfaces. The side ribs, which are also reinforced by studs, prevent skidding when taking corners. Despite these alterations, the speed and resiliency of the tyre has not been in any way altered, especially as when running fast on the open road only the centre portion of the tyre is in contact with the ground. This form of tyre is made in several strengths, the new studded pattern light tyre, the new studded heavy and extra heavy tyres, and the 650 × 65 mm. pattern for passenger work. All these tyres, which, by the way, have beaded edges, will not be ready for delivery until the end of October.

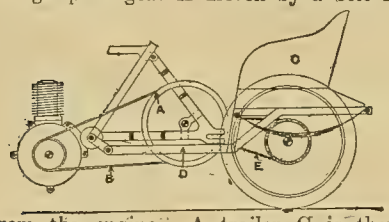
Variable Fuel Supply.

It has often been proposed to employ a taper needle projecting into the carburetter jet orifice for the purpose of varying the effective fuel outlet. In the construction illustrated this system is employed in conjunction with sliding piston throttle and air valves. The throttle piston A controls the passage B leading to the engine, and has attached to its lower end the taper needle C, which projects through the fuel orifice D. The taper of the needle C is so graduated as to supply the correct amount of fuel for any position of the throttle D, and a further adjustment is afforded by the use of a second valve E controlling the air port F.—C. W. Graham, No. 6622, 1912.



A Conversion Idea.

For the purpose of converting a motor bicycle into a tricar, the rear wheel is removed, and in its place is mounted a change-speed gear A driven by a belt B

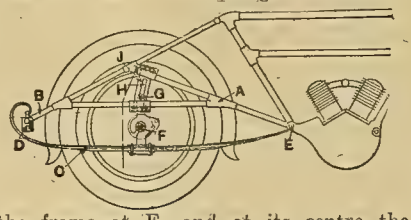


from the engine. A trailer C is then connected to the bicycle frame by stays D, and the trailer axle is driven by chain gearing E from the speed gear A. It would seem that if the machine be used solo and the driver occupy the rear seat a long handle-bar would be required to bring the controls within reach.—C. Krautwurst, No. 26,698, 1912.

PATENTS by Eric W. Walford F.C.I.P.A.

Rear Springing.

The frame A is of special construction, and includes a pair of tubes B running to a point at the rear of the wheel. These tubes support on either side a laminated semi-elliptic spring C, an auxiliary springing device being interposed as shown at D. The front end of each spring C is bolted to



the frame at E, and at its centre the spring has clipped to it a bracket, carrying the wheel spindle F and the necessary abutments for a hand brake. Above the wheel spindle is arranged a roller G, engaging a curved guiding slot H in a plate J, the curvature of the slot being the arc of a circle struck from the point E. —J. E. Spedding, No. 266, 1913.

A Douglas Engine Shock Absorber.

The ordinary type of frictional shock absorber wastes a certain amount of energy, and it has been proposed to employ spring buffers, which transmit the drive resiliently to the toothed ring. The present construction is of the latter type, and comprises an inner part A and an outer toothed ring B. These two parts are formed with lugs C, as shown. A wire ring D is provided, upon which are

threaded the requisite number of coil springs E, and the ring D is inserted into slots formed in the lugs C, with each spring engaging one lug on the inner member and another on the outer member. The arrangement of the springs upon the ring D renders it easy to assemble the device, and also keeps the springs in a central position between the lugs. It will be clear that movement of one member in relation to the other will first compress the springs, after which the power stored will react on the driven part.—W. Douglas, No. 23,313, 1912.

SPARKLETS

Tyre Prices Reduced.

We are informed by the Continental Tyre and Rubber Co. (Great Britain), Ltd., that their new price list of motor cycle tyres will be ready this month, and that considerable reductions in prices for 1914 have been made.

Castrol in Favour.

We understand that riders using Wakefield Castrol in the recent A.C.U. Six Days Trials obtained 21 gold, 8 silver, and 16 bronze medals. This oil, we hear, was also used by the winners of the International Touring Club prize and the club team prize.

Special Fuel for the N.U.T.

In the A.C.U. Six Days Trials the N.U.T. machines, all of which completed the course, were using a special spirit produced by their manufacturers, Sir William Angus Sanderson and Co., Ltd. The riders found the average consumption improved on this spirit.

Rocs in the Pyrenees.

We hear from Messrs. A. W. Wall, Ltd., Birmingham, that a Sheffield client of theirs recently carried out an ambitious tour on his Roc motor cycle through France and over the Pyrenees. *En route* some lofty mountain passes were climbed in the Pyrenees, the highest being Col du Tourmald, 6,961 feet; Col de Puymorens, 6,292 feet; and Col de las Casas, 6,808 feet. Throughout the Roc motor cycle, which was, of course, fitted with the Roc two-speed gear, gave not the slightest trouble.

Hutchinson Tyre Book.

A useful handbook has recently been published by the Hutchinson Company, which is of interest to users of these tyres. Copies can be obtained, post free, from 70, Basinghall Street, E.C.

A Satisfactory Tyre.

Rom tyres did well in the A.C.U. Six Days Trials. Not a very large number of machines were so equipped, but those riders who did use this make had cause to be satisfied. K. A. MacDonald (3½ Singer), A. J. Dixon (3½ Singer), and F. G. Ball (2¾ Douglas) gained gold medals and reported freedom from tyre trouble on Roms.

Variable Gap Sparking Plugs.

Some little time ago "Ixion" gave particulars of a variable gap sparking plug sold by J. H. Runbaken, 7, Peter Street, Manchester. Our contributor's experiences were highly satisfactory, and Messrs. Runbaken inform us that so great was the resulting number of applications for this plug that they were at the time unable to deliver. However, they can now supply purchasers from stock by return.

New Liverpool Garage.

We are informed by Messrs. F. C. Jones and Co., the well-known motor cycle agents of Liverpool, that they have now transferred the whole of their business to a large new garage, which they have erected in Queen Street, Liverpool.

Splitdorf Magnetos.

The Splitdorf magneto, an article produced in the States, has just made its appearance on the English market. We tried one last week on an Excelsior sidecar machine, and it behaved most satisfactorily, giving a good spark at very slow speeds. The "push on" terminals enable the high tension wire to be removed in a trice.

Another Ariel Team Prize.

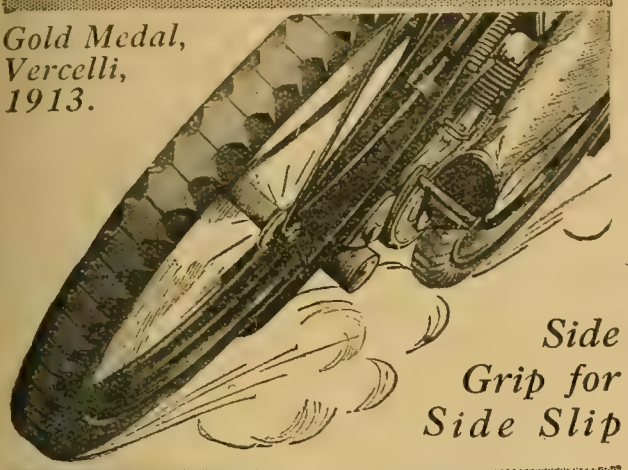
The Ariel team seem to be making a habit of winning team prizes in reliability trials this year, for in addition to the Scottish and English Six Days Trials, they have recently won the team prize in the Newcastle and District Motor Cycle Club's reliability trial. In addition to this the first prize was won by G. W. Raper on a 3½ h.p. Ariel.

A Successful Belt.

The new pattern leather reinforced rubber Lycett belts were extremely successful in the A.C.U. Six Days Trials at Carlisle. Twenty-six of the belt-driven machines obtaining medals were fitted with these belts, which are known as Lycett's Reliable belt. They seemed to stand up admirably to the very strenuous work.

Beldam

Gold Medal, Vercelli, 1913.



Side Grip for Side Slip

THAT last risky skid could not have happened had you been riding on Beldam Motor Cycle Tyres. For the deep "V" tread stops side slip—it grips the road on corners or on grease, and makes riding safe.

Cased Cover Prices:

Size.	Extra 3-ply.	Extra Special 4-ply.
26in. x 2in.	34/-	39/6
26in. x 2¼in.	38/-	45/-
26in. x 2½in.	43/-	50/-

Retreading.

Send us your old tyres of any make for repair and retreading. Beldam Workmanship and Materials. Prompt Delivery. Prices per cover:

Extra Heavy Tread, 13/6
Medium Tread .. 11/6

Patching, Bursts, etc., according to requirements.

The Only Gold Medal

for Motor Tyres—in competition with the principal British and Continental makes—was awarded at Vercelli Exhibition to Beldams.

Write for the Beldam Motor Cycle Tyre List, post free on request.

Beldam Tyre Co., Ltd.

Brentford, Middlesex.

REMARKABLE REDUCTIONS

at

HARRODS

Some Examples:

	List Price.	Special Price.
MATCHLESS, 6 h.p. J.A.P. 2-speed, double belt drive	£73 10 0	£65 0 0
Or with Watsonian Collapsible Sidecar		£77 0 0
B.A.T., 8 h.p. J.A.P. 2-speed, kick starter	£75 0 0	£66 0 0
Or with Torpedo Cane Sidecar, 1105		£76 0 0
SINGER, 4½ h.p. 2-speed, kick starter	£65 0 0	£57 0 0
Or with Torpedo Cane Sidecar, 1064		£67 0 0
HAZLEWOOD, 5 h.p. twin J.A.P., 3-speed countershaft	£68 5 0	£60 0 0
Or with Canoelet Sidecar, 1179		£73 0 0
HUMBER, 3½ h.p., 3-speed Sturmey gear, kick starter..	£57 10 0	£50 0 0
Or with Torpedo wicker Sidecar 1063		£58 0 0
BRADBURY, 3½ h.p., 2-speed Chain drive, kick starter and Bradbury Coach-built Sidecar	£72 0 0	£62 0 0
HUMBER, 2¾ h.p. twin Lightweight, 3-speed Sturmey gear	£53 0 0	£46 10 0
A.S.L., 3¾ h.p., Precision Engine, 3-speed Sturmey gear, kick starter	£54 0 0	£47 0 0
Or with Torpedo wicker Sidecar, 1063		£55 0 0

And many others

DEFERRED TERMS IF DESIRED.

Send particulars of your requirements and let us quote you for the machine we think will best suit you.

UNBIASSED ADVICE—AND THE VERY BEST TERMS

HARRODS LTD. *By Special Appointment to H.M. THE QUEEN.* **Brompton Rd. LONDON, S.W.**

RICHARD BURBIDGE, Managing Director.

What does it mean to you?

IS the act of "Lighting Up" an occasion of trouble and anxious uncertainty, by reason of an inefficient and unreliable Lamp?—it should not be—and *need* not!

¶ EQUIP YOUR MOUNT WITH A "P. & H." LAMP!!—Model 127C—its marked superiority and efficiency will ensure perfect service and relieve you of all trouble and uncertainty here. Its powerful, penetrating light and absolute dependability will give you a sense of perfect security and safety—ensuring your riding with an easy mind, always.

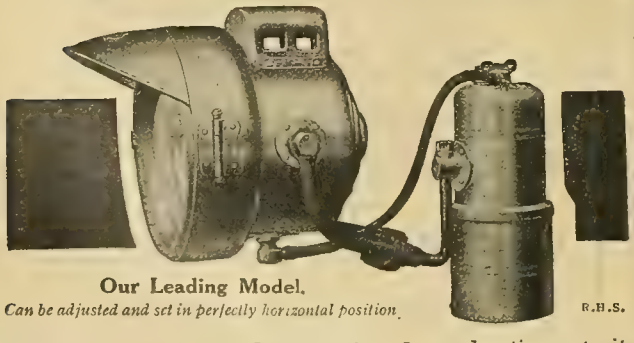
MODEL 127C.

PROJECTOR of extra large size, has 6½in. Front with large Hood Reflector; very powerful best quality 5in. real Mangin Mirror Reflector; Bray "RONI" Burner, which cannot crack lens or reflector, fitted into a perfect arrangement for adjusting; and 5½in. Plate-glass Convex Lens. Special GENERATOR can be easily cleaned and recharged; with adjustable stamped steel DOUBLE CARRIER of new design and exceptional strength to withstand excessive vibration, complete with best grey Rubber Connection. Can be easily fitted on handle-bar stem, or lamp bracket.

Price: Nickel or Ebony Finish, complete 36/6

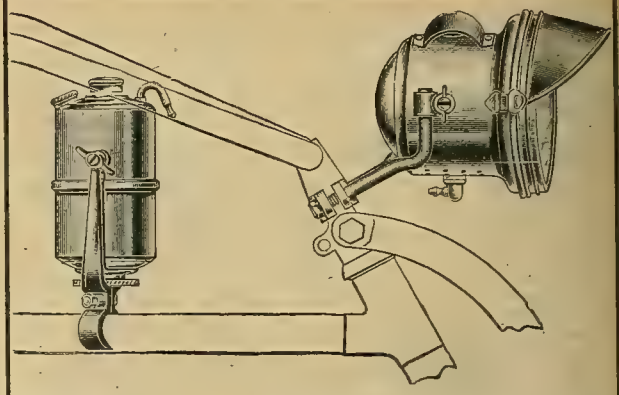
—Examine this Model at your Agents—and particularly note its superior Quality, Finish, and remarkable VALUE. Ask NOW for our "Lamp Booklet"—it describes all our Models.

Powell & Hanmer, Ltd.,
Chester Street, ... Birmingham.



Our Leading Model.
Can be adjusted and set in perfectly horizontal position.

R.H.S.



Mangin Lens	4in.
Beam	500ft.
Lamp Body	4½in.
Front Door	6¼in.

BEST DRIP GENERATOR, ADJUSTABLE Side Sockets for Lamp and Generator.

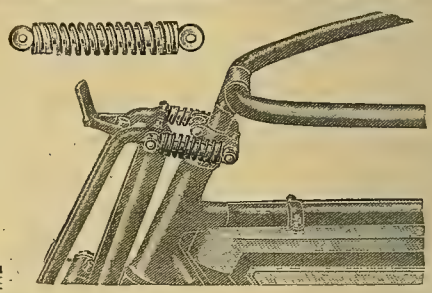
37/6

F.R.S.
LAMPS AND GENERATORS.

PERSHORE ST. ——— BIRMINGHAM.

Special Agents
Service Co. ..... High Holborn, London, W.C.
Taylor & Co., 21a, Store St., Tottenham Court Rd., London, W.C.
Robertson's Agency .... 157, Gt. Portland Street, London, W.

Scottish Wholesale Agents: North British Machine Co., Glasgow.
Edinburgh Retail Agents: Rossleigh, Ltd.



TERRY'S SPRING LINK absorbs road shocks.

It is a wonderful auxiliary to motor cycle front fork springing—taking up all the shocks uneven road surfaces create and imparting to the motor cycle the comfortable easy gliding motion of the car. Vibration is reduced to a minimum—and, of course, great economy in running costs is effected. It can be fitted to any front fork of link type. For 3 h.p. machines **10/-**, 6 h.p. **12/6** per pair. Write now for descriptive leaflet—It is post free.

HERBERT TERRY & SONS,
The Spring Specialists, **REDDITCH, Eng.**

SELFRIDGE'S

YOU can have immediate possession of any of the Motor Cycles listed below on payment of a fifth of its cost.

Payment of the balance can be extended over a year. For this added convenience we charge 2½% on the balance only.

The extra is only 2%, or less, on the entire cost of your machine. The greater your original deposit, the less your machine costs in proportion.

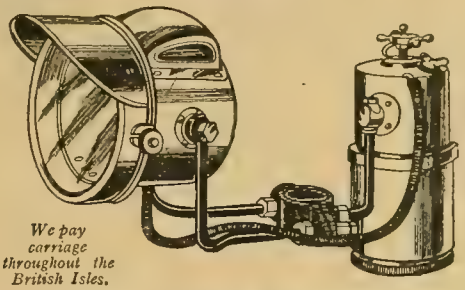
Motor Cycles in Stock.

1913 Models.

A.J.S., 6 h.p., 3-speed ..	£72 9
DOUGLAS, Model O, 2¾ h.p., 2-speed	£48 0
DOUGLAS, Model R, 2¾ h.p., 2-speed	£52 0
DOUGLAS, Model P, 2¾ h.p., 2-speed	£48 0
TRIUMPH, 3½ h.p., 3-sp.	£59 15
REX, 6 h.p., 2-speed....	£62 10
ARIEL, 3½ h.p., 3-speed..	£59 10
B.S.A., 3½ h.p., 2-speed ..	£60 0

Certain makes of Motor Cycles supplied on makers' terms.

Dependable Accessories.



We pay carriage throughout the British Isles.

Billiken Mascot. Will fit ⅞ and 1in. bar. Nickel finish, **5/6.**

"Sovereign" Motor Cycle Set. Lamp, Generator, and Bracket. Special price, complete, **20/-.**

Spare Belt and Tube Case. In solid leather, 6¾in. diameter, 3½in. deep, **6/9.**

All Bristle Combined Spoke and Chain Brush, with polished handle. Length 15in. Each **1/-.**

The "Nebo" Motor Cycle Watch. In dust and waterproof nickel case. Guaranteed for 12 months.

Each .. **10/6.**

SLIGHTLY STORE-SOILED MOTOR CYCLES.

All 1913 Models.

	Usual Price.	Reduced to
LEA-FRANCIS, 3½ h.p., twin-cylinder, 2-speed, countershaft gear, chain drive £68	5	£63 0
NEW HUDSON, 3½ h.p., 3-speed, belt drive £60	18	£56 5
SUNBEAM, 2¾ h.p., 2-speed, countershaft gear.....£63	0	£58 5
MARTIN-J.A.P., 8 h.p., fitted with speedometer....£64	6	£59 10
ZENITH, 3½ h.p., Gradua gear, kick starter £63	0	£59 17
ZENITH, 6 h.p., Gradua gear, kick starter £78	15	£75 0
ROVER, 3½ h.p., 3-speed £58	0	£56 0

SELFRIDGE and CO., LTD., - - OXFORD STREET, W.

Recent Successes **LEVIS** The Little machine with a BIG reputation.

A.C.U. SIX DAYS' TRIAL. 2½ h.p. LEVIS ridden by H. NEWEY. SILVER MEDAL.

The smallest machine in the Trial. Made clean ascents on all hills. Gained Bonus Marks for hill-climbing. Non-stop in all sections. Full Marks for Flexibility and Utility. A Marvellous Performance.

EXETER & DISTRICT MOTOR CYCLING CLUB'S 24 HOUR RELIABILITY TRIAL.

400 miles round the coast of Devon and Cornwall for the HANCOCK SILVER CUP and GOLD MEDAL, Won by P. PIKE, on a 2½ h.p. LEVIS, on August 29th and 30th, 1913.

STOCKPORT & DISTRICT MOTOR CLUB'S OPEN HILL CLIMB, AXE EDGE, AUG. 30th.

Class 9. E. WOODS, 2½ h.p. LEVIS, SECOND.

Designed and Manufactured by the Pioneers of the Air-cooled Two-stroke, **BUTTERFIELDS LTD., LEVIS WORKS, STECHFORD, BIRMINGHAM.**

AGENTS—

LONDON & DISTRICT: CAR & MOTOR SUNDRIES, LTD., SHAFTESBURY AVENUE, W.C.
BIRMINGHAM, MANCHESTER, and LEICESTER: THE COLMORE DEPOT.
LIVERPOOL: THE MEAD CYCLE CO., PARADISE ST. DUBLIN: T. WOOD, WESTLAND ROW.
EXETER: P. PIKE, ST. THOMAS. CORK: FITZGERALD & CO., MERCHANTS QUAY.
BLACKBURN: BEARD & CO. OXFORD: MORRIS'S GARAGES.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To insure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmorland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

WE EXCEL FOR VALUE AND FACILITIES.

CASH, EXCHANGE, OR EASY TERMS.

We offer Bargains that cannot be beaten in New Machines of best makes at lowest prices for cash or most liberal exchanges, with finest treatment and satisfaction absolutely sure. All Second-hand Machines put in reliable riding order. Every Machine, New or Second-hand, fully guaranteed.

ASK FOR TO-DAY'S LIST, IT INCLUDES THESE SPECIAL VALUES.

7471.	3½ h.p. 1912 2-speed **SINGER** and Sidecar	£45 0
7463.	3½ h.p. 1912 2-speed **B.S.A.** and Sidecar	£45 0
7460.	3½ h.p. **ARIEL**	£15 0
7458.	6 h.p. 1913 **REX** Sidette	£56 0
7456.	3½ h.p. 1911 2-speed **HUMBER**	£30 0
7482.	4 h.p. 1912 tourist **REX**	£35 0
	6 h.p. 1913 **REX** Sidette	£56 0
	3½ h.p. 1911 2-speed **HUMBER**	£30 0
7432.	2¾ h.p. 1911 Standard **DOUGLAS**	£23 10
7437.	2½ h.p. 1912 2-speed **PREMIER**	£28 0
7450.	3½ h.p. 1909 2-speed **HUMBER**	£35 0
7418.	8 h.p. 1912 2-speed **MATCHLESS** and Sidecar	£60 0
7419.	7-9 h.p. 1913 **PREMIER** Cycle Car	£85 0
7420.	3½ h.p. 1909 2-speed **HUMBER**	£25 0
7423.	3½ h.p. 1912 2-speed **JAMES**	£32 10
	3½ h.p. 1907 **TRIUMPH**	£19 0
7398.	3½ h.p. 1910 2-speed **REX**	£27 10
7409.	3½ h.p. 1912 2-speed **P. & M.** and Sidecar	£54 0
7410.	3½ h.p. 1910 F.E. **TRIUMPH**	£29 0
7383.	2¾ h.p. 1912 3-speed **HUMBER**	£34 0
7395.	2¾ h.p. 1911 2-speed **F.N.**	£28 0
	6 h.p. 1910 2-speed **MATCHLESS** and Sidecar	£45 0
7343.	6 h.p 2-speed **N.S.U.** and Sidecar	£30 0
7356.	6 h.p. 1912 **REX** Sidette	£50 0
7332	8 h.p. 1913 **HUMBERETTE**	£105 0
7311.	6 h.p. 1912 2-sp. **BAT** and Sidecar	£60 0
	6 h.p. **ANTOINE**	£15 0
	2¾ h.p. 1912 2-speed **ENFIELD**	£35 0
7281.	3½ h.p. 1910 2-speed **P. & M.**	£32 10
5596.	3½ h.p. 1910 **KERRY ABINGDON**	£27 0
5742.	3½ h.p. 1910 T.T. **TRIUMPH**	£29 0
6170.	3½ h.p. 1911 **REX** tourist	£28 0
6179.	3 h.p. 1912 2-speed **N.S.U.**	£30 0
6276.	8 h.p. 1912 **ZENITH**	£55 0
6296.	3½ h.p. 1912 F.E. **KYNOCH**	£35 0
6343.	8 h.p. 1911 3-speed **CHATER-LEA** and Sidecar	£58 0
6378.	6 h.p. 1911 **ZENITH** and Sidecar	£50 0
6397.	8 h.p. 1912 3-speed **CHATER-LEA** and Sidecar	£65 0
6421.	3½ h.p. 1908 **MINERVA**	£18 0
6516.	8 h.p. 1911 3 speed **CHATER-LEA**	£47 10
6799.	7 h.p. 2-speed and F.E. **INDIAN**	£40 0
6863.	3½ h.p. 1910 **BAT**	£27 0
6900.	3½ h.p. 1912 F.E. **ROVER**	£38 0
7080.	6 h.p. 1912 **CLYNO** and Sidecar	
7098.	3½ h.p. 1911 **ZENITH** and Sidecar	£37 10

ANY MACHINE, NEW OR SECOND-HAND, SOLD IN WAUCHOPE'S EASY WAY—¼ DOWN AND 11 EASY EQUAL PAYMENTS.

WAUCHOPE'S

9, SHOE LANE, FLEET STREET, LONDON, E.C.

'Phone—Holborn 5777.
Wires—"Opificer, London."

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry" or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmorland.

1912 T.T. Rudge, very fast, perfect condition; first cheque, £28.—Below.

1911 F.E. Rover, tyres new, usual spares and lamp; £27/10, bargain.—Below.

3½ h.p. Quadrant, mag., climb anything; with sidecar £20, sell separately £16; shouldn't be missed.—Thompson and Edwards, West Hartlepool. Tel.: 758. [X9180

BAT, 1911, 8h.p., 2-speed, in splendid condition £40, or near offer.—W. Walker, Hurworth, Darlington. [X908

1913 Rudge Multi, 3½h.p., excellent order, with or without sidecar; any trial; bargain.—Apply Alderson, 139, Roker Av., Sunderland. [X915

1911 Standard Triumph, not done 5,000 miles, perfect, nearest £27; 1910 free engine Triumph lamp, horn, splendid condition, nearest £27.—S. Morris, 37, Main St., Kirkby Lonsdale. [X914

CHAIN Drive Free Engine Humber, spring forks, spare wheel, tyre and tube, £6; also 6h.p. twin Rex spring forks, adjustable pulley, footboards, good 26×2½ tyres, nearly new belt, B. and B., variable jet, re-bushed fine condition. £13.—Ginns, Harker, Carlisle. [1550

3½ h.p. 1913 Triumph Motor Cycle, 3-speed gear, fitted with Mead and Deakin's Canoelet sidecar, with apron, Cowey speedometer, lamp, generator, and horn etc.; cost over £80, to an immediate cash buyer £57/10; in perfect condition; only wants seeing.—Apply, F. Turvey and Co., The Motor House, Sunderland. [X8090

TURVEY and Co. have in stock new 1913 models for immediate delivery; B.S.A., Triumphs, Humbers, Royal Enfields, Rovers, and Hazlewoods; any of these models can be seen and tried at any time; prices ranging from £35.—Turvey and Co., The Motor House, Sunderland. [X6441

SECTION II.

York and Lancashire.

L.

HITCHINGS', Ltd., 74, Bold St., Liverpool.

MATCHLESS Agents, Hitchings', Ltd., sole representatives.

TRIUMPH Agents, Hitchings', Ltd., sole representatives.

RELIABLE Second-hand Machines.—Hitchings', Ltd., have a big reputation for absolutely reliable second-hands at reasonable prices. Two 1912 2-speed Matchless sidecar combinations, one 1912 Rudge, one 1911 Humber, 1 1910 Triumph, 1 1908 Triumph, and 1907 Triumph in stock now. All guaranteed, inspection and offers invited.—For courtesy, business-like attention, and entire satisfaction, deal with Hitchings', Ltd., 74, Bold St., Liverpool. [1725

1911½ Bat, 8h.p., cane sidecar; any trial; £45.—Bassett, Doncaster. [X8993

'XTRA-SPCHL.

Brand New 1912 6 h.p. 2-sp. **REX** de Luxe	£62	10	0
15% cash discount	9	7	6
	£53	2	6
Allowance for your 1912 2-speed Douglas or any similar type of machine	£38	12	6
Cash required	£14	10	0

After the 18th of September we cannot accept any more Douglas machines, so HURRY UP.

NEW 1913's

TRIUMPH, 3½ h.p., 3-speed Sturmey	£59 15
REX, 6 h.p., 2-speed, de luxe	£62 10
REX, 4 h.p., 2-speed, de luxe	£56 0
DOUGLAS, 2¾ h.p., 2-speed	£48 0
BRADBURY, 2 or 3-speed	£60 0
REX-J.A.P., 8 h.p., 2-speed	£73 10
WILLIAMSON, 8 h.p., w.c., and Sidecar	£97 10

Easy Payments from £10 deposit.

MISCELLANEOUS MACHINES.

Cash. Exchange, or Easy Payments.

BRADBURY, 1913, 2-speed, chain drive, done about 500 miles	£49 10
TRIUMPH, 1913, 3-speed, done 1,000 miles	£49 10
RUDGE Multi, 1912, and Sidecar	£47 10
REX, 4 h.p., 1912, the Big Single (NEW)	£34 10
REX, 5 h.p., 1911-12, 2-speed, NEW	47 Gns
CALTHORPE-PRECISION, 1912, 4½ h.p., 2-speed countershaft gear, chain and belt	£44 10
REX, 1913, 6 h.p., 2-speed, done 200 miles	£43 10
ROVER, 1911, clutch model; cost £55	£29 10
JAMES, 1910, 3½ h.p., magneto	£19 10
REX, 5 h.p., 1909, 2-speed, de luxe	£23 10
P. & M., 3½ h.p., 2-speed. Wants attention	£17 10
CLYNO, 1912, and special cane Sidecar	£49 10
SINGER, 1911, magneto, lightweight	£19 19
REX, 1913, 4 h.p., 2-speed, de luxe, chain drive, nearly new	£49 10
REX, 1911, 2-speed, twin, de luxe	£36 10
CONNAUGHT, 2½ h.p., 1913 (soiled)	£29 10
REX, 5½ h.p., twin, spring forks	£15 10
J.A.P., 6 h.p., M.O.V., free engine, spring forks	£34 10
MOTO-REVE, twin, lightweight, runs well	£13 10
BRADBURY, 1912, 3-speed Sturmey	£47 10
QUADRANT, 1912, free engine	£35 10
REX coach-built Sidette, 1911, 5-6 h.p., M.O.V., chain drive, grand order	£45 10
REX, 3½ h.p., magneto, spring forks, 1908	£19 10
REX, 3½ h.p., light and low	£10 10
N.S.U., 3½ h.p., magneto	£17 10
N.S.U., 1911, 3 h.p., 2-speed	£29 10
N.S.U., 5½ h.p., twin, 2-speed	£27 10
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31 0
REX, 3½ h.p., spring forks	£12 10
F.N., lightweight, battery ignition	£9 10
REX, 3½ h.p., magneto, 1910	£24 10
REX, 3½ h.p., magneto, 1909	£22 10
REX, 1912, 4 h.p., only used 100 miles	£31 10
REX, 1908, 2-speed, twin, Rex de Luxe, and Sidecar. Wants slight attention	£19 10

SUNDRIES.

Armstrong 3-speed Gear and Free Engine, with belt rim and controls, brand new, Mark II., £5 10; Mark III.	£6 2 6
New Avon (Druid) 26 x 2 Non-skid Covers	12 11
Myer's Motor Cycle Stand	3 3
New 26 x 2 and 26 x 2¼ Avon Tubes	5 9
New F.R.S. standard 8ooft. Lamp, with grid generator; usual price, 53/6; clearance price	35 0
6½ h.p. W.C. Engine	£5 10 0
3-speed Gear and Clutch for cycle car	£6 10 0
Cycle Car Radiator	£1 10 0
Cycle Car Chassis, with wheels and gear	£3 10 0
New Car Speedometer	£2 12 6
New Triumph Pattern Horns 3/- and	3 9

The Halifax Motor Exchange

Largest Rex Dealers,

16, WESTGATE, HALIFAX.

'Phone 766. Telegrams: "Perfection"

MOTOR BICYCLES FOR SALE.

3½ h.p. 1909 Triumph, exceptionally fine order and condition throughout, decompressor, horn, lamp, spares, etc.; £26. — Brown, Blake House, Osmaston, Ashbourne. [X9177

TRIUMPH, 1908, 3½ h.p., spring forks, Bosch H.T. mag., B. and B., kick-up stand, very good condition, lately overhauled; £20; push cycle part.—Bull Piece Villa, Darlaston, Staffordshire. [X9158

1913 Scott, delivered June, with Cowey speedometer, Xl'all pan saddle, Xl'all standard saddle (unused), lamp, horn, watch, many spares and accessories; £55.—H. Lawford, Trewern, Oswestry. [1612

1913 3h.p. Royal Enfield, perfect, £40; 1913 Levis, £20, perfect condition; 1912 free engine Bradbury, just been re-bushed, enamelled and plated at makers, £35; 1913 Douglas O, new, £48; 1910 Triumph, speedometer, Brampton gear, good condition, £26.—Thos. Booth, Main St., Frodsham. [X9089

1913 Clearance Bargains of second-hand motor cycles. —1912 3½h.p. F.E. Rudge, guaranteed perfect, with Lucas lamp and horn, £36; 1911 3½h.p. Rudge, guaranteed in perfect order, new 1in. Dunlop, good tyres, Lucas lamp, horn, etc., £33; 1907 3½h.p. Triumph, new Dunlop belt, lamp, horn, heavy Kempshall tyres, only £16; Jenbro' sidecar, usual price £21, offers; 24 overall jackets, made by Dunlop, 22/6 each, 15/6 to clear; will send on approval; sidecars, Mills-Fulford, art cane £16/16 model, radial castor wheel, bargain, £8; one nearly new, cost £6/6, will accept £3/17/6.—J. H. Wedge and Co., New Rd. Willenhall. [1114

BUY Your 'Mount from a reliable firm, a firm with a reputation; we are not out on the make haste, a clean, fair deal is what you want and what you get from us. We have only lost one customer since we commenced business—he died. Immediate delivery from stock: 1913 A.J.S., 2¾h.p., £48/6; 1913 Douglas, model N, £42; 1913 Douglas, model P, £48; 1913 6h.p. Rex De Luxe, £60; 1913 3h.p. N.S.U., single, £38, shop-soiled; 1913 F.E. Rover, £55; 1912 3½h.p. B.S.A., 2-speed, £45; 1912 Bradbury, T.T., £35; 1912 F.E. Rudge and sidecar, £45; 1911 8h.p. Matchless 2-speed, £47, or exchange; 1911 F.E. Triumph, fine order, £36; Humberette, complete, £125. We can deliver Singer cycle car for October.—Important, our only address is, The North Wales Motor Exchange, Holt St., Wrexham. Tel.: 283. [X9172

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

B

COLMORE Depots, 31, Colmore Row, Birmingham; 49, John Bright St., Birmingham; and 62, High St., Leicester.

NEW and second-hand at the leading depots for the Midlands; agents for Douglas, Scott, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, Birmingham and Leicester. [X6047

COLMORE.—Zenith, 3½h.p. J.A.P. engine, Gradua gear, in perfect order, having been recently overhauled; £25.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—1909 Triumph, good tyres and belt, sound throughout, drop bars; a very sporty mount at a low figure, £21; guaranteed.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—B.S.A., 1913, chain driven, 2-speed gear and free engine, Dunlops, B.S.A. carburetter, Brooks saddle; £45.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—New Hudson, 1913, 3-speed, with coach-built sidecar, almost new, having been taken in part exchange for cycle car after 3 weeks' use; cost £76, price £60.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Matchless, 1913 model, 3½h.p., 3-speed, scarcely used, twin J.A.P. engine, tyres uncut; an exceptional bargain, £53.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Shop-soiled Scott, 1913 model, 2-speed, free engine, tyres, transmission, etc., in perfect order, our demonstration model; £53.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Triumph, 1913, shop-soiled, 3-speed gear; £52; wire at once for this bargain.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Premier, 1913 practically new machine, used once only to show customer, 3½h.p., 3-speed, F.E., auxiliary exhaust, tyres uncut, whole machine as new; lowest cash price £49, listed £59/10.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Demonstration model R Douglas, used once, Hutchinson tyres, F.E., 2-speed gear and clutch, kick starter, footboards, pan seat; first cheque for £48 secures.—Colmore Depot, 31, Colmore Row, Birmingham. [X9004

F.N.—Order now to ensure delivery of 2½h.p. and 4-cyl. —Heath, Salford Priors, Warwickshire. [X7330

3½ h.p. Quadrant, mag., re-enamelled, new back tyre, tube, splendid machine; £17/10.—156, Alcester Rd., Moseley, Birmingham. [X8991

1913 Clyno, 5-6h.p., and Clyno £15 sidecar, equal to new; £72/10; take Douglas or Scott part payment.—Clark, Woodford, Thrapston. [X8932

REY

The noted firm. Established in the Motor Trade since **1900**, and known throughout the country for quickest delivery of any Motor Cycle or Cycle Car.

1913 MACHINES

FOR IMMEDIATE DELIVERY

DOUGLAS, any model,
BAT, 2-speed and 3-speed.
ZENITH, any model.
MATCHLESS, any model.
BRADBURY, any model.
TRIUMPH, F.E. and 3-sp.
INDIAN, 7 h.p. 2-speed
SCOTT, 2-speed W.C.
ROVER.
WILLIAMSON, A.C. 8 h.p.
WILLIAMSON, W.C. 8 h.p.
B.S.A., chain drive.
CLYNO, 5-6 h.p.
RUDGE, 750 c.c. multi.
SINGER, T.T. 3-speed and 4½ h.p.
NEW IMPERIAL, 6 h.p. 3-speed.
ENFIELD, 6 h.p. 2-speed.
LINCOLN-ELK, 2-speed.
JAMES.
F.N., any model.

Cycle Cars for Immediate Delivery:

MORGANS in Stock.
G.W.K. „
A.C. „
HUMBERETTES.
FORD CARS.
SINGER.

FOR HIRE.

Motor Cycles and Sidecars.

TERMS ON APPLICATION.

The "REY" Sidecars

Wicker ..	£5	5	0	to	£7	0	0
Coach-built ..	..		£9	10	0		
Cane (2 models)	..		£10	10	0		

TRADE SUPPLIED WITH VARIOUS MAKES, AT LIBERAL DISCOUNTS.

SECOND-HAND.

£20.	**F.N.**, 4-cylinder	1910	
£20.	**F.N.**, 4-cylinder	1911	
£26.	Std. **Triumph**	1909	
£18.	Twin **Moto-Reve** (lady's)	1910	
£45.	6 h.p. **Zenith** and Sidecar	1911	
£26.	Std. **Triumph**	1910	
£22.	**Rex**	1910	
£25.	F.E. **Singer**	1911	
£26.	3½ h.p. **Bradbury**	1912	
£30.	T.T. **Triumph**	1911	
£16.	Std. **Triumph**	1906	
£21.	5 h.p. **V.S.**	1910	
£29.	**Rex-J.A.P.**	1912	
£29.	3½ h.p. **Trump-J.A.P.**	1912	
£40.	6 h.p. **Zenith**	1911	
£33.	T.T. **Corah**	1912	
£62.	8 h.p. **Zenith** and Millford coach-built Sidecar	1913	
£54.	4h.p. **Singer**, new	1912	
£29.	6 h.p. **Bat**	1910	

Sole London Agents for—

Canoelet Sidecars from **£12 12**
Swan Sidecars from **£13 13**

Also Folding Sidecars for Immediate Delivery.

EASY PAYMTS. FROM **2%** EXTRA.

5, Heath St., Hampstead, N.W.; and 173, Gt. Portland St., W.

Telephone: 2678, P.O., Hampstead; and 1970, Regent.

REY

FARLOW.

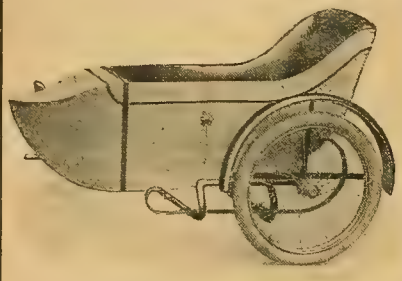
The name FARLOW stands for everything that is good in Sidecars.

FARLOW prices are far lower than you would expect to pay. The FARLOW guarantee is faithfully carried out.

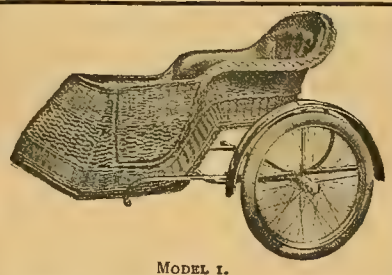
Light, Strong, and Classy, Smart, Good, and Durable.

YOUR AGENT WILL SUPPLY.

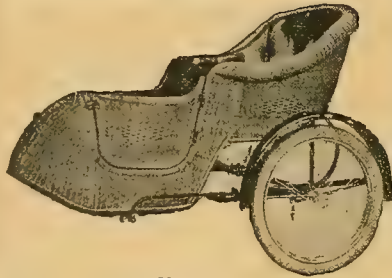
Send for our price list and be convinced.
WE CAN DELIVER ANY MODEL FROM STOCK.



MODEL 4.
Underslung chassis (patent 5070). light coach-built body, spring cushion, two tool boxes fitted, coverall motor hood, cloth apron.
10 guineas.



MODEL 1.
Wicker body, canoe front, side door, upholstered and lined inside right down to the toe.
£6 5s. 0d.



MODEL 3.
Reed cane body with roll top, thickly upholstered and lined right down to the toe.
£8 10s. 0d.

Models Nos. 1 and 3 can be fitted with our underslung chassis (patent 5070/12) for **10s.** extra.

All Carriage Paid, and complete with mat, stand, quick detachable joints, and Michelin **Motor Cycle** Tyres. Trade supplied.

ODD BARGAINS.

Cowey Speedometer, done 3,000	£3 0
Sidecar Aprons	7/6
Cowey Speedometer, done 100, perfect	£3 10
New Rubber-studded Covers, 26 x 2¼, beaded	17/8
Triumph Pattern Handle-bar new	6/8
New Prested Trembler Coil	15/-

Farrar's Motor Exchange

19, 21, 23, 25, Hopwood Lane,

Telephone 919. **HALIFAX** (Two minutes from G.P.O.)

MOTOR BICYCLES FOR SALE.

BARGAINS.

CLEARANCE of shop-soiled and second-hand machines; great reductions.

ZENITH-GRADUA, slightly soiled, 6h.p.; list price £72/9, £56.—Below.

TRIUMPH, slightly soiled, 1913, 3½h.p., 3-speed; list £59/15, £53.—Below.

TRIUMPH, slightly soiled, 1913, 3½h.p., T.T. roadster; list £49/5, £43.—Below.

M.V., slightly soiled, 2½h.p. lightweight; list £35, £24.—Below.

SCOTT, latest 1913 model, new; list £68/5, £60.—Below.

ANY Machine sent on approval; also a large stock of high-class second-hands; write for full list.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0316

CLEARING Out at following Astonishing prices, all good running order:

1912 Rex De Luxe, 6h.p., 2-speed, ideal sidecar machine, very powerful; £30.—Below.

1910 Rex De Luxe, 5h.p., 2-speed model, good condition; £17.—Below.

1910 Rex Tourist, 5h.p. twin, Bosch mag., spring forks; £15.—Below.

1911 Rex, 3½h.p., clutch model, Bosch, Druids, good condition; £17/10.—Below.

1910 Enfield Lightweight, twin, fine little machine; bargain, £12/10.—Below.

1909 Rex, 3½h.p., standard model, spring forks, Bosch, B. and B.; £11.—Below.

ALL Bargains.—A. Holland, Clarendon St., Earlsdon, Coventry. [X9036

ZENITH, 1911, 3½h.p., Gradua gear, and sidecar; £30.—P. J. Evans, John Bright St., Birmingham. [X9068

ZENITH, 1912, 3½h.p., Gradua gear, grand condition; £32.—P. J. Evans, John Bright St., Birmingham. [X9069

SCOTT, 1913, 3¾h.p., 2 speeds, hardly soiled; £55.—P. J. Evans, John Bright St., Birmingham. [X9070

N.S.U., 1913, 2¾h.p., 2 speeds, twin, brand new; list 59 gns., £36.—P. J. Evans, John Bright St., Birmingham. [X9071

HUMBER, 1913, 2h.p., brand new; list £35, accept £26.—P. J. Evans, John Bright St., Birmingham. [X9072

ENFIELD, 1913, 3h.p., 2 speeds, kick starter, new condition; £38.—P. J. Evans, John Bright St., Birmingham. [X9073

ENFIELD, 1913, 2¾h.p., 2 speeds, kick starter, excellent condition; £36.—P. J. Evans, John Bright St., Birmingham. [X9074

LEA-FRANCIS, 1913, 3h.p., 2 speeds, kick starter, new condition; £52.—P. J. Evans, John Bright St., Birmingham. [X9075

MATCHLESS, 1913, 8h.p., chain drive, 2 speeds, free engine, and special sidecar; cost £100, accept £68.—P. J. Evans, John Bright St., Birmingham. [X9076

SCOTT, 1913, 3¾h.p., 2 speeds, kick starter, coach sidecar, complete, all accessories, combination hardly soiled; £58.—P. J. Evans, John Bright St., Birmingham. [X9077

TRIUMPH, 1912, free engine, Rom studded back, lamp, horn, tools, etc., perfect; any examination; lowest £34/10.—80, Kettering Rd., Northampton. [X8576

3½h.p. Fafnir, 2-speed, free engine, kick starter, re-enamelled, plated, overhauled, guaranteed perfect; £15/10.—Toms, Catherine St., Leicester. [X9131

TRIUMPH, 1912, T.T., 3-speed gear, latest decompressor engine, very fast and powerful, spare tyre; a real bargain, £40.—Powell, St. James, Northampton. [X8959

T.T. B.S.A., 1913, July, Lucas lamp, horn, and mirror, watch, carrier bag, decompressor, complete, spares; £50.—James, Alverstone Rd., Nottingham. [X9149

3½h.p. Single Air-cooled Motor Cycle, fitted with Armstrong 3-speed gear, originally built for T.T., splendid machine; £35.—Blumfield, Ltd., Birmingham. [1449

4h.p. Water-cooled Single Motor Cycle, as used in T.T. race, condition as new, very fast; £30.—Blumfield, Ltd., Birmingham. [1450

1913 F.N., 4-cyl., 5-6h.p., latest model, with footboards, plate clutch, speedometer, and horn, first rate condition, not done 1,000; £55.—Stone, Stockwood, Solihull, Birmingham. [X9040

DOUGLAS, 1910, recently thoroughly overhauled and frame re-enamelled by makers, new Avon tyres, Whittle belt, lamp, spares; £20.—Arkell, 41, Lincoln Rd. East, Peterborough. [X9200

T.D.C., 1913, 3½h.p., new June last, F.E., Hutchinsons unpunctured, sidecar, and all accessories; honest bargain, like new, £38, everything; bought special T.D.C. combination.—2, Walford Rd., Sparkbrook, Birmingham. [X9033

1913 Bradbury, 3-speed gear, £49; 1913 Premier, 3½ h.p., 2-speed, and counter-shaft, £46; 1911 Indian, 7h.p., new 1913 clutch, new tyres, £38/10; 1911 Humber lightweight, good condition, £17.—Jas. Plastow, Osborne St., Grimsby. [X9175

Special Bargain!

1913 2-speed "SUNBEAM." Cost £63. Done 50 miles only. Accept £53 Cash.

A.C. SOCIABLE, 1913, £75 model, but fitted with reverse gear, hood, screen, extra brakes, decompressor, etc., cost over £100 three months ago.
Our £69 Price.

The following are complete with sidecars:—

1911½ 3½ h.p. **PREMIER,** Sturmey 3 speeds	£35	0
1911 5-6 h.p. **REX** de Luxe and Sidecar	£39	0
1913 8 h.p. **ZENITH** and 15 guineas Sidecar	£65	0
1909 3½ h.p. **P. & M.,** 2 speeds and Sidecar	£29	0
1912 6 h.p. **CLYNO** and Sidecar	£45	0
1912 6 h.p. **REX** and Sidette Sidecar	£45	0
7 h.p. **ROC,** 2 speeds, and Sidecar	£29	0
1911 4 h.p. 2-sp. **QUADRANT** and Sidecar	£33	0
1909 5 h.p. **REX** de Luxe and Sidecar	£30	0
1908 5 h.p. **REX** de Luxe and Sidecar	£28	0
1908 5 h.p. **REX,** Roc, 2 speeds, and S'car	£25	0
1910 5 h.p. 2-speed **VINDEC** and Sidecar	£30	0
1910 3¾ h.p. 2-speed **SCOTT** and Sidecar	£30	0

All have variable gears.
We will sell any machine without sidecar.

We have the following New 1913 Machines in Stock:

6 h.p. **A.J.S.,** 3 speeds, kick starter	69 Gns	
3½ h.p. **PHELON & MOORE,** kick starter	£65	0
1913 3½ h.p. 3-speed **HUMBER**	£53	0
1913 2¾ h.p. **SUNBEAM,** 2 speeds	£63	0
1913 4½ h.p. **SINGER,** 2 speeds	60 Gns	
1913 3½ h.p. **NEW HUDSON,** 3 speeds	58 Gns	

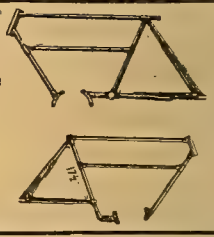
Easy terms quoted. Discount for Cash.

MORGAN CYCLE CARS.

8 h.p. J.A.P. engine, best of everything.
85 guineas.
Delivery from stock.

THIS WEEK'S BARGAINS.

1912 3½ h.p. **RUDGE MULTI,** good	£39	0
1913 **DOUGLAS,** 2-speed model	£33	0
1912 6 h.p. **REX** de Luxe, 2 speeds, free engine	£37	0
1911 3½ h.p. **REX,** cone clutch model	£25	0
1912 Cycle Car, 7-9 Blumfield engine, 2 speeds	£35	0
1912 3½ **ARIEL,** variable gear	£29	0
3½ h.p. **ENFIELD REX,** M.O.V.	£10	0
2½ h.p. **J.A.P.,** Druid forks	£7	0
1912 6 h.p. **CLYNO,** 2 speeds, kick starter	£42	0
1910 5-6 h.p. **VINDEC,** 2 speeds	£27	0
1909 5-6 h.p. **REX** de Luxe	£28	0
5-6 h.p. **REX** de Luxe, 2 speeds, etc.	£27	0
3½ h.p. 1907 **TRIUMPH,** magneto, spring fks.	£23	0
One Ditto, very good	£24	0
4 h.p. 1911 **QUADRANT,** Roc 2 speeds	£30	0
3½ h.p. 1909 **REX** Tourist, good	£21	0
3½ h.p. 1908 **REX** Tourist, 1909 engine	£19	0
3½ h.p. 1910 **REX,** fine goer	£23	0
5-6 h.p. **REX** de Luxe, 1908, 2-speed model	£25	0



New Motor Cycle Frames.
Makers' usual price £5.
Our price 32/6 each.
Guaranteed.

£7 DOWN SECURES ANY OF THESE. BALANCE 30/- MONTH.

3½ h.p. 1908 **REX** £19	5 h.p. **REX,** magneto £19
3½ h.p. **N.S.U.** mag. £14	3½ h.p. 1910 **REX** £23

MISCELLANEOUS BARGAINS.

New twin Bosch Magnetos, D.A.V. models	£2 19 6
Ditto D.A.I.V. models	50/- each
New Bosch Magneto, suit single-cyl. engine	£3 0
Air Mudscreen, good	1/6
Farlow Sidecar, good	£3 10
Wicker Sidecar Body	7/6
26 x 2¼ Rub-stud Continental Cover, new	30/-
Rex Pattern Foot Brake, new	7/6

Farrar's Motor Exchange

19, 21, 23, 25, Hopwood Lane,

Telephone 919. **HALIFAX** (Two minutes from G.P.O.)

MOTOR BICYCLES FOR SALE.

EYLES and Eyles, 113, St. Aldate's, Oxford, have for sale large selection of motor cycles, sidecars, and cycle cars, new and second-hand; trials allowed; 8 M.C. cycle car, water-cooled, perfect order, £45; 1912 4.8 A.J.S., 2-speed, best sidecar, Cowey, lamp, only wants tuning, £47; Bat and sidecar, 5-6h.p., as new, £65; Premier 2-speed and sidecar, 1913, shop-soiled, £55; Zenith, 5-6h.p., kick starter, and sidecar complete, £50. We have in stock Scotts, Bats, Premiers, and Bradburys, and G.W.K. cycle cars; big prices for machines in part exchange. [X8986

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

EAGLES.—Rover, 1913, 3 speed model, brand new; offers.

EAGLES.—Bradbury, 1913, 3-speed model, brand new

EAGLES.—Rudge, 1912 T.T. model, exceptionally fast, perfect condition; £28.

EAGLES.—Bradbury, 1912, standard model, new condition, all accessories; £29.

EAGLES.—N.S.U. 4h.p. twin, Bosch, 1911 spring forks, 2 speeds, free engine; £22.

EAGLES.—Bat-Jap, 1912, 3½h.p., spring frame, T.T. handle-bar, very fast; £27.

EAGLES.—N.S.U., 3½h.p. Model de Luxe, Bosch mag., spring frame, latest pattern spring forks, and other improvements, brand new; £37.

EAGLES.—Bradbury, 1912, N.S.U. 2-speed gear, free engine, had little use; £35.

EAGLES.—N.S.U., 3½h.p., T.T. model, 85×88, Bosch mag., enamelled grey; £19/10.

EAGLES.—Enfield 2¾h.p. twin, late 1912, 2 speeds, free engine, chain drive, footboards, nearly new; £29.

EAGLES.—N.S.U. 3½h.p. Popular, improved spring forks, 1in. belt, adjustable pulley; £20.

EAGLES.—L.M.C., 3½h.p., Bosch mag., spring forks, nearly new tyres and belt; £20.

EAGLES.—Any of the above can be purchased by deferred payments, one quarter of the amount down.—Eagles and Co., High St., Acton. [X9041a

PREMIER, 1912, 2½h.p., 3-speed, perfect condition; £33.—Below.

PREMIER, 1912, 3½h.p., free engine, new tyres, perfect; £35.—Below.

MOTO-REVE, 1911½, 2¼h.p., single-cyl., as new; £20.—Below.

SINGER, 1912, 3½h.p., clutch model, all spares; £33.—Below.

CANOELET and Mills-Fulford Sidecars in stock, no charge for fitting.—Premier Cycle Co., Ltd., 20, Holborn Viaduct, E.C. [1580

DOUGLAS, 1912, 2-speed, horn, lamp; £33.—4, High St., Stoke Newington. [X9195

TRIUMPH, 1909, new condition; £23, or offer.—4, High St., Stoke Newington. [X9196

3½h.p. Zenith, 1913, little wear; £43.—5, Circus Rd., St. John's Wood, N.W. [X9084

TRIUMPH, free engine, only run 600 miles; £35.—Read's Garage, Sheerness. [1419

DE DION, 1912 Bosch, T.T., fast; £15; perfect.—3, Disraeli Rd., Forest Gate. [1602

D. and M., new, uncrated; must realise; £59.—B., 3, Queen's Av., Winchmore Hill. [1415

913 Douglas, 2-speed, not ridden 1,500, unscratched; £39.—Nightingale, Crawley. [X8581

DOUGLAS, 1910, fixed engine, in good order; £25.—Hazeldon, Brooke Lodge, Redhill. [1437

VOSTER.—3½h.p. Rex motor cycle, H.T. mag., in grand running order; £12/10.

VOSTER.—2½h.p. Minerva motor cycle, recently overhauled; £12, bargain.

VOSTER.—3½h.p. De Dion motor cycle, recently won 3 races in France by owner; £14, bargain.

VOSTER.—5-6h.p. A.C. De Luxe cycle car, late 1912 model, H.T. mag., 2 speeds, and in excellent condition; £70, bargain.

VOSTER.—3½h.p. Premier motor cycle, 1912, H.T. mag., head lamp, generator, horn, speedometer; £10, great bargain.

VOSTER Automobile Works, 27-29, Tooting Bec Rd., Balham. 'Phone: 791 Streatham. Telegrams: Woster. [1311

912-13 2¼h.p. 2-speed F.N., run 1,000 miles, as new; £32/10.—Purcells (see advert). [0659

3½h.p. Excelsior, perfect order, good tyres, new belt; £8/10.—2, Bedford Row, Worthing. [X8954

EVIS, famous 2-stroke.—Postcard Harry Walker, official agent, The Garage, Muswell Hill. [X8153

3½h.p. Rex, free engine, 1912, splendid condition; £27.—Hole, 129, Park Lane, Carshalton. [X9124

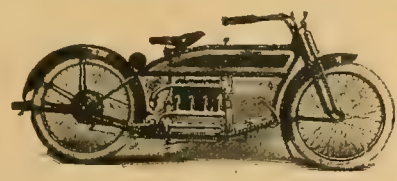
N.S.U., 2-speed, 3½h.p., h.b.c., mag., good tyres, accessories; £16.—Poynting, Archcliffe Fort, Dover. [X9048

ROBERTSONS

SPECIFICATION

OF

THE WONDERFUL 8 H.P. 4-CYL.



HENDERSON

ENGINE	4-cylinder, 8 h.p., 2⅝ × 3in. bore and stroke, M.O.V., overhead inlet valves, adjustable tappets, white metal big ends, folding starting handle.
CARBURETTER	Schebler, automatic, with bye-pass. Operated by SINGLE steel wire from handle-bar.
IGNITION	Bosch D.U.4 (car size).
SILENCER	Sealed-up joints, no back pressure, and practically noiseless.
LUBRICATION	Sight feed drip.
TRANSMISSION	⅞ × ¼in. chain through "Eclipse" clutch.
TANK	Petrol capacity, 3 gallons; oil capacity, ½ gallon.
FRAME	1¼in. × 13G, top tube sloped away at rear, triple-stem type head, and very efficient spring fork.
WHEELBASE	65in.
WHEELS	28 × 3in., 40 heavy gauge spokes.
GUARDS	With valances all round, front and rear.
BRAKES	Foot-operated (twin pedals for R. or L. foot) external band brake; hand-operated powerful Bowden front rim brake.
FOOTBOARDS	Aluminium, with heel rests and rubber pads.
STAND	Strong kick-up type.
SADDLE	Comfortable padded-top Middlemore.
TOOLBAG	Large leather top tube type, with complete set of tools.
CARRIER	Very strong tubular, with rear number-plate attached.
FINISH	Dark Royal blue, aluminium, and white.
SPEED	4 to 70 m.p.h. without declutching.
PRICE	70 guineas complete.

IMMEDIATE DELIVERY. COME AND HAVE A TRIAL RUN.

WE HAVE A GOOD SELECTION OF SECOND-HAND AND SHOP-SOILED MOTOR CYCLES AND SIDECARS OF ALL THE LEADING MAKES, AND THESE TWO SECOND-HAND CYCLE CARS.

1913 **CROUCH,** 8/10 h.p., w.c., 3 speeds and reverse, hood, screen, large flex horn, speedometer, 1 car and 2 cycle car headlights, acetylene tail light, large car generator, clock, Stepney with unused s.s. Hutchinson, large kit of tools including jack, etc. All as new and guaranteed Cost £175. Will accept **£120**

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157, GREAT PORTLAND STREET, W.

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PALMER'S Garage, Tooting.—The recognised mart for motor cycles. Attend the fortnightly auction sales at

PALMER'S Garage, Tooting, and see for yourself. Next three sales, Sept. 17th, Oct. 1st, and Oct. 15th, at 2 o'clock.

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PALMER'S Garage, Tooting.—Write for No. 2 monthly booklet, full of interest.

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PALMER'S Garage, Tooting.—2¼h.p. Royal Enfield twin lightweight, mag.; £14/10.

PALMER'S Garage, Tooting.—2h.p. Premier lightweight, nearly new machine; £25.

PALMER'S Garage, Tooting.—3½h.p. 1912 Triumph, F.E., grand condition; clearance, £35.

PALMER'S Garage, Tooting.—3½h.p. 1912 Singer, F.E., very nice condition; great bargain, £35.

PALMER'S Garage, Tooting.—3½h.p. 1912 Humber, 2-speed, and sidecar; £36.

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PALMER'S Garage, Tooting.—3½h.p. L.M.C., F.E., 1913, brand new; £47/10.

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PALMER'S Garage, Tooting.—4-5h.p. F.N., 2-speed, and sidecar; £25.

PALMER'S Garage, Tooting.—4h.p. Stevens, Bat, and sidecar, powerful lot; £12/10.

PALMER'S Garage, Tooting.—3½h.p. 1913 Rudge, T.T., grand machine; bargain, £35.

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PALMER'S Garage, Tooting.—3½h.p. Rex, £7/10; 2¾h.p. Minerva, £10/10; 2¼h.p. Peugeot, £5; 2¼ h.p. J.A.P., £8.

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WANDSWORTH.—Douglas, latest 1911-12, twin, mag., 2 speeds, fine order; offers.—Below.

WANDSWORTH.—Zedel, 1912, 7-9h.p., mag., Matchless 2-speed, nearly new; £32/10.—Below.

WANDSWORTH.—Matchless-Jap, latest, 8h.p. twin, mag., 2 speeds, new; £45.—Below.

WANDSWORTH.—Jap-Bat, 1911, 3½-4h.p., mag., drip feed, nice order; £27/10.—Below.

WANDSWORTH.—Roc, 1911, 6-7h.p., m.o.v., mag., 2 speeds, like new; £33/10.—Below.

WANDSWORTH.—Indian, 1910, 7-9h.p. twin, m.o.v., mag., fine sidecar machine; £29/15.—Below.

WANDSWORTH.—Precision, latest 1913½, T.T., 4¼h.p., mag., powerful, nearly new; £32/10.—Below.

WANDSWORTH.—Minerva, latest 1910-11, 5-6h.p. twin, mag., beautiful order; sacrifice, £23/10.—Below.

WANDSWORTH.—N.S.U., 6-7h.p. twin, mag., 2 speeds, powerful sidecar machine; £23/10.—Below.

WANDSWORTH.—Singer, 3½h.p., mag., B. and B., good tyres, ready for road; £13/10.—Below.

WANDSWORTH.—Minerva, 2¾h.p.; £4/15; exchanges.—Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). [X9179

ROVERS, all models, from £48/15, or 55/- monthly; deferred payments no extra.—Lamb's, below.

DOUGLASES, all 1913 models, from £48, or 55/ monthly.—Lamb's, below.

B.S.A.'s, all models, from £48/10, or 70/- monthly.—Lamb's, below.

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TRIUMPHS, all models, from £49/5, or £3/3 monthly.—Lamb's, 151, High St., Walthamstow. [0716

£8/15.—Triumph, 3½h.p., good running order; trial given.—Speechley, 45, Church Rd., Acton. [1538

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HAYES, Barnet Hill, can give delivery of every make motor cycle, unequalled exchange or cash terms. [X9141

3h.p. Chater-Fafnir, h.b.c., mag., excellent condition, £15; sidecar, £3/10.—16, Strathearn Rd., Sutton. [1487

HUMBER Lightweight, 2h.p., 1911, had very little wear; £22/10.—Knight, Church St., Reigate. [1501

P. and M., 1908, 3½h.p., 2-speed, excellent condition; £18.—Underwood, 17, Bury St., W.C. [1554

3½h.p. Minerva, 1912, mag., Amac, new Rom tyres; bargain, £17, offers.—35, Calwell Rd., E. Dulwich. [1479

2¾h.p. Moto-Reve Twin, mag., carburetter, complete as new; £8, bargain.—Hathersich, 36, Bath St., E.C. [1587

DOUGLAS, 1911, in good condition, new belt; bargain, £24.—Collings, 14, East Hill, Dartford, Kent. [1436

TRIUMPH, 3½h.p., £23, tyres as new; also sidecar, good kit tools, etc.—29, Radford Rd., Lewisham. [1551

NEW Hudson, 2¾h.p., 3-speed, 1913, not ridden 200 miles; £35.—Royal Navy, Salmons Lane, Limehouse. [1387

ZENITH, 1911, perfect condition; £26/10.—260, Coldharbour Lane, S.W. 'Phone: Brixton 2042. [1629

MOTOSACOCHE, 2½h.p., 1913, variable gear, perfect, makers' guarantee; £29.—43, Aynhoe Rd., W. [1607

BRAND New 1913 Rex de Luxe, 6h.p.; first offer £55 secures.—Wilcox, 81, Milton Rd., East Sheen. [1386

TRIUMPH, 1909½, good condition, Mabon clutch, spares, etc.; £23.—Weller, Southville, Walton-on-Thames. [1416

1912 Scott, new chains, spares, pan seat, splendid condition; £42. — Stevens Addington, West Malling. [1458

MINERVA, 2h.p., B.S.A. fittings, 2in. tyres, perfect order; ride away; £6.—Moss, 108, Brayard Rd., Peckham. [X9109

MOTOSACOCHE, 1¾h.p., Bosch, Druids, h.b.c., good order; £9.—Westlake, 96, Vassall Rd., Brixton. [1553

2¾h.p. V.S., vertical, spring forks, low, perfect machine; £7, offers.—Croft, 53, Holydale Rd., Nunhead [1582

IF You Want Bargains in 2nd-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet St., London. [X9705

TRIUMPH, 1913, standard, Rom tyres, ridden 350 miles; no reasonable offer refused.—40, Croxted Rd., Dulwich. [X9150

T.T. Triumph, late 1911, Cowey maximum, Xl'all, Hella, Dunlops; £30.—Anslow, 168, Halley Rd., Forest Gate. [X9137

1911 Triumph, F.E. model, new Clincher studded; expert examination; £28.—Whiteley, 56, Clarence Rd., Hackney. [1483

2¾h.p., good running order, h.b.c., good tyres; £7, or exchange cycle and cash.—385, York Rd., Wandsworth. [1545

T.T. Triumph, 1913, Senspray carburetter, decompresso. tyres and condition perfect; £41; easy terms.—Below.

INDIAN, 5-6h.p., 1913, clutch and kick starter; £34. —Chatwin and Hartley, King St., Richmond. [1491

T.T. Triumph, May, 1913, speedometer, lamp, spare tyres, all complete; £46/10 lowest.—104, Bedford Hill, Balham. [1481

3½h.p. Rex, 1911½, mag., adjustable pulley, new belt, complete; £25.—4, Waldegrave Rd., Upper Norwood. [1521

HURLIN for the best 1912-1913 bargains in light cars and motor cycles, cycle cars; second-hand parts, fittings, etc.

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HURLIN offer 1912 Grandex-Precision, with sidecar fitted nicely with latest refinements, 2 speeds, etc.; £38.

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TRIUMPH, late 1912, clutch model, in new condition, all accessories; bargain, £40.—30, Willow Rd., Hampstead. [1590

TRIUMPH, 1909, 3½h.p., excellent condition, well kept; £27/10; exchange lightweight.—164, Broadfield Rd., Catford. [1568

1910 Enfield Lightweight, 2½h.p. twin, mag., everything excellent condition; £18.—19, Alston Rd., Barnet. [1610

ESTABLISHED 20 YEARS IN THE HEART OF THE TRADE

Being the close of the season, the Colmore Depot have a few exceptional bargains in

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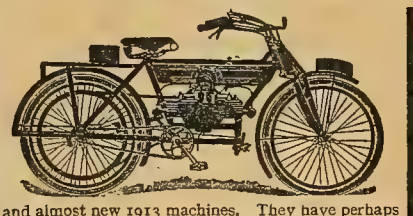

and almost new 1913 machines. They have perhaps been used only once and are in every way as good as new, carrying the makers' full guarantee. There are amongst them one or two

DOUGLAS (Models R. & O.),
MATCHLESS, 8 h.p. and 3½ h.p., 2-spd., 3-spd., and 6-spd. models.
One only TRIUMPH (3-speed).

By taking advantage now of the **very special** allowance we are prepared to make upon second-hands in part payment for the above, buyers will be able to obtain a practically new machine, which upon selling, perhaps next year, they will lose little or nothing.

Cash buyers will receive special consideration.
Our ordinary second-hand stock has also been considerably reduced.

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NEW HUDSON, 3½ h.p., 1913, 3-speed little used **£48**
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For something simple, light, and cheap, how about
A.C.'s (three wheels) at **£75.**
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You with heavier purses cannot do better than an
ENFIELD AUTOLETTE. (Our demonstration model is being sacrificed at **£115,** all on complete).
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F.N. Lightweight, Bosch, h.b.c., re-enamelled and plated, perfect order; £9, or offer.—34, Queen Rd., Walthamstow. [154

3½h.p. Ariel, low, powerful, spring forks, new tyres, all accessories; £14.—137, Effinghar Rd., Harringay, N. [160

HAZEL-J.A.P., 1911¾, 2½h.p., very low; cos £37/10, sacrifice, £18/10.—Myers, 4, Risebolm St., Hackney Wick. [152

DOUGLAS, all models, for immediate delivery; trad supplied.—Rey, 5, Heath St., Hampstead, and 17, Gt. Portland St., W. [966

2½h.p. Lightweight F.N., 2-speed, clutch, excelle condition, full spares; £26.—Write to 167, Ivydale Rd., Nunhead, S.E. [X920

TRIUMPH, 1912¾, free engine, not done 600 miles £40, genuine bargain. — 228, Pentonville Rd King's Cross, London, N. [136

A GRAND Opportunity to dispose of your present mount for a new one. See Exchange column Chesney, West Horsley. [149

1913 3½h.p. Twin Ivy-Jap, 3-speed, kick starte Xl'all, perfect condition; £45.—108, Sydenham Rd., Sydenham, S.E. [163

1911 6h.p. N.S.U., 2-speed in back wheel, lamp horn, etc.; £32, or close offer.—Petersen, 5 Archer St., London, N.W. [X90

PREMIER, 1912½, 2½h.p., free engine, perfect con dition; reasonable offer. — R.F., Ranmore, Par Rd., Kingston-on-Thames. [X918

LURQUIN and Coudert, 2¾h.p., free engine, Amac Dunlops, all accessories; £9/10.—92, Little Alban St., Regent's Park, N.W. [148

1911 Red Indian Twin, clutch, absolutely perfec very powerful; £25/10.—H. Taylor, 1 Taviton St., Euston, N.W. [159

1912 Bradbury, 2 speeds, free engine, Ariel sid car, £35; Triumph, 1910, a bargain, £22. 55, Aytoun Rd., Stockwell. [15

DOUGLAS, model O, 2 speeds, slightly used, n March, 1913, complete, lamp, horn; £38.—Kennet Stephen's Lodge, Canterbury. [X90

A.S.L.-PRECISION, shop-soiled, 3¾h.p., 50 g machine; £26 cash.—Call, 16, Haverstock Hi Hampstead. Letters ignored. [149

£10.—3½h.p. Minerva, m.o.v., low, powerful, h.b spring forks, tyres as new; exchange lower pow —23, Stafford Rd., East Ham. [14

UNUSED bargain.—1913 Premier, 3½h.p., single gea £40, or with Phillipson pulley £43.—Apply, lett only, 172, Belsize Rd., N.W [X91

DOUGLAS, 1913, Model N, lamp, horn, spare excellent condition; £35.—Conrade, 24, Have field Gardens, Kew Green, S.W. [15

ROYAL Enfield, twin-cyl., 2¾h.p., 2 speeds, magne cent machine, as brand new; £36/10.—Mr. Ja Sharpus, Teddington-on-Thames. [14

3½h.p. Zenith, spring frame, with or without sidecar £9 or £9/10; good condition: any trial here Motor, 13, Mentone Rd., Highbury. [14

TRIUMPH, clutch, 1912¾, lamp, generator, hor spares, never used, not wanted; seen after 6; £3 —121, Upper Clapton Rd., London. [12

3½h.p. Minerva, spring forks, Triumph patte tank, good running order; £15.—C., 5 Brodrick Rd., Wandsworth Common. [16

3¾h.p. Scott, 1910, 1913 inside, just overhauled, a cessories, etc.; £31; owner buying car; trial Macaskie, Clifton, Walton-on-Thames. [14

3½h.p. 2-speed Humber; £26; handle starter, perfe condition, only done 3,000 miles, 1911 Williams, 12, Lower Regent St., S.W. [14

F.N., 2¾h.p., splendid condition, coil ignition, ru perfect; £7/15, or offer for cash sale. — Corn House, Skelbrook St., Earlsfield, S.W. [15

1912 New Hudson 3½h.p., 3-speed, just overhaul by makers, splendid condition, accessories; £4 nearest.—Raypenny, 2, Cator Rd., Penge. [14

TRIUMPH, F.E., 1911, re-enamelled, re-plated, n cylinder, piston, bearings, and tyre, absolutely new; £34.—209, High St., Wandsworth. [X90

3½h.p. Rex, Dunlop and Kempshall tyres, 26×2¼, and B., h.b.c., m.o.v., Whittle-belt, spring fork horn, lamp; £7/15.—105, Grove St., London. [14

2¾h.p. F.N., adjustable pulley, tyres nearly new, cyl der re-bored, and new piston fitted; £12 Latham, c/o Heathfield, Addington, Croydon. [13

THE 7-9h.p. Twin Premier; call and see this, better still, arrange for a trial run; immediate d livery.—Premier Depot, 20, Holborn Viaduct, E.C.

PREMIER, 7-9h.p. twin.—In stock at Service C Holborn. [15

BAT-J.A.P., 8h.p., 1912, F.E., Cowey, Lucas hor accessories, back seat for passenger, whole perfec cost £70, sell £40.—23a, Greville Rd., Kilburn. [09

3½h.p. Quadrant, mag., spring forks, perfect con tion, B. and B. carburetter; £12, offer.—Cha berlain, 8, Caversham Rd., Kentish Town, London. [14

PREMIER Cycle Co., Ltd., 20, Holborn Viaduc have a few good second-hand Premiers for disposa condition perfect, price right, terms arranged. [15

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MORGAN and Maxwell, The Motories, 80, High Rd., Streatham, London.—Keen prices, quick deliveries; better terms than you can obtain elsewhere.

MORGAN and Maxwell.—Aster-Ribble tricar, 6½h.p., 2-speed; £12/10.

MORGAN and Maxwell.—Bat, 2¾h.p. De Dion, spring frame; £10.

MORGAN and Maxwell.—Bat, 7-9h.p., 1913, 2 speeds, all accessories; £65.

MORGAN and Maxwell.—Bat, 8h.p., and sidecar, 1913; £60.

MORGAN and Maxwell.—Clyno, 5-6h.p., late 1912, 2 speeds, Binks, and coachbuilt sidecar; £45.

MORGAN and Maxwell.—Douglas, 1912, late, overhauled; £40.

MORGAN and Maxwell.—Enfield, 6h.p., 1913, 2 speeds, and sidecar, as new; £68.

MORGAN and Maxwell.—Indian, 1913, 7-8h.p., as new, and sidecar; £75.

MORGAN and Maxwell.—Ivy-Precision, 3¾h.p., late 1911, free engine, Dunlop specials; £22.

MORGAN and Maxwell.—J.A.P. lightweight, 2½h.p.; £7.

MORGAN and Maxwell.—Matchless, 6h.p., 1913; £55.

MORGAN and Maxwell.—Minervas from £5 each.

MORGAN and Maxwell.—Moto-Reve, 2h.p., 1911; £12.

MORGAN and Maxwell.—Motosacoche, 2½h.p., 1912; £22.

MORGAN and Maxwell.—New Hudson, 1912, 2½h.p., 3 speeds; £35.

MORGAN and Maxwell.—New Hudson, 1912, 3½h.p., 3 speeds; £40.

MORGAN and Maxwell.—N.S.U., 1910, 6h.p., 2-speed, and sidecar; £32.

MORGAN and Maxwell.—P. and M., late 1911, 2 speeds, Kempshalls, accessories; £43.

MORGAN and Maxwell.—Rudge, 1912, N.S.U.. 2 speeds, fine; £30.

MORGAN and Maxwell.—Rudge, 3½h.p., free engine; £27.

MORGAN and Maxwell.—Singer, 2½h.p., T.T., 1912, 3 speeds, Bosch; £35.

MORGAN and Maxwell.—Triumph, 2½h.p.; £10.

MORGAN and Maxwell. Triumph, T.T., 1911, decompressor, special engine and fittings; £32.

MORGAN and Maxwell.—Triumph, 1911, Tourist, fine condition; £30.

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MORGAN and Maxwell.—Swift-Aster light delivery van, 6½h.p., mag.; £40.

COME Over Here! To Morgan and Maxwell, 80 High Rd., Streatham, for J.A.P.'s, Rexes, Bradburys, Indians, speedometers, lamps, new and used accessories; large stock, cheapest and best of all.

MORGAN and Maxwell's Miscellany.—A.S.L. seat-pillar, as new, 21/-; Binks 2-jet carburetter, 21/-; Triumph back wheel, 10/-; free engine back wheel, £3; Albion pulley, 5/-; Rushmore lamp and automatic generator, £2; decompressor, 5/-; Lodge plugs; Cowey & Smith speedometers, almost new lamps, etc.; write us.—Morgan and Maxwell, 80, High Rd., Streatham, London. [X9116

1913 5-6h.p. Bat, No. 2 model, only run 400, perfect order, kick start, lamp, horn, etc.; £60.—Thompson, Clumberhouse, Ridgeway, Enfield, Middlesex. [1489

CLYNO, late 1911, splendid condition, 2-speed, kick starter, only used week-ends, Kempshall tyres, splendid sidecar; £40.—Seen, 119, Newington Butts, S.E. [1426

UNUSED 1913 6h.p. Rex-Jap, 2-speed, chain drive, heavy Kempshalls, kick starter; £65; exchange good machine and cash.—Bette, 3, Fordwych Rd., Cricklewood. [1453

1912½ T.T. Bradbury, excellent condition, fast, good climber, back cover, belt, nearly new, all accessories; 30 gns.—Chamberlain, Weigall Rd., Lee, S.E. [1531

MINERVA, 5h.p. twin, 2½in. Continentals, B. and B., Whittle, lamp, horn mirror, reflex, good condition; seen running; £10.—104, Tollington Park, Finsbury Park. [1583

1913 3½h.p. Precision, Hutchinson tyres, Lucas horn, lamp, etc., been 1,000 miles; sacrifice, immediate sale, £26/10.—Write, Cycle Co., 163, Lower Kennington Lane, London. [1461

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We are offering all the following

AT BARGAIN PRICES

ALL MODELS.

NEW HUDSON	**RUDGE**	**B.S.A.**
MATCHLESS	**CLYNO**	**LEVIS**
ENFIELD	**SCOTT**	**JAMES**
BRADBURY	**MARTIN**	**SINGER**
DOUGLAS	**PREMIER**	All makes

First cheque secures the following:

	Usual Price.	Clearance Price.
MATCHLESS, 6 h.p., 2-speed..	£73 10	**£62 0**
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Cannot repeat above.

DOUGLAS Models O, P, and R. Special cash bargains.

SCOTT 3¾ h.p., just in from makers. Offers.

SIDECARS.	Usual Price.	Clear for
GLORIA, 1 only, Model No. 3, complete	£18 18	**£16 0**
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SPECIAL BARGAIN.

Brand New **CENTAUR,** 2 h.p., 3-speed, free engine, green enamelled, and a really smart machine; makers' price, £47 10; our price **£36 0**

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CYCLE CARS FROM STOCK.

HUMBERETTE, a real beauty, complete with hood, screen, etc. **£125 0**

SINGER, 10 h.p., French grey, hood, screen, five detachable wheels and tyres, lamps, horn, tools, etc. **£185 0**

THE FINEST STOCK OF SECOND-HAND MOTOR CYCLES IN ENGLAND.

The following are a few of our Special Bargains:

SCOTT, 3¾ h.p., 1912 model, new August, and little used. One of the best machines ever turned out by the Scott Co. **£47 10**

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SCOTT Cycle, new October, 1912, in really fine order (or very close offer) **£55 0**

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ZENITH, 6h.p., 1913, Gradua gear, kick starter, and clutch; usual price £78/15; slightly shop-soiled; price £66.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [1400

MATCHLESS, new in March, 1913, 3½h.p., like new; price £32/15, great bargain.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [1401

PREMIER, 1912, T.T., 3½h.p., good condition; price £24/15.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [1402

QUADRANT, B. and B., h.b.c., Bosch, just overhauled, good running order; £9/9.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [1403

INDIAN, 1911, 7h.p., fitted 1913 clutch; £28/15, bargain.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [1404

TRIUMPH, 1906, Bosch, B. and B., Brooks saddle, lamp and horn; £15/15.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [1406

DOUGLAS, 1913, model 1, just arrived from works, immediate delivery; £48; exchanges; lowest easy payments.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [1407

HUMBER, 1913, 3½h.p., Sturmey 3-speed, new, slightly shop-soiled; £47, usual price £57/10.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [1408

BRADBURY, 3½h.p., 1913, 2-speed, kick starter, new, slightly shop-soiled; £46, usual price £57.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [1409

JACKSON'S Motors, 100, High St., Guildford, for bargains.—1912 free engine Triumph, private owner, only been 2,000, as new; worth £47/10, accept £41 cash.

JACKSON'S.—1913 Douglas, model N, countershaft drive, new; £38/10.

JACKSON'S.—1913 Williamson combination, 8h.p. air-cooled Douglas engine, 2 speeds, handle starting, free engine, Canoelet sidecar, very low, complete with hood, screen, luggage carrier, absolutely new; usual selling price £92/15, complete, sacrifice £82/10; trial given to genuine prospective purchasers.

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JACKSON'S.—1913 Motosacoche, 2½h.p., free engine, climb 1 in 6 easily, quite new; usual price £38, accept £29/10.

JACKSON'S mean to sell.—1909 3½h.p. Quadrant, mag., very powerful, spring forks; accept £12/10.

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DOUGLAS, 1913, special machine, big Lucas complete, Amac, adjustable pulley, spares, everything as new; £42; appointment.—26, Church Walk, Heath St., Hampstead. [X9178

GENUINE Bargains in new and second-hand machines can be obtained for cash or easy payments from Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [1615

SINGER, 1912, 3½h.p., clutch model, in splendid order; £28.—Below.

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SCOTT, 1911, late model, 2-speed, kick starter, all accessories, machine has been very little used and is in perfect order; £33.—Below.

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ALL the Above Machines are guaranteed by us to be thoroughly overhauled, and in perfect running order; cash or easy terms.—Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [1616

PRECISION, 1912½, 3½h.p., T.T. roadster, King Dick frame, splendid condition, Continental and Bates; special, £29.—J.E.D., c/o Churchill, Cycle Maker, Park St., Croydon. [1609

SCOTT, 1911, lamp, speedometer, tools, etc., splendid condition, £39; cane side entrance sidecar, waterproof cover, luggage board, carpet, £7.—92, Stapleton Hall Rd., Stroud Green, N. [1565

DOUGLAS, 1913½, Model O, adjustable pulley, Bates on back, lamp, generator, horn, speedometer, splendid condition; £42, or near offer.—51, Alexandra Rd., Wimbledon. [1537

NEW Hudson-Jap, 1912, 2¾h.p., 3-speed, F.E., new tyres, 48 m.p.h., excellent climber, new speedometer, and all accessories; £30.—Watson, 7, Selborne Terrace, Peel Rd., Woodford. [1456

MOTOR BICYCLES FOR SALE.

HUMBER 2h.p. Motor Cycle, 1913, only in use a few weeks, absolutely as good as new, tyres Palmer back, Dunlop front; £22.—G. A. Vandervell, 103, Cambridge Gardens, W. [1533

3½h.p. Peugeot, Chater-Lea, B.B., Kempshall back, powerful; any examination, no further use, photo; £11, or nearest.—Girling, Ivybank, Lower Luton Rd., Harpenden, Herts. [1597

1913 T.T. 2¾h.p. Overhead Valve Regal-Precision, Binks racing carburetter, very fast, as new; £42, or nearest offer.—Povey, Petersham Rd., Ham Common. 'Phone: 1663 Kingston. [X8851

GENUINE Bargains in new and second-hand machines can be obtained for cash, or easy payments, from W. H. Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone. Avenue 5548. [0326

PHELON and Moore, Ltd., 4, Percy St., W. have several good second-hand P. and M. machines for sale, which have been overhauled and are in perfect order.—Can be seen at above address. [0131

4h.p. Werner, fast, powerful, low, 26×2¼ Clinchers, spring forks, pulls sidecar, ⅞ Stanley belt, engine, etc., splendid condition, all accessories; trial; bargain, £9/10.—17, Ford Sq., Mile End, E. [X9082a

F.N., 4, 2 speeds, and high-class sidecar, complete with lamps and spares, in perfect condition, and very fast; £41/10; also several other makes.—A.W.A., 17, Blackstock Rd., Finsbury Park, N. [X9151

1911¾ T.T. Triumph, touring model, 1913 F.E. clutch, extra fast, guarantee do 60, decompressor, all accessories, overalls; genuine bargain, £36.—T.J.S., Halebourne, Chobham, Woking. [1544

8h.p., J.A.P. engine, late 1912, Bosch mag., gear driven, J.A.P. automatic carburetter and engine plates complete, had very little use, equal to new; £23, or close offer.—69, Greenside Rd., Croydon. [1492

TRIUMPH, F.E., 1912, mag., h.b.c., 1,000ft. F.R.S. lamp, new back tyre, spare inner tube and tyre, spare valve, Lucas horn, set of new overalls, all equal to new; £48.—34, Woburn Sq., W.C. [1511

DOUGLAS, 1913, model R, clutch, 2-speed, new Kempshall on back, Cowey speedometer, watch, lamp, horn, spare cover, N.A.B. spring seat-pillar, all spares, in splendid condition; £47.—C. H. Vincent, 60, Berners St., London, W. [X9019

DOUGLAS, 1913, Model P, as new, with Lucas head lamp, horn, speedometer, new Hutchinson studded cover, plating and enamelling not scratched; cash only, £37/10.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., W. [1509

ZENITH, 3½h.p., special engine, drop frame, dual ignition, Roms, enamelled French grey, numerous accessories and refinements, best offer over £35 accepted; also Chater-Lea sidecar, 50/-; call or write.—Private, 21, Highbury Quadrant, N. [1505

1913 Rover, free engine, practically unused, cost £63 April, with horn, F.R.S. lamp, complete tool kit, spares, insurance policy, run 1,700 miles, guaranteed perfect; accept £40.—Windemer, 124, Upper Grosvenor Rd., Tunbridge Wells. [1555

SOME Cheap Machines.—4h.p. Antoine, torpedo tank, enamelled dark red, reliable, powerful, £11; 1¾ h.p. 1908 F.N., looks absolutely new, perfect order, just overhauled, £12; 1907 4-cyl. F.N., excellent machine, sound order, £12.—Purcells. See advert. [1182

OFFERS Wanted for the following 1913 models, shop-soiled only: 3-speed Triumph, 2-speed Douglas, free engine Rudge, Multi Rudge, free engine Rover, 2-speed Scott, 3-speed New Hudson, and 3½h.p. Matchless.—Glovers' Motor Exchange, Colchester. [1442

ROVER, 3½h.p., F.E., Sturmey-Archer 3-speed gear, delivered June, 1912, Lucas lamp and horn, Cowey speedometer, practically new front Dunlop tyre (only run 10 miles); may be seen by appointment; £44.—P. W. Johnson, Kirk Braddon, Croydon Rd., Beckenham, Kent. [7500

ZENITHS, all models, immediate delivery; also 3½ h.p. Singer, F.E., brand new, £46; late 1912 Ivy, 3½h.p., F.E., and sidecar, £32, perfect; 1911 3½ h.p. Excelsior, good condition, £16; part exchanges.—Come and see us at The Purley Motor Cycle Depot, High St., Purley. [1429

TRIUMPH, T.T., 1912¾, P.H. lamp, Lucas generator, Cowey speedometer, brand new spare belt and inner tube in case, spare valve, only done 200 miles, looks brand new; owner having car, has no time to use; £45, or near offer; only wants seeing; call any time.—F. R. Tillman, 84, Oakhill Rd., Putney, S.W. [1414

DOUGLAS, 1912, model K, 2 speeds, free engine, kick starter, in perfect condition, carefully used, back tyre unpunctured, Lycetts pan seat, P. and H. lamp, Cowey, horn, watch, A1 detachable mudguard, handle-bar muffs, and sundry spares; cost over £60, accept £40.—E. R. Fox, 18, Tavistock Rd., Croydon. [1427

MESSRS. PALMER and Kitson, South Eastern Garage, Herne Hill, London, S.E., guarantee all the following machines to be in running order: Antoine tricar, 4½h.p., 2 speeds, £15; 3½h.p. 1912 Zenith-Gradua, £36; 5h.p. 1911 F.N., £28; 1¼h.p. F.N., £10; 2¼h.p. Clement, £10; 1910 Douglas, £18; 4h.p Peugeot, £13; 1912 2½h.p. Calcott, £27; 1911 2-speed Douglas, £27; 1911 6h.p. 2-speed N.S.U., sidecar, £35; 1910 5-6h.p. Rex, 2-speed, sidecar, £35. Accessories.—First P.O. secures the following, money refunded willingly if not satisfied: J.A.P. car carburetter, new, 70/-; Ford car carburetter, 20/-; pair electric cycle car lamps, new, 20/-; exhaust whistle, h.b.c., 10/-; inner liner for car cover, new, 7/6; car tube gaiters, new, 5/-; Triumph pattern bars, with all 5 controls, new, 25/-, etc., etc. Write for lists. [8457

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¶ You cannot always tell from outward appearances whether a machine is all it should be — hence the need for discrimination in purchasing.

—Let me be your advisory expert — consult me when buying a machine — *I guarantee satisfaction always.*

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SCOTT & Coach Millford, all access..... **£62**
N.S.U., 3 h.p. twin, new, list £52 10s..... **£36**
MATCHLESS, 8 h.p., c.d., sidecar, spares **£68**
ENFIELD, 2¾ h.p., 2-sp., kick-starter..... **£38**
ENFIELD, 3 h.p., 2-sp., kick-starter **£42**
HUMBER, 3½ 3-sp., and Canoelet, soiled **£57 10**
HUMBER, 2 h.p., brand new, List £35 .. **£26**
ROVER 3½h.p.,3-sp.,Lucas l'p. & s'ometer **£45**
CLYNO, 6 h.p., 3-sp., shop soiled..... **£65**
CLYNO, 6 h.p., 3-sp. with sidecar **£78**
ENFIELD, 6 h.p., coach sidecar, as new.. **£68**
BRADBURY, 3½ h.p., 3-sp., shop soiled .. **£48**
HUMBER, 3½ h.p., 3-sp., shop soiled **£48**
ZENITH, 3½ h.p., Variable gear, as new.. **£45**
JAMES, 4 h.p., 3-sp. and Canoelet **£55**
JAMES, 3½ h.p. twin, 3-sp., 1914 model.. **£45**
SCOTT, latest model, as new **£55**
CALTHORPE, Small Car. Very fast .. **£135**
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FORD, dickey seat, slightly used **£125**
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MOTOR BICYCLES FOR SALE.

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

EXETER Motor Cycle Co., 6 and 7, Bath Rd., Exete Tel.: 975.—Motor cycle and cycle car experts.

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WE have a large number of new and second-han motor cycles and sidecars, etc., to be cleared regardless of cost.

WE are making further extensive alterations to o premises, and must reduce our stock to make roo for the contractors.

SEND a postcard for complete list, with lowest ca prices. Special discount for cash off any 1913 n models in stock.

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SECOND-HAND Motor Cycles from £10, and sidec from £3; all motor cycles are guaranteed in go order, having been thoroughly overhauled by our st of expert mechanics.

EXETER Motor Cycle Co., Exeter.

THE Largest motor cycle and cycle car dealers in t West of England.

SEND Along your enquiries. We are sure to ha something to suit you. Country customers do forget we pay your rail fare up to 100 miles. T gives you a chance to see our large stock before you bu [17

DOUGLAS, 1913, Model O., £48; Model R., £5 both in stock.—Moffat, Yeovil. 'Phone: 50. [53

DOUGLAS, June, 1912. 2-speed gear, splendid co dition; £35.—Overmaes, South St., Exeter. [X91

TRIUMPH, 1913, April, Mabon clutch, perfect; £4 or exchange 2-speed Douglas.—Piper, Liskeard. [15

F.N., 4-cyl., 2 speeds, free engine, good conditi spares; £26.—Forbes, Par Green, Par, Cornwa [14

1912 Enfield, 2¾h.p., 2-speed, all accessories; reasonable offer refused.—Hayward, 41, Balmo Rd., Bristol. [X90

PHELON and Moore, 1912, excellent condition, £4 with coachbuilt sidecar, £52/10.—Marks, Gree way Rd., Taunton. [11

1913 Douglas, model O, brand new, machine can seen in London; £48, or nearest offer.—S., E ford Manor, Topsham, Devon. [16

MR. HARRY REED'S 3½h.p. competition Dot mot cycle, as new; also 8h.p. Dot-Jap, with Canoe sidecar, and all spares; bargains; have bought car. Harvey, King St., Truro. [X89

1911 Twin N.S.U., undergeared pulley, Amac, go tyres, perfect order, £15; 1912 Lincoln Elk, 3 h.p., little used, equal to new, £23; F.E. 50/- extra. Davies, Dighton St., Bristol. [X89

TRIUMPH, 1911½, and sidecar, 1913 N.S.U. 2-spee all accessories, spare belts and tubes, excellent co dition; £40; any trial; or exchange T.T. Douglas. Broomfield, Red House, Honiton. [X91

1912¾ 3½h.p. 2-speed Humber, F.R.S. lamp, spee ometer, tube, all spares, 2½in. tyre, 11in. bel mileage only 1,560; cost £65, sell for £50, or neare cash offer; owner giving up.—Leader, 7, St. James St., Bath. [X89

CENTAUR, 3½h.p., 2-speed, free engine, lamp, gene ator, horn, tools, etc., late 1912, in excellent co dition; must be sold; lately purchased cycle car; £3 or nearest offer.—Stone, 81, St. Albans Rd., Westbu Park, Bristol. [X90

SECTION X.

Scotland.

PREMIER, 1912, 3½h.p., F.E., splendid condition. McKerchar, merchant, Killin. [X86

MOTOR Cycle, 3¾h.p., free engine, good order; onl £18.—Meldrum, Esplanade, Dundee. [X89

DOUGLAS, 1911, model E, 2-speed gear, perfe order, lamp and horn; £30.—Dall, Ladybank, Fif [138

RUDGE, 3½h.p., free engine, 1912 model, splend order, Lucas lamp and horn, complete; offers Rudge-Whitworth, Edinburgh. [X69

ABERDEEN and District Agent for Scott, Levi P. and M., A.J.S., Matchless, and Sun, als Premier cycle car; any other make supplied.—Georg Cumming, 165, Holburn St. [940

GLASGOW Agents for Indian, Bat, Royal Enfiel Williamson, B.S.A., Zenith, Norton, Rex-Ja Trump, also G.W.K. cycle cars, Ford cars.—Alexand and Co., the leading Scottish firm, 272, Gt. Western Rd Glasgow. [X63

EDINBURGH.—Agents for Indian, Phelon and Moor Douglas, Williamson, Zenith, Matchless, B.S.A Bradbury, Norton, Royal Enfield, Premier, Rex, Re Jap, Trump, also G.W.K., Ford cars.—Alexander an Co., Scotland's largest motor cycle dealers, 115, Lothia Rd., Edinburgh. [X63

SEPTEMBER 18TH, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

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The Future of Long Distance Trials.

THE clamour arising from the recent much debated A.C.U. Six Days Trials is now dying down, and with the affair receding into the vista of the past, a calmer view can be taken of the proceedings than in the heat of the event. Our own attitude has been previously expressed, and we do not intend to write any further criticism either of the trials or the dissatisfied competitors. Let us rather look forward and try to enter into some constructive ideas for the future conduct of these trials. We refuse utterly to believe that they have now served their purpose and that no good can be gained by their continuance. For the advancement of design competition is necessary, and, probably, always will be so.

How then are the awards in these trials to be made with benefit to motor cyclists and the industry and without placing an undue premium on the skill and agility of the riders? Before going into this matter it is well to remember that the Six Days Trials have rather outgrown the purpose for which they were introduced. In the old days it was rather the effort of the promoters to see how many machines could be got through to the end—nowadays the aim is rather to find a course so severe that difficulty is felt in surviving the test, that the glory, therefore, shall be all the greater for the fortunate survivors. The difficulty now is to find a course sufficiently severe to be anything of a test. The general advent of change speed gears has made the difficulty all the greater, but the use of such mechanisms has in turn been brought about by means of severe trials. This is a strong argument for the desirability of continuing the Six Days Trials.

But we are not in favour of the adoption of anything in the nature of "freak hills and abnormal surfaces." We do not believe that one motor cyclist in a thousand has the slightest wish or need to go over such roads. He wants a machine that is certain to climb any ordinary road hill at a fair speed, attain a good rate of speed on the level, and able to run slowly in traffic. In other words, a truly flexible mount. Therefore we think that the flexibility tests in this year's Six Days Trials were a great step in the right direction. We would also have liked to have seen a slow hill-climb, say up the first mile and a half of Kirkstone Pass from Ambleside. Ability to climb slowly is of infinitely greater value to the tourist than being able to ascend hills at a high rate of speed.

Now with regard to next year's trials we would suggest the following ideas to the careful consideration of the Competitions Committee of the A.C.U. First of all make the event more of a tour than a trial. Let the distance be 1,000 miles in the week, and let the course lead from town to town, or if that is inconvenient let two centres be selected, and hold three days of the test from each centre. Do not allow any unusually low gears to be fitted, preferably insist on machines being entered exactly as supplied to the public. In the case of the different classes let certain ratios be fixed as the minimum gear for top speed—say 5 to 1 for all machines up to 500 c.c., and 4½ to 1 for larger powers. No solo mount to be geared lower on bottom gear than twice the ratio of the high gear. No alterations in ratios during the trial should be allowed, and if adjustable pulleys are fitted these should be sealed at the required position. No hills to be included that are not to be found on any recognised secondary road portrayed in the ordnance maps. This would give ample scope in selecting a sufficiently stiff course.

We would also propose that no spare parts of any description be allowed. It is not unusual for high-class machines to run a thousand miles without renewals of any description. We all know that a good belt, chain, or tyre is capable of such a distance. Let the makers of the machines and accessories, then, put them to a public test. Allow the riders to carry the usual kit of tools supplied to the public and a puncture repair outfit and nothing more. In particular we would like to see spare chains, belts, tyres, and valves absolutely taboo. A machine going through a trial in such manner would be a real indication to the buying public of what it could do.

Last, but by no means least, we commend to the A.C.U. the idea of finishing the trial with a fifty mile speed test on Brooklands. This should be an absolutely non-stop affair, and certain set minimum speeds should be allotted to each class of machine, and marks allotted or deducted according to such speed being exceeded or failure to reach it being recorded. Thus supposing 35 m.p.h. were set for the 500 c.c. machines, if the rider failed to do more than a mean speed of 30 he would be deducted five marks, if he achieved 40 he would gain five marks. Each stop should be penalised, say, 20 marks. We believe these ideas, though quite in the rough, are worthy of earnest consideration by the A.C.U.

OCCASIONAL COMMENTS

by "IXION"

The Dangers of Carrier Riding.

I hope that most of my readers have read, marked, and inwardly digested the lengthy list of fatalities occasioned this summer by the perilous practice of carrying a passenger on the carrier. In ordinary go-ahead riding there is no more danger in carrying a pillion passenger than in riding solus. The crux comes in a tight place, and all of us who are veteran riders know that emergencies are always sudden and unexpected, and that we have swerved out of a few hundreds in our motor cycling histories. The point is that the added heaviness of steering with an extra 9-12 stone on the carrier so often makes it utterly impossible to emerge from the tight place by a hair-raising last minute swerve. Personally, I believe the practice is so dangerous that it might even be rendered illegal. I have personally witnessed nearly a score of spills during the present season, all directly due to the practice: the majority of them would probably have been avoided if there had been less weight on the back wheel, and in half the instances the injuries sustained were quite serious.

Noisy Speedometer Drives.

I daresay I am growing more fastidious than I used to be, but I have been very worried during the past two years about noise emanating from the driving gears of my speedometers. It is, naturally, rather a tall order to expect a pair of uncased and unlubricated gear wheels, revolving at a point where rust and mud abound, to retain both accuracy and silence for prolonged periods; and it is not surprising that noise is the early and inevitable result. What I have to say probably applies to every speedometer on the road, but I will take a typical example. Early last year I fitted one of the best speedometers made. I had some trouble in adjusting the gears to run with the absolute silence that denotes accurate register, seeing that the gearing never come into quite the right register with the light clips and bolts at the first time of asking. However, I finally got the gears set so that they revolved without a sound, and the readings proved accurate down to a very small margin, which was amply explained by a trifling discrepancy in the tyre diameter. As last season progressed—there was plenty of mud about, you remember—the drive got very noisy. When I bought my first 1913 machine, I transferred the speedometer bodily to it, and found that the gears were noisy, and had lost the niceties of accuracy. The courteous makers soon provided me with a pair of new gear wheels, which were easily substituted for the worn pair, the job taking perhaps an hour. After a thousand miles, covered in the earlier and damper period of the season, the new gears had in their turn developed noise and inaccuracy. Fortunately, the gears of a speedometer cost next to nothing, and the fastidious rider can easily replace them at frequent intervals without appreciable trouble or expense. But it seems foolish to surrender to such an unmechanical bugbear, if there is any easy escape. Surely, it would be a good thing if any large firms, possessing big outputs of counter-shaft driven machines, with rigid drives to the rear wheel, were to incorporate a counter-shaft gear wheel for the driving of the speedometers. Without a doubt, self-respecting car designers are beginning to grow ashamed of the unprotected front wheel speedometer drive, and we do not want motor cycles to lag behind. It would be a further advantage if we could transfer the heavy speedometer dial and its trailing sheath from the handle-bar to the top tube. [This is now done by at least one maker.—ED.] I could drive my early machines at high speed "hands off" on a good road; but I cannot play these tricks now that speedometers are attached. As my readers know, the belt-driven speedometer, to which I referred a month or two ago, proved to be an unmechanical compromise designed to overcome the peculiar difficulties experienced in fitting a gear drive to a certain spring fork of foreign origin. As we get more standardisation, and the market becomes concentrated into fewer hands, these charming refinements should become more numerous. In the meantime, if we want silence, we must replace the gear wheels at rather unduly frequent intervals.

When Detachable Wheels are Handy.

It is fortunately seldom that a motor cyclist really feels the need of a detachable wheel at all urgently, but the accompanying photograph shows that such emergencies can arise. The print shows the condition of the rear wheel of a Clyno outfit, as revealed to the horrified owner when he at last realised that something was amiss with his back tyre, and it is peculiarly interesting in that the very dogged nail in question made three several attempts to penetrate the rim of the back wheel before it found a spot soft enough for its purpose. Lest the captious should enquire whether the owner was drunk, seeing that he failed to notice the escape of air until the rim had been thrice punctured, we may offer the ample explanation that he was accompanying the Carlisle trials over one of their roughest routes. The value of the detachable wheel is proved by the sworn statement that the sidecar proceeded on its way within five minutes of the stoppage.

Something like a puncture! A nail which went right through tyre and rim of a Clyno detachable wheel.

Holmside Bank and the A.C.U.

I am one of the few riders who have been familiar for several years past with the by-roads and precipices selected for this year's A.C.U. Trials, and riders who wish to form an accurate impression of the kind of task set in this event without going to excessive trouble, should stop at Durham on their way North and ask for the village of Witton Gilbert. When they arrive there, they should ask the way to Holmside Bank—the hill re-christened Little Honister by the competitors. This is an extreme example of the type of climbing feat demanded by the officials. It is perfectly true that any 3½ h.p. machine with a low gear of 8 to 1 could be coaxed up this hill by a daring rider. It is also true that very few men with such a gear would get up at the first time of asking. You approach it along a narrow cinder path, turn fairly suddenly to the left across a flat plank bridge, and then, hey presto! a kind of boulder screes shoots suddenly upwards at a grade of about 1 in 3½. If you begin your rush as you swerve on to the bridge, you cannot fail to scramble up the steep portion, provided you can stick in the saddle and keep the machine pointing in the right direction. When you are up the steep part, the road corkscrews for a few yards between narrow steep banks, and its surface is like a river bed, but the grade is not alarming: after this, a few hundred yards of easy climbing along a rutty grass track completes the ascent. In other words, such a hill is a splendid test of the riders, but no test at all of a machine. A hill like this has one useful function. It will provide an afternoon's fun for a party of sportsmen; but it is out of place in a serious technical test of a semi-scientific order.

A Libel on Me.

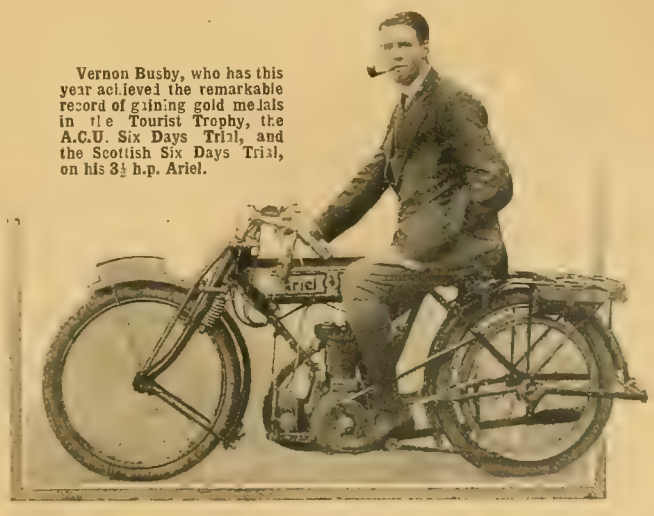
I am very frequently libelled, and my broad back usually sustains the curses uncomplainingly, but I really must arise in my wrath when I am accused of being a fierce and prejudiced critic of three-speed hubs. Indeed, impartiality can be so grossly misconstrued nowadays that one of my correspondents appears to fancy that I am a "bear" of Sturmey-Archer and Armstrong shares. I appeal to the files of *The Motor Cycle*. Did I not buy a sample of each in those critical early days when more cowardly riders were waiting to see whether the hubs would dissolve in their first hundred miles? Have I not consistently proclaimed the fact that I have had no trouble as yet with either make of hub? Is it not a fact that since these gears were introduced I have not owned a single machine which was not adorned with one of these hubs? Yet to-day, because I insinuate that a counter-shaft gear, equal in other respects to the three-speed hub, will deserve a bonus mark because it can claim the additional advantage of leaving the back wheel more readily accessible, I find myself derided, denounced, and vituperated.

If the three-speed hub enthusiasts say any more unkind things about me I will run my hub secretly unoiled for a thousand miles, and then dish up some fiendish copy about it, as others have done before me. Believe me, dear readers, I do not want anything more costly or weighty than the three-speed hub. My one desire is to see my three-speed hub transplanted to a counter-shaft position, and if it cannot be done this year or next, why, I'll wait.

In the meantime I am frightfully interested in Mr. Paskell's remarks to the effect that the rear wheel of a certain three-speed hubbed machine can be taken out "within five minutes of the time taken with a machine not fitted with a three-speed gear." I have been a betting man too long to jump at a challenge which has such a vague tail to it. "A machine not fitted with a three-speed gear" may mean anything from a traction engine to a locomotive. Does he mean a plain T.T. back wheel, with brake shoe external to the belt rim, and is he then speaking of a new pattern Armstrong hub? I am all agog for information, for I can (and have) changed the rear cover of a T.T. in well under fifteen minutes by the clock, but I have not yet succeeded in changing the rear cover of a three-speed hubber in less than an hour. However, that is a digression. I grant you the superiority of the three-speed hub for direct belt-driven machines; but are we really so ungrateful if we hope that by to-morrow we shall be offered a gear which shall add the accessible rear wheel to all the existing merits so fairly claimed for the three-speed hub?

When Solution is "Tacky."

The fatal word "tacky" in the small print under the lid of a tyre repair outfit has deluded many a good man and true in his salad days, and I have often ventured to warn the youthful motor cyclist that solution is not really tacky for about ten minutes after he is prone to imagine that the desired condition is attained. At last a kind friend has come to the novice's rescue with an infallible test guaranteed to decide when solution is or is not tacky. Take a penknife with a clean blade. Lay the clean blade flat against the solutioned tube or patch. Gently withdraw it. If strings of solution adhere to the blade, the solution is NOT yet tacky If the blade comes away clean and stringless, the solution is sufficiently dried for patch and tube to be pressed into a contact which ought to be permanent. I have not personally made the experiment, because I have not had a puncture since I received the communication, but it looks sound enough. At any rate it will warn the inexperienced that solution can hardly be overdry, and ten minutes spent in waiting for this result in patience will save much irritating delay later on.



Vernon Busby, who has this year achieved the remarkable record of gaining gold medals in the Tourist Trophy, the A.C.U. Six Days Trial, and the Scottish Six Days Trial, on his 3½ h.p. Ariel.

A NOVEL TRICYCLE.

A TOUR on a new machine has a considerable source of interest and fascination, but when that machine, with the exception of the back axle and engine, has been manufactured and put together bit by bit by is an additional fascination engendered. To give a brief idea of its construction, the rear wheels are used for driving, a balance gear being incorporated as a *sine quâ non*, the power unit being a 3 h.p. De Dion engine, and it has a three-speed gear worked entirely by chains and of such construction that each gear, when engaged, becomes a direct drive off a counter-shaft, this being contained in an oil-tight gear box, the box itself being constructed of sheet steel and cut out to lighten it, the cut out portion being covered in again by sheet duralumin. There is a clutch operated by a pedal and with ball bearings to take up all thrusts, and a starting handle.

The engine, magneto, and gear box are arranged in line along the back axle, the gear box being suspended in such a manner that it can be removed by undoing eight screws.

The body, also made of duralumin, is suspended by two C springs fastened to the back axle, and two blade springs fastened to the side tubes support the front end; the centre of the body also has a shock absorber, which is worked on the principle of an ordinary air pump, which acts in such a manner that practically all the weight of the body and person seated is resting on compressed air, which gives a delightful sense of easy motion on the road. From the illustration it will be seen that consideration has been shown with regard to wind resistance alike in the construction of the body, and the petrol and oil tanks.

All the controls are attached to the steering wheel, except the foot brake, operated by pedal, and hand brake at the side working on the front wheel. After a considerable amount of investigation a Senspray carburetter was fitted. The gear ratios are 4½, 7, and 11 to 1.

Weight Distribution.

In the design it will be noticed the engine is at the rear; in fact nearly all the weight is carried on the back axle, only sufficient being distributed on the front wheel for steering purposes. It was necessary, also, to keep the body fairly high to allow a good volume of air to pass underneath in order to cool the engine; in practice it was found to keep the engine particularly cool and with an additional advantage that very little dust is raised in the passage of the machine over the road.

After testing it on the road about forty miles and several minor alterations being made, the writer set out for a tour into the West of England and Wales, the first day's ride terminating at Salisbury, when it was found some eighty-two miles had been covered on rather over one gallon of petrol, which was considered quite satisfactory. From Salisbury onwards to the West the road surface began to get bad; at the present time the roads are suffering from the unusually dry weather; also from having been cut up by the military traffic. A motorist's tip to avoid part of the main road to Exeter was taken, and a detour made further north over the downland, but the surface of the roads here was anything but good, long stretches being covered with loose flints. However, the scenery and views are magnificent; naturally some of the gradients are severe, but the 3 h.p. engine and the three speeds made light work of them.

Across the Bristol Channel.

From Ilfracombe the writer decided to cross by boat into Wales, so the harbour-master was approached as to the possibility of getting the three-wheeler across on the passenger steamer. However, no promises were made without the consent of the captain. The harbour-master had decided to put it on board with a dock crane, but the captain of the boat would not have that as there was no similar facility for getting it off at either the Mumbles or Swansea, so it was eventually hoisted up and carried by four of the ship's crew across the passenger gangway. I had intended landing at Swansea, but the tide being low I was put off at the Mumbles pier, where the machine had to be hauled up a flight of steps from the lower pier deck, then up another flight to the top deck. At the end of the pier the roadway went up at an angle apparently of about 1 in 3 to join the main road. As this gradient seemed a bit too much for the 3 h.p., three pier hands were requisitioned to assist in hauling me up this at the end of a long rope. Much to my delight, the temporary assistance was not agile enough to do any quick hauling, and the machine very nearly overran them before we reached the top.

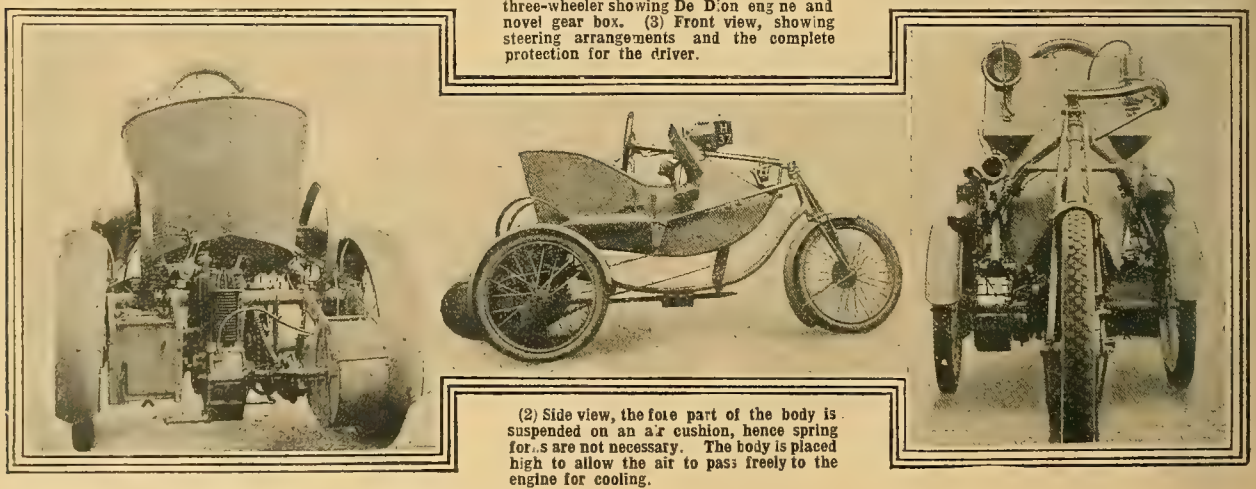
After touring through Llanelly to Tenby, I decided here to make a careful examination of the machine, and the following defects were noted: The magneto drive from the engine was distributed through a fork engaging with an arm with two slots on the magneto shaft, and one of the forks had sheared clean off. The drive from the clutch to the gear box is made through a flexible joint consisting of two pins engaging with holes in the end of the clutch casing; a considerable amount of wear had taken place here, otherwise no other defect had shown itself.

Neither of these defects, however, was of sufficient importance to prevent the journey being continued without recourse to a lathe.

On the return journey the writer took the main road back to Gloucester, *via* Carmarthen, Brecon, Hay, Hereford, and Ross, a most excellent road. A night was spent at Gloucester, and the next morning a start was made for London, *via* Cheltenham and Oxford.

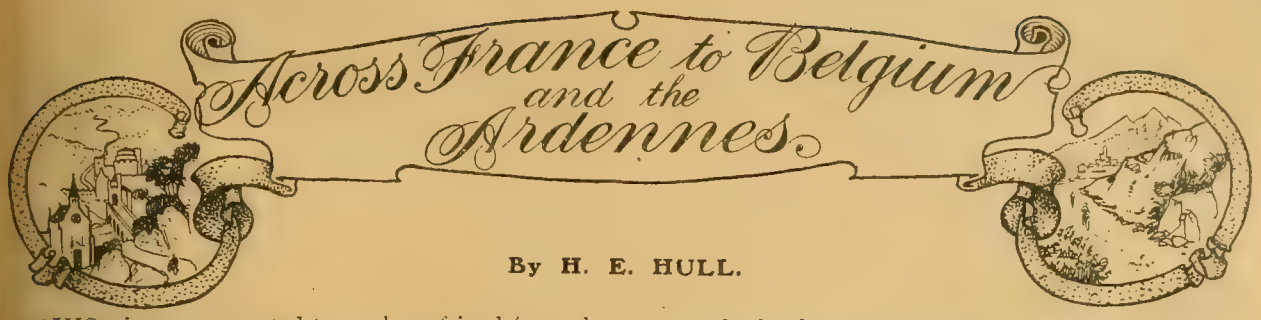
Altogether some 600 miles were covered on eight gallons of petrol. There was no sense of side-slip on greasy roads, and no tyre troubles were experienced. Altogether the trip was so successful as to show that a home-made machine can be quite relied upon if care and attention be bestowed upon it. The minor faults developed under test I shall remedy.

L.R.J.



(1) Rear view of L.R.J.'s home made three-wheeler showing De Dion engine and novel gear box. (3) Front view, showing steering arrangements and the complete protection for the driver.

(2) Side view, the fore part of the body is suspended on an air cushion, hence spring forks are not necessary. The body is placed high to allow the air to pass freely to the engine for cooling.



Across France to Belgium and the Ardennes.

By H. E. HULL.

THIS trip was suggested to me by a friend (named by the natives of France "*L'Homme dans le Panier*") who had a longing to visit Southern Belgium and the Grotte de Han. He fired me with the same desire, and hurried preparations were made. All being ready, we started the last Saturday morning in July, and after an uneventful run, reached Folkestone. Here I would confirm the advice of old motorists: use the facilities given by the A.C.U. or A.A. of booking man and machine from port to port. We found everything prearranged, and had only to empty our tank, see the machine hoisted on board, and follow, smiling at the foolish ones who had not taken the above precautions and were left behind.

The boat was crowded, and, though we were good sailors, were thankful it was a short and smooth passage, as the unwonted paleness of many of our fellow travellers gave us an anxious foreboding of unpleasantness to follow.

Boulogne at last, through the customs quickly, helped by the A.C.U. and A.A. man, and away we went to rest for the night at a little hotel, two or three miles out, in Pont de Briques. We had no intention of travelling by night, unless we were compelled to, as we wanted to see all we could of the scenery.

Sunday morning saw us up early, and away we went, after consulting our "Taride," straight across France, avoiding Lille, as we had heard that the *pavé* for miles around that town was too bad for words. This part of the journey proved monotonous, with the exception of our run through Samer, where we got our first taste of *pavé*, and the scenery was ordinary, so we indulged in some speed bursts on the fine straight roads. Oh! the exhilaration of long stretches at fifty and fifty-five in the terrific heat we were experiencing, then the quiet going over the excellent roads between Thérouanne and Houdain till we arrived at Arras, where we arranged to stop for the night. Soon after we garaged there came a mighty tropical downpour, and we were thankful we were out of it, but pleased to think of the dust being laid, as "*L'Homme*," etc., found it was entering his travelling bag in large quantities—at least he said it was dust, but I put it down to a broken bottle of tabloids in his medicine chest, as it was pure white and of a very fine consistency.

Across the Frontier.

The next day, after a look round the quaint, old-fashioned town, we started towards Cambrai, and had our worst taste of *pavé*—at least I did, "*L'Homme*," etc., was quite comfortable, and seemed highly amused at my discomfort. Needless to say, our progress was slow, so as not to shake every nut off the machine, or wrench the frame. We ought to have taken a road further south through Croisilles. However, we made for Valenciennes, where we had our first trouble—a puncture. After we had repaired this we set our course for Binche, crossing the frontier twenty kilometres from Bavai. The road from Bavai to the frontier, though straight, is practically nothing but a farm track through woods; I should not have cared to have been hung up here with any serious trouble, as there was not a town of any importance for miles.

A night's rest at Binche, and then through Thuin to Charleroi, the Belgian Black Country.

On the Wrong Roads.

At Thuin we began to gain experience in steep hills and hairpin corners, and the low gear began to be used for the first time. Here we unfortunately missed our way, and traversed roads that were worse than awful, the camber being atrocious in some places, with sharp turns and gutters intervening. It speaks wonders for the build of the machine, for had it been less solidly constructed the frame must have been wrenched in two. At last we reached Charleroi, with no more serious damage than four spokes broken in the back wheel, which, by the way, took us three hours to get repaired; the Belgian is not inclined to hurry himself, and always says "*Beaucoup temps*" if he finds you are almost dancing with impatience to get on.

On leaving Charleroi we took the wrong turning between Gilly and Châtelet; and what a road! First down hill, then a perfect switchback, with twelve to eighteen inches of side dips, and when once we had started there was no turning back, so we had to make the best of it and crawl as slowly as possible. Fortunately there was neither hedge, ditch, nor wall—nothing but a cornfield on either side. I expected every moment to part company with the sidecar, or turn turtle. After having my arms nearly wrenched out of their sockets I was unable to hold the machine any longer, and we took a swoop right through the corn, back to the road, and so to the bottom on the *pavé* in Châtelet, with a large crowd of the villagers watching our descent. I have no doubt they thought us mad for venturing down that track, for road it could not be called. I am certain that no mechanically-propelled vehicle had ever before been down that slope, which was coated with a fine black dust that appeared to be charcoal.

The *pavé* in Châtelet was in a frightful state, but seemed a dream of blissful ease after our last experience. Once well out of the village the roads improved, to our great delight and comfort, and were really good, the occasional patches of *pavé* not being worth considering. We travelled fast on this section, nearing Namur with our lamps alight, in the cool of the

Across France to Belgium and the Ardennes.—

evening, and thoroughly enjoying ourselves. At last there appeared before us in the distance a glowing, sparkling city, intersected by gliding stream and enchanting light: Namur at last, and thankful we were, as we had had quite enough for one day.

By way of digression, I would here say we had caused a ripple of laughter and looks of sheer astonishment in all the towns and villages through which we had passed, both in Northern France and in Belgium. Such a combination as a motor bicycle and sidecar had never been seen before. The whole population swarmed out of doors, leaned out of windows and shouted to their children; shuttered windows opened which had seldom allowed the light to pass their restricted portals; the coffee roasting by the roadside ceased, and all eyes were fixed upon the object of their curiosity.

View of Charleroi.

A glimpse of a road traversed.

The rocks at Dinant.

We stayed at Namur for the night, and spent a restful morning looking at the usual guide-book sights; then in the afternoon we made a delightful run through Fosse and Rosse to Dinant and back. The road from Rosse to Dinant is delightful—in fact all the roads in this district are first class.

The next morning saw us again at Dinant, which we made our centre for the day, motoring round to see the romantically situated castle of Montaigle, and returning to the Meuse valley we had a pretty drive towards Givet.

After a night's rest we made straight for Rochefort—as we intended to make this our headquarters for several days—along a beautifully wooded road, our only trouble being flies, thousands of which settled on our goggles, almost obscuring our sight.

The Grotte de Han, which is in this neighbourhood, was our next objective; it is considered to be one of the most wonderful sights in Europe, and certainly the vastness and majesty of this labyrinth of caves and passages, intersected by stream and lake, all in the bowels of Mother Earth, were awe inspiring, and a most delightful change after speeding over sun-scorched roads. The walk, which takes two hours, through the cool moist atmosphere, and then the row in enormous boats, or rather baby barges, by which means we made our exit, were most refreshing. (This was the only place at which we rubbed shoulders with the tourist element, our object being to keep off the ordinary track as much as possible.)

We made several runs from Rochefort, returning each evening to sleep. The one to Laroche was the best; the approaches to this little town, situated as it is at the conjunction of three valleys, are most beautiful. While on this run we had an amusing experience between Marche and Laroche. We were taking it easily uphill when a grey car with six passengers came up behind; we allowed it to pass, the occupants hanging over the sides, and looking over the back at the strange apparition. They evidently expected to see us fizzle out on the long hill, but we gave quiet chase, keeping up to the car, all on top gear, much to the amazement of its occupants and our amusement. On reaching the top of the hill the road makes a sudden descent into the town; down this the car tore at what I considered a reckless speed, stopped at a *café* and watched us enter the town, the inhabitants joining them. The sidecar was evidently quite a new thing, even to car owners in that part of the world.

Across France to Belgium and the Ardennes.—

They seemed very keen on finding out our nationality (although they might have known, for we were carrying a Teddy Bear holding a Union Jack as a mascot), and the make of the machine; "Belle machine" was the expression they used after they had made a thorough examination of it, and well it deserved their praise.

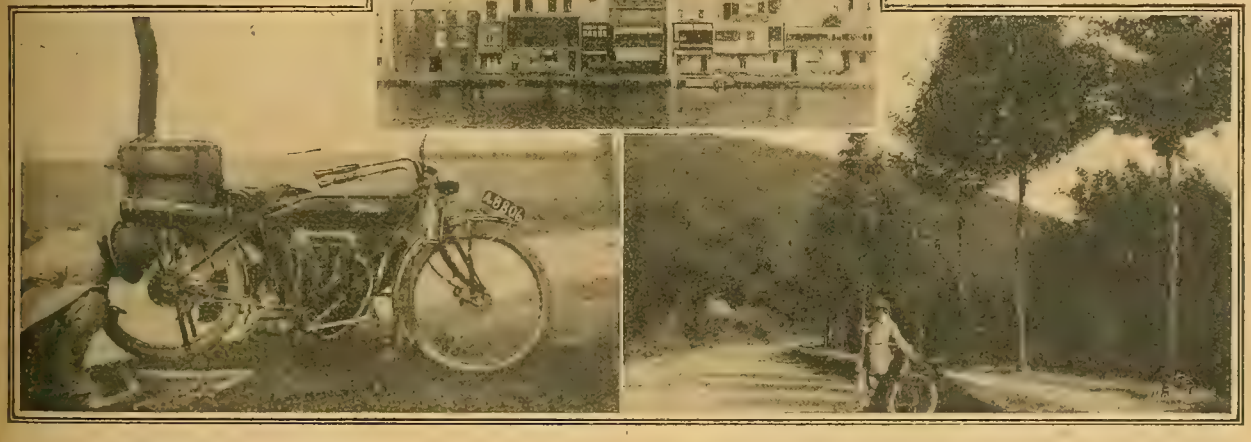
St. Hubert was next visited, and we then sped along a straight road lined with fir trees in the clear air and brilliant sunshine towards Baraque de Fraiture; here we turned to the left for Aywaille and returned through Bomal, Durbuy, and Marche.

Our next excursion was to Liège, and here, or rather at Ougrée, a suburb, our troubles commenced; our back cover blew off, and as the inner tube looked past repairing on the road we cut it out, and on inserting the new butt-ender found to our dismay it would not meet by an inch, although marked 28 by 2½.

After a final examination to see if it were possible to make it meet, and finding it would not do so, there was nothing for it but to pump it up and trust to luck; the inevitable happened, the end blew out. This was the last straw; here we were at Ougrée, four miles from Liège, in a roasting sun, with not a scrap of shade to be seen, a smelting works or blast furnace towering over us, workmen's dwellings all around, no garage, not a decent *café* in sight, as hungry as could be, and at our wits' end to know what to do. At last, to our joy, a good Samaritan hove in sight on a purring 2¼ h.p. F.N. He told us he was a doctor at Ougrée, and would get a cycle dealer to ride into Liège and see what he could do. Here "*L'Homme,*" etc., had his worst time during the trip; he declined to get out of the "basket," so I went with the doctor to the cycle shop. When I got back I found he had been compelled to remove himself, as he was nearly baked, and was reclining in a dry ditch surrounded by a crowd of dirty little boys, who were tantalising him by drinking some sort of liquid out of a bottle. The cycle dealer returned from Liège after a wait of about two hours, and said that the tubes could not be repaired that day, but that they would be ready by the next morning, so leaving the machine in his hands we trained it back to Rochefort. On returning the next morning we found the tubes repaired, inserted, and all ready for us, so getting into position we started, cheered by a huge crowd which had surrounded the machine. Our troubles, however, were not at an end, for, eight miles out of Liège, again that horrible report, followed by sundry squeaks and bumps, told the tale of another burst; we gaily put in the fresh tube, but after a few yards found this was down, leaking past the joint the repairer had made. Having made a vain attempt to patch it, we started to push, and after half an hour's hard work we arrived, footsore and weary, at the Hotel du Cercle, Sprimont, whose hospitable portals we were only too glad to enter. The first thing the next morning we wired to London for two new tubes, as we found our size was unobtainable either in Liège or Brussels. Moral: If you use odd size tyres, take plenty of spares with you, and see that they fit properly before you start. Here we spent a lazy time for six days, as the tubes did not turn up, although we had heard they had left London the same day as we wired. After repeated enquiries at the Post Office we discovered that they had been lying at the Customs. You may imagine our delight when, at last, we did get them, for leave of absence was drawing to a close, and we were anxious to get home.

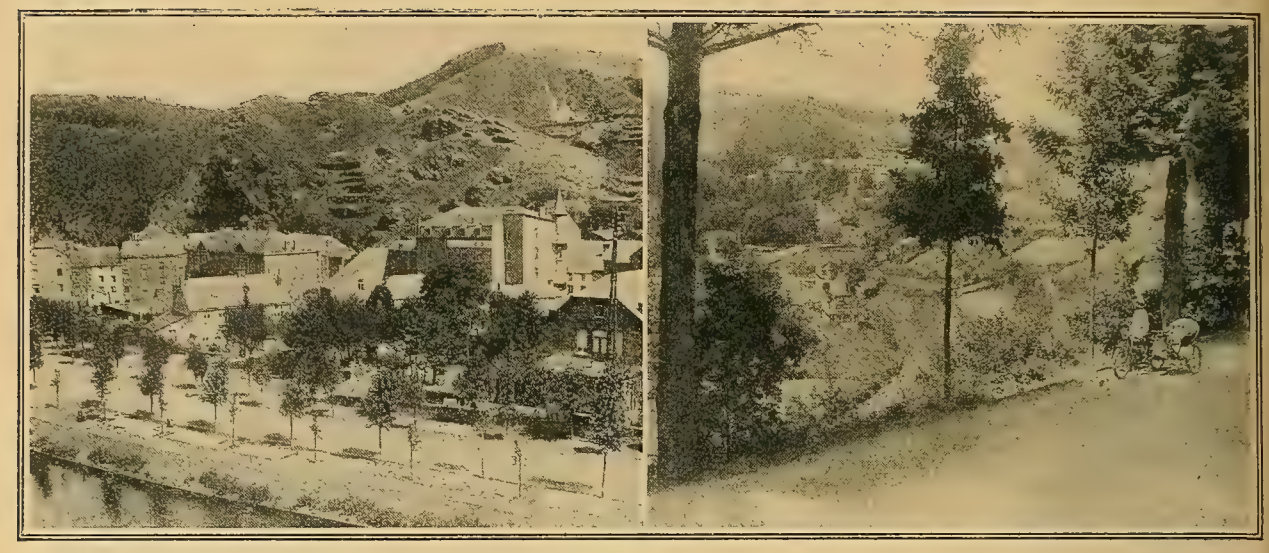
The new tube in, off we started as fast as our Indian would take us, away through Aywaille, Hamoir, Dinant, Givet, Rocroi, St. Quentin, Amiens, and Doullens, to Boulogne, only stopping to sleep when

Another view of Dinant.



A halt to replace spokes broken by rough pavement.

Near Rochefort and Laroche, Belgian Ardennes.



Laroche. Note the washing drying on the grass at the side of the road.

Near Laroche.

night closed on us. This route proved excellent, the roads good, and the scenery magnificent, especially in the French Ardennes. The high speed and the occasional bumps and jumps over *pavé* found out the weak spokes, which kept breaking. We got eight new ones of a thicker gauge put in at Montreuil, and these held up all right.

We arrived at Boulogne four hours before the boat left, having covered just under 1,000 miles. The engine was never touched the whole time, and gave no trouble of any sort. Once, on our homeward journey, it did not pull as well as it had been doing; this we found to be due to a bad sample of lubricating oil; on getting "Huile A.D." everything went well again.

Punctures—hobnail punctures, in spite of nail catchers—proved to be the only flies in our ointment of enjoyment. We went as "globe trotters," right off the beaten track, sleeping where we could, making bee-lines when able, taking things as we found them, eating the native food, drinking the native drink, and thoroughly enjoying ourselves; we saw more of that part of the Continent than an ordinary tourist could have done in six trips.

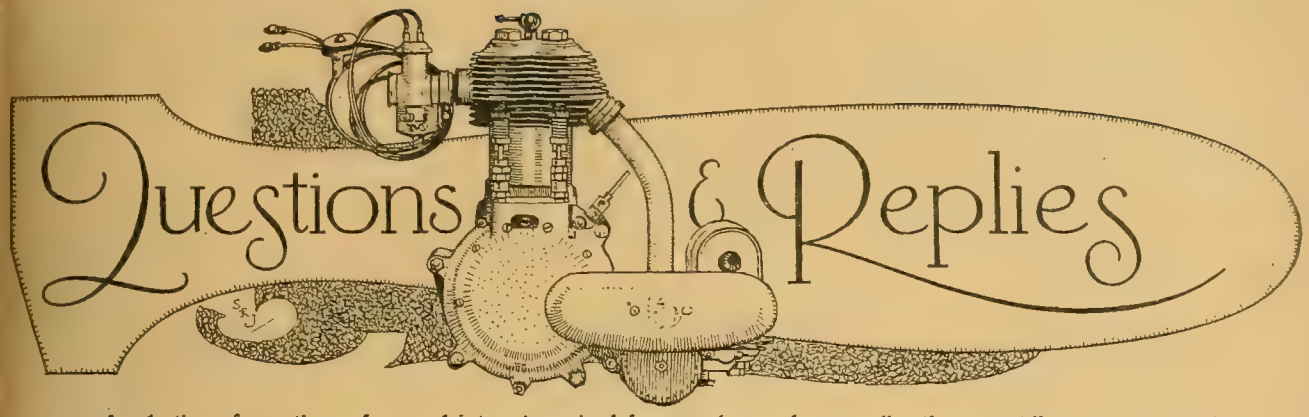
In conclusion let me say, do not be afraid of taking a trip of this sort because of a limited knowledge of French. We had not more than a hundred words between us, yet, with all our misfortunes, had no difficulty in getting all repairs done, and with very little loss of time.

The Question of Abnormal Gearing.

THERE have several times been suggestions going about that abnormally low gears should be abolished in competitions, because many imagine that such low ratios are not usually supplied to the public. This means that the wretched member of the public, who, desiring to get far away from the madding throng on his 2¾ h.p., which is so handy that it can pick its way anywhere, is hoplessly knocked out on one of the first pitches of one in four he comes to. It is all very well to argue that no sane man wants to go over roads like those that became a bone of contention in the Six Days Trials. Provided the scenery is fine and the road is negotiable, the desire to explore the beauty spot away from the beaten track and the dust of cars is exceedingly keen. The country doctor who is called out to visit some poor patient on a lonely moor must travel over roads quite as bad as those covered in the much debated trials, but is he to be denied what is termed a freak gear because it is going to enable him to reach his destination? The very idea is absurd. It is perfectly certain that the bottom gear of any motor vehicle should be an emergency gear, not a gear to drop into on every single figure gradient, but a device for use in abnormal circumstances.

What, then, is a freak gear? The term is an objectionable one which is unfortunately too often met with in motor cycle circles. Really there is no such thing. In penning these words I have in mind certain machines of well-known make but of moderate horse-power which were geared quite normally on top but very much the reverse on low, in Lakeland, so that they might climb any gradient. This big gap between the two ratios made the gears difficult to change, and consequently by no means commercial propositions when thus equipped. But were these "freak" gears? Emphatically no! But what was the matter? Certainly not the lowness of the low gear, but the size of the gap, if I may use the term between the two speeds. The real fault was something missing—the intermediate second speed, the absence of which no adjustable pulley can make up for. Some of the sidecar combinations had 16 to 1 bottom gears, but they had three speeds, and consequently no one can have any fault to find. To set a limit on gear ratios would be a retrograde step, and would hinder development, and I am inclined to believe that the two-speed gear will die, and the three, or even four, speed gear will come in just as it has done in the car industry.

AILETTE.



Questions & Replies

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Manufacture of Petrol.

Could you give me an outline of the method of manufacturing petrol from the raw spirit, and what is the waste matter from this process used for?—W.D.

Raw petrol is a thick treacly substance, which is distilled in the ordinary way. At the first distillation very volatile substances are extracted, which, however, are too light for use as motor spirit. At the third or fourth distillation ordinary petrol is extracted, and in the case of subsequent distillations a heavier grade of petrol is extracted. Gradually heavier and heavier oils are produced until we come to paraffins, which are not volatile at all at ordinary temperatures. The heavier oils can be used in Diesel engines.

A Carburetter Difficulty.

I have a 3½ h.p. Rex with B. and B. carburetter, which has run well up to a week ago. I have been running on very little gas, and the air lever wide open, for the past three months, when on going down a steep hill lately I shut off the air as usual and went down against compression, and on arriving at the bottom I opened the air, but the machine did not pick up as usual. I had therefore to open the throttle half-way, and the machine started up all right; but when I opened the air the engine refused to take it; consequently the engine runs very hot quickly, and seems to lose power. I use best petrol. The engine has not been taken down since the machine was bought. To coast down hill against compression I have to close the throttle, as the air lever will not perform that duty. I hope you will be able to explain the difficulty.—J.H.F.D.

We think the trouble is due to something being sucked up into the jet, which prevents the free passage of the petrol, so causing the mixture to be too weak. It is also possible that the air slide has stuck. To gain the use of compression as a brake, you should nearly close the throttle and open air wide. Clean out your carburetter thoroughly with petrol, and see the jet is perfectly free. The trouble should then cease.

Big Power for a Novice.

I recently purchased an 8 h.p. Matchless and sidecar, and, having learnt to drive it with the sidecar attached, I am ambitious of trying to ride solo. However, as several of my motor cycling friends say that it is impossible for a novice to ride so high-powered a machine, I write to you asking if this is correct. The danger they say is, if the machine gets off the balance it is impossible to regain equilibrium as the weight is too great. I do not quite understand this, and should be glad for any hints or advice you may care to send me on the matter.—W.B.H.

The machine you mention is primarily designed for sidecar work, and you might not find it a very comfortable solo mount for a novice. However, there is absolutely no reason why it should not be ridden solo, but you must remember that it is a very powerful machine and requires fairly skilful handling, and until you are absolutely satisfied that you are capable of taking any powered machine solo we do not advise you to experiment in this direction, but to stick to your sidecar, for which the machine in question is highly suitable.

A Touring Query.

I should be obliged if you could let me know the best motor cycle route from Wellington (Salop) to Weymouth, and also information with regard to cost, etc., of the A.A. and M.U.—J.A.J.

Your best route would be as follows: Wellington, Bridgnorth, Kidderminster, Worcester, Tewkesbury, Gloucester, Stroud, Nailsworth, Bath, Radstock, Shepton Mallet, Castle Cary, Yeovil, Dorchester, Weymouth. The A.A. and M.U. motor cycle subscription is 10s. 6d., further particulars of membership can be obtained from the Secretary, Fanum House, Whitcomb Street, W.

Military motor cyclists who are taking part in the Belgian Army manœuvres.

A Long Day's Run.

Will you kindly give me particulars of the best route to Scarborough from Farnborough, missing towns as far as possible, and also the distance, and whether it could be done in a day with a 3½ h.p. three-speed Rover and sidecar?—W.H.B.

Your best route would be as follows: Farnborough, Bagshot, Windsor, Slough, Beaconsfield, Amersham, Chesham, Tring, Dunstable, Ampthill, Bedford, Eaton Socon, Stilton, Stamford, Grantham, Newark, Tuxford, Retford, Bawtry, Thorn, Howden, Market Weighton, Great Driffield, to Scarborough. The distance is approximately 254 miles. The journey is rather far to be accomplished in a day with a 3½ h.p. and sidecar unless a very early start is made.

Ignition Difficulties on Horizontal Twin.

What is the h.p. of my Fairy horizontal twin engine? I am told it is about 1¾ h.p. As the bore and stroke are 59 mm. × 57 mm. is this about correct? I am firing the engine by means of a single-cylinder magneto running at engine speed. This will give one spark for every revolution of the engine, and as the engine fires once every revolution this is correct. By means of a rocking distributer the current is guided to the proper plug. This distributer is very unsightly, and quite spoils the appearance of the engine. What I want to know is, if it is possible to fire both plugs simultaneously in each cylinder by attaching the high-tension wires direct from the magneto to the two plugs? If this is possible one spark will take place on compression, the other on top of the exhaust stroke. When retarding the spark will there be much risk of the carburetter catching fire, as when retarded the spark will occur a little way down the induction stroke on one cylinder?—E.C.H.

The rating given you, viz., 1¾ h.p., is the rating given by the makers at the time. It is possible that it develops more power. With regard to your ignition difficulties, we strongly advise you to stick to the distributer, even though it is rather unsightly; this, after all, is a minor defect, provided it works well. There is no fundamental difficulty in working both plugs from the single magneto, but as an electric current invariably follows the path of least resistance, unless the plug points are equally adjusted, it will only fire on the one with the smaller gap. If you utilised a double-pole plug it would probably get over the trouble, but we should not like to give you any definite assurance on this point, and must leave you to make the experiment yourself. With regard to the carburetter catching fire from the idle spark, there is a possible risk of this occurring, but as the gas is not under compression the risk is slight.

Starting Difficulties.

I have just purchased a Moto-Rêve twin lightweight and think the timing of engine is somewhat at fault. Could you give me some advice on the following points? (1.) When the exhaust valves should begin to open. (2.) The timing of magneto is fixed; what do you consider the best position to set it for all-round running? (3.) The most suitable gear; it has been running 7 to 1, but engine seems to overheat. (4.) It is easy to start on the stand, but most difficult to start on the road. I am using Amac carburetter, twenty-four jet. Can this be got over? Compression is very high. I should be greatly obliged for a little advice.—H.N.T.

(1.) Your exhaust valve should begin to open when the piston is on the downward stroke about six-sevenths of its travel. (2.) The contact points should be just about to separate, when the piston is at the highest point of its stroke. (3.) About 6 to 1 should be a suitable gear. (4.) It is quite impossible to advise you how to adjust the carburetter, as this is a matter which can only be done when one sees the machine. The jet you are using is about the right size. Shut off all air when you start, and open the throttle about one-third. This should give the best position.

Buying an old Machine.

I should be greatly obliged if you would advise me on the following: (1.) Could I get a second-hand lightweight, say 2½ h.p., to be of any use for £10 or £12? Would such a machine be often out of order if treated carefully? (2.) Could such a machine be run on, say, 5s. a week if only used for pottering about for about fifty miles a week?—E.R.B.

You might possibly pick up a decent machine for this money, but you must not expect anything in first-class order; or, if in good order, it would not be up-to-date. It is possible that you might get a good deal of fun out of such a bargain. This is largely a matter of luck. If in good order you should be able to run the machine fifty miles a week for less than 5s.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"H.G.J." (Cardiff).—1912 Clyno and sidecar. Reliability of gear.

"H.L." (Newport, Mon.).—Dissolved acetylene lighting for cycle car.

"X.X.X." (Runcorn). — Scott. Reliability, petrol and oil consumption.

"J.S.C. (Sutton Coldfield). —1913 Triumph T.T. Roadster. Speed, petrol consumption, and size of jet.

"G.S.M." (London). — Four-cylinder F.N. Also suitable two-lever carburetter.

"G.D." (London).—2½ h.p. F.N. shaft drive, two-speed, plate clutch, 1912 or 1913 model. Power, reliability, wear, and economy.

"A.I.B." (Glasgow).—3½ h.p. three-speed New Hudson. Reliability, hill-climbing, and consumption.

"J.K." (Llanelly).—5 h.p. F.N. 1913 two-speed. Carburation, lubrication, clutch and gear, power on hills for sidecar work, and reliability.

"C.T." (Wanstead).—Scott. Flexibility, lubrication, hill-climbing, and general reliability.

"B.W.W." (Hendon).—3½ h.p. Indian two-speed. Reliability, hill-climbing, consumption, and ease of starting with benzole.

"W.R." (Kerry).—1913 two-stroke Connaught and Levis' machines. Reliability, speed, hill-climbing, and consumption.

"J.N.B." (Lawford).—Lukin and other automatic carburetters with 8 h.p. three-speed cycle car or sidecar. Easy starting, speed, hill-climbing, and lubrication.

"G.H.I." (Cornwall).—Best two or three-speed machine and weatherproof sidecar. Hilly district. Speed, silence, and accessibility. Comfort of pan-shaped saddles.

The sender of the above photograph, which was taken in Finland (Mr. J. O. Williams, who is seen on the finger), draws attention to the path through the open forest to the "Garage," which he refers to as "The Toiler's Rest." The other machines are a 3½ h.p. two-speed Humber and sidecar and a four cylinder F.N.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Benzole.

Sir,—I have recently been given the following facts by a friend with regard to the use of this spirit. His machine is a 3½ h.p. Zenith-Gradua (1910), and has done a large mileage.

He asserts that he filled up his tank, which was empty, with one gallon of benzole at Abergele, from which town he rode to Stoke *via* Chester and Stafford, a distance of 97 miles, in three hours and a quarter, and on examining his tank at a garage there he found only just one quarter of the gallon had gone. He called the attention of the proprietor, who confirms his statement.

I have tried to explain that a consumption of nearly 400 miles to the gallon at an average speed of thirty miles per hour on a 3½ h.p. machine is impossible, but he can only reassert the facts, of which he is confident.

Can any of your readers tell me if there is any chance of such figures being correct? NESH.

Fair Treatment.

Sir,—You from time to time publish letters from correspondents under the above heading. Being on the staff of one of the largest motor firms in the country, I should like to express my views from the firm's standpoint.

The delays and unbusinesslike attention complained of are, as a rule, the fault of the customer, or largely contributed to by him. As often as not his goods or telegraph money order will come in without any name, or at times the goods bear another name, *i.e.*, the name of the agent or garage that has not been mentioned in any correspondence. Such stupidity invariably causes much delay, and matters of this kind are only cleared up with great difficulty after imposing a lot of extra work on the clerical staff in the height of the season. In many cases such transactions are altogether unprofitable to the firm, as any profit there might be on the transaction is absorbed by the cost of the time taken up by members of the staff. ONE INSIDE.

Sir,—I have read all the correspondence in your journal *re* the above, and would like to relate my experience.

I purchased a well-known make of lightweight late last year, and after having it nearly three months, the frame broke below the steering head, through the joint being badly brazed. I at once saw the makers' local agents, who cabled home at my expense, and they, not knowing the price of a frame, made the following terms: 10% on landed cost. When the frame arrived I received an account for £10 10s. In the meantime I had written to the makers explaining everything and pointed out to them that an allowance should be made on the new frame, seeing it broke within the guarantee period, *i.e.*, three months. The makers replied saying that I must return the broken frame, and, if they found the frame broken through no fault of my own, they would make an allowance.

Being very inconvenient for me to return the frame, living in such an out-of-way place, I asked them if they could not let me have the frame at cost price, which I was willing to pay. They then wrote and said they could not let me know the cost price. Therefore I have had to pay the £10 10s. for the new frame.

I am afraid I have not been quite so fortunate as some of your readers, and it seems a shame that we Colonials are treated so badly. The same thing applies to spares, etc.: we are charged on many articles something like 300% above home retail prices.

I always look forward to your journal every week, and wish it every success G. A. MAUCH.

Bloemfontein

Factory Repairs and Agency Tinkerings.

Sir,—Having come across a copy of your healthy paper, *The Motor Cycle*, I was much interested in the comments of your correspondents on "Fair Treatment." It is pleasing to note that there are some firms who are ready to acknowledge their responsibility to motor cyclists.

My own experience has been that motor cyclists seem to be lacking in the necessary backbone which would enable them to obtain recompense for a breakdown clearly due to faulty workmanship. To illustrate what I mean, allow me to give the history of a case which came under my own personal observation. As an engineer, with no interest in motor cycles, I was called upon to give a report on a breakdown on a twin motor cycle.

The owner of the cycle had occasion to go to a Midland firm to have a new crank pin made. Owing to making this crank pin smaller than the original one it was necessary to make two new bearings for the big ends of the connecting rods. One of these bearings was a fair fit, the other was very much too large, with the result that this play broke the gudgeon pin adrift, smashing up the piston and cylinder, besides damaging the connecting rod.

Here was a clear case of "disgraceful workmanship," and, as I understand, the so-called "motor engineer" repudiated all responsibility because the breakdown did not occur until some months after the repair had been made, and in spite of the owner being able to prove to him that the machine had never been used owing to his absence, that the breakdown took place within twelve miles of the start, and that the tool marks could still be seen on the large bearing.

Is there not an association who look after the interests of motor cyclists? for I am convinced as long as motor owners will allow themselves to be fleeced by outrageous charges for (very often, I fear) faulty repairs, so long will they get the results obtainable from those professing to be engineers, although lacking in an elementary mechanical experience.

It is pleasing to record that the motor cyclist in this particular case has at last been prevailed upon, after a good deal of trouble, to bring this matter into court. It is to be hoped that others will follow his example.

I trust some of your correspondents will take the matter up with the object of obtaining a better service for motor cyclists. TURNER.

An Auto-Wheel attachment fixed to a tricycle the property of Mr. W. E. Allison of Withernsea.

Beverley and Leamington—Warnings.

Sir,—At Beverley, on Saturday, the 6th inst., I was fined, along with about six others, 10s. and 4s. costs for riding with my cut-out open.

The exhaust passes through the silencer before reaching the cut-out, and by the wording of the Act this is permissible, as long as little noise is being made. The road was perfectly level at the point where I was stopped. I was travelling at about 15 m.p.h., and there was no wind, so that you can imagine that I was making little noise.

I should be glad if you would warn your readers against making any noise in this district as the police are most keen.

C. H. FELL.

Sir,—I wish to warn all motor cyclists who live near or have to pass through Leamington to be careful to take corners on the right side of the road and not to go faster than a crawl, as, if they do, a summons will be the result. Recently there was a police trap working in the Kenilworth-Lillington Road, and, as a result of same, a batch of motor cyclists were hauled up for various offences, the fines ranging from over £6 down to a few shillings. I do not write this letter because I was one of the unfortunates, but, as I have said before, to give warning to others. For turning a corner on the wrong side (in my opinion to avoid an accident) I was fined £1 11s. inclusive, to say nothing of an endorsed licence. This was called "driving to the common danger," and my speed was so slow that I conked out, and no one was touched or even within yards of me. I might also mention that one is not intimated that proceedings will be taken until a few days afterwards when the incident is forgotten. Hence you have no witnesses. So motor cyclists in Leafy Leamington, beware!

AD SUM.

The A.C.U. Six Days Trials Course.

Sir,—Having read Mr. R. C. Measure's letter, with reference to the A.C.U. Six Days Trials in your issue of the 4th inst., might I be allowed a small space in your valuable journal to draw attention to the following facts:

No one likes to feel that he has been "done." To be told officially that one is expected to do one thing, and then, when one gets on the course, to find one has to do something else very much harder and for which one is not prepared, is by no means "sportsmanlike."

Why could not the A.C.U. have told us (like the Scottish officials did) that the roads were abnormal and that water-splashes over a foot deep had to be taken in non-stop sections?

I am perfectly aware of the fact that the A.C.U. afterwards took no notice of failures on one or two portions of the course. Here again I should like to point out that, never knowing quite how one stands throughout the trial is an unsatisfactory state of affairs—in my own humble opinion, at all events.

I am always perfectly willing to enter for any really sporting trial provided I have the time (I always have the inclination), but for goodness sake let the organisers tell us beforehand what we are expected to do.

A. W. BRITTAIN.

[With regard to watersplashes, Mr. Loughborough, secretary of the A.C.U., stated in his letter published in our issue of Sept. 4th that the deepest had eight inches of water running over it on the day in question.—ED.]

Hub and Counter-shaft Gears.

Sir,—With reference to the disputes in your columns about hub gears, may I be allowed to give my experiences. Last Christmas I had my 3½ h.p. single-cylinder machine fitted with a three-speed and free engine hub of one of the best makers for sidecar work. My average mileage is 1,000 per month, and I drive pretty hard, but I cannot say the gear has given me satisfaction.

Taking the points of criticism mentioned by Mr. Paskell (issue September 4th):

1. Unreliability. I once had to ride threequarters of the way from London to Oxford on second gear when in a hurry; and have repeatedly had trouble through the gears not "dropping" properly, though this is not due to wrong adjustment or insufficient oil.

2. Slowing the back wheel. I admit I have not noticed this appreciably, but I do know that since the fitting my bicycle skids (solo) more than previously,—especially in such greasy places as Manchester.

3. Difficulty in removing back wheel. Perhaps it does "only" take five minutes more to remove a three-speed wheel than an ordinary wheel. But an amateur can, I think, remove an ordinary back wheel in three minutes, whereas eight minutes is very different.

Reliability is essential to any mount of mine, as I am an Oxford undergraduate, and therefore have to be in by midnight. And it is not nice giving an account of oneself if one is late after hurrying back from Town!

My next machine will be either a cycle car for comfort, or a single-cylinder T.T. machine with no gears and no clutch. I find that driving with three gears (solo) makes one forget to obtain the "best" out of the machine; of that I am sure. This naturally spoils the engine. A 3½ h.p. single will climb any ordinary hill if driven properly.

"ERIC BRONSGRAVE."

Sir,—I was much interested in Mr. Ll. K. Jones's letter in your issue of September 4th with reference to hub gears. I purchased a 3½ h.p. three-speed Triumph six months ago, and since then have covered 5,000 miles, both solo and with a sidecar. During that time I have only adjusted the gears once and I have never had one moment's trouble. The clutch has never slipped, and the gears, which change noiselessly, always act effectively. My last journey was from Reading to Edinburgh and back, and on some of those short but steep hills round about Durham I found the Sturmey-Archer three-speed gear invaluable.

D. W. HENDERSON.

Sir,—I have been very interested and amused at some of the letters that have appeared recently in *The Motor Cycle* concerning hub and counter-shaft gears and transmission. For the past ten years I have been a strong advocate for plenty of power, belt drive of ample strength, single gear or hub speed gear both for solo and passenger work.

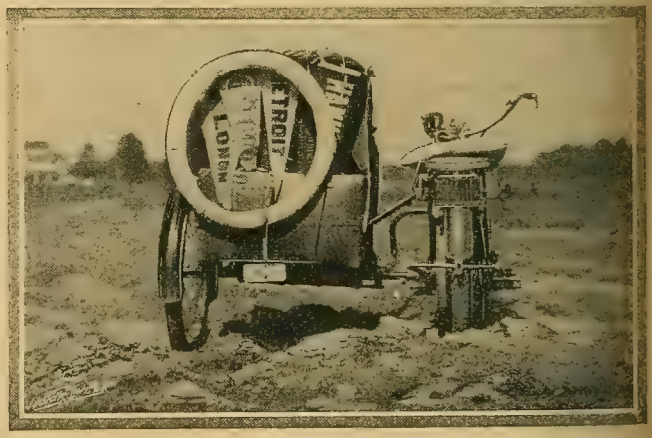
I have never had any serious trouble of any description. My present mount, a Regal-Green, fitted with large hub gear, to which is coupled a coachbuilt sidecar, with hood and screen often in use, gives the utmost satisfaction, and the drive is perfect. I should like to take this opportunity of congratulating the manufacturers of the Sturmey-Archer gear and the makers of the Pedley belt for producing such really good things.

The Green-Precision is an engine you can "set" at any speed you wish for hours on end, and I find both the above stand up to the heavy work exceedingly well.

I put the success I have had from the machine in general down to the fact that I told the makers what I required the machine to do before purchasing.

I have no connection with any of these firms except that I am a very satisfied client.

D. CHURCHILL WEIR.



A Triumph motor cycle and sidecar which was used for a thousand miles tour in Canada and U.S.A. Our photograph shows the description of road found between Detroit and Toledo. The sidecar is a Millford, and the combination came through without trouble, despite the bad roads and the quantity of luggage carried.

Sir,—I have noticed that a large amount of correspondence has taken place in your columns with regard to the respective merits of hub and counter-shaft gears.

I have long held the opinion, based on over twenty-five years' practical experience as an engineer, that the hub gear was preferable in every way. I have tested many forms, all with good results, and shall be glad if you will allow me space in which to say that for practical experience I have found the Rex adaptation of the Roc gear to give the best results in practice. On my 1912 Rex de Luxe I travelled 10,713 miles, and before parting with the machine, made an examination of the gear. I found that on the low gear there had been a slight wear, on the band brake only, which had resulted in the brake being tightened, only three turns of the adjusting nut. The teeth on the epicyclic showed no trace of wear beyond a slight polishing of the working faces. On the high gear side there was not the slightest trace of wear, and throughout the year's run no adjustment beyond that provided by the makers of the machine had been necessary. On my 1913 Rex Sidette, which has travelled, to date, a distance of 5,328 miles, no adjustment beyond an occasional tightening of the high gear adjusting screw has been necessary.

Perhaps I may be permitted space to add that in my opinion there is no gear at present on the market which is so suitable for the amateur driver as that fitted on the 1913 Rex machines. The high gear clutch does not slip, no matter how heavy the load or how steep the gradient, whilst the low gear permits one to crawl at the slowest possible pace through the thickest traffic without it being necessary at any time to stop the engine. I have no interest in the Rex motor cycle beyond that of a satisfied driver.

G. BASIL BARHAM, A.M.I.E.E.

Sir,—Having read the correspondence in your columns *re* gears, may I be allowed to give you my experience of a hub gear? The gear in question is a H. and B. (Hingston and Brown) marketed by the Service Company. I bought the gear at Whitsun, and within one hour of delivery it was running on the road, it fitting my 8 h.p. fixed gear Matchless without any trouble whatever; since then I have travelled over 4,000 miles, nearly always with my wife and two grown children (and always with sidecar and one passenger), and have had the happiest results from it, not having had the slightest trouble whatever with the gear. The internal working parts are simplicity itself, the wheel can be removed within three minutes of an ordinary driving wheel, it is pedal starting, the drive from standstill being as smooth as you could possibly imagine, and the change over from low to high being made without any fuss or shock. I suppose I must add the usual disclaimer. T. G. KIRBY.

What is a Freak Gear?

Sir,—For some time now an endeavour has been made to discourage the use of what the agitators have been pleased to designate "freak gears." I wish to protest against this, as, if persisted in, the policy may influence the development of motor cycles adversely, and I am particularly gratified to note that the judges' report of the A.C.U. trial makes reference to the subject.

All motor cycles, more especially sidecar machines, in addition to being able to surmount all hills on main and secondary roads, for which two speeds having a ratio of 1 to 1.5 suffice, require a third gear to fulfil two important functions—one to enable hills of 1 in 8 to 1 in 4 to be climbed and hills less steep, which for some reason or other cannot be taken fast enough to allow of the middle gear being used; and two, to allow of restarting on gradients as steep as 1 in 7.

To avoid the expense of a three-speed gear, some manufacturers provide two speeds having a ratio of 1 to 2, judging this to be sufficient for all purposes. My experience of this combination shows that if the top gear is correctly selected the second speed will not allow of gradients greater than 1 in 7 to be surmounted under adverse conditions, and 1 in 6 under favourable circumstances is the limit. As far as starting on a gradient is concerned, 1 in 10 is the steepest unless the clutch is capable of being slipped abnormally. Of course, if the machine be under-geared on top the climbing of steeper gradients may be made impossible, but the machine thus geared is unsuitable for ordinary work.

Proceeding to a consideration of three-speed gears, the average ratios adopted are 1, 1.5, and 2.25. In view of what I have stated above the range of usefulness of such a combination is but little greater than that of the two-speed gear with 100% drop on low gear. The intermediate speed is certainly an advantage, and, generally speaking, is low enough for most hills on secondary roads. When, however, the hills for which the middle gear is too high come to be considered, it will be found that 80% of them are too steep for the bottom gear. This is the point which so many makers lose sight of, but which is so important. A satisfactory three-speed gear for sidecar work should have ratios of 1, 1.6, and 3. Gear ratios of the order stated are, I maintain, neither freak nor abnormal, but absolutely necessary, and will be standard on all first-class sidecar machines in the near future.

I apologise for the length of this letter, but feel that the importance of the subject demands attention, and I think the opinions of experienced riders on this question would be of general interest. I am not connected with the trade in any way. H. M. STICH.

Consideration.

Sir,—Please allow us space to say a few words to "AA 1160" in reply to his letter in your last issue. We are the proud owners of the red stocking caps and tam o' shanters mentioned, and strongly resent any criticisms and insults by being publicly referred to by your correspondent. We do not wish to speak so much of the "noisy horde" mentioned, although it sounds very bad; it was but an ordinary hill-climb. We wish to refer to the sporting instinct of this "sufferer."

How can it be! If a true adherent to the cause he should have been too busy examining the machines and rejoicing in the sound of a healthy exhaust rather than full of abuse at the idea of people enjoying themselves. We cannot believe he is a sportsman, or he would not turn to ridicule and abuse the headgear we choose to wear. If an unhealthy mackintosh or leather cap, why not a red stocking cap or tam o' shanter, which lends a picturesque touch to such a sight as a dozen dusty, oil-stained motorists all in mackintosh overalls?

We are indeed sorry we did not meet with his approval, but we had no idea that there were such "killjoys" about.

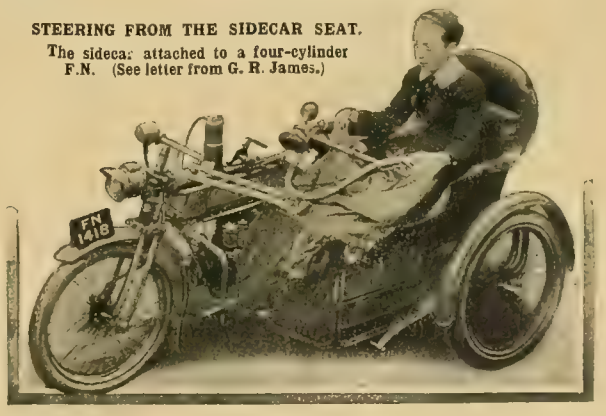
While on the subject of exhausts, we should like to mention that the police here are extremely active, and warn any intending visitors, especially the long exhaust pipe brigade.

There were about sixty people at tea in the "quiet village" inn, where we know we were welcome.

H. J. BLEACH.
E. CORBETT.
W. R. FLEETWOOD.
D. ASH.
(Portsmouth and District Motor Club.)

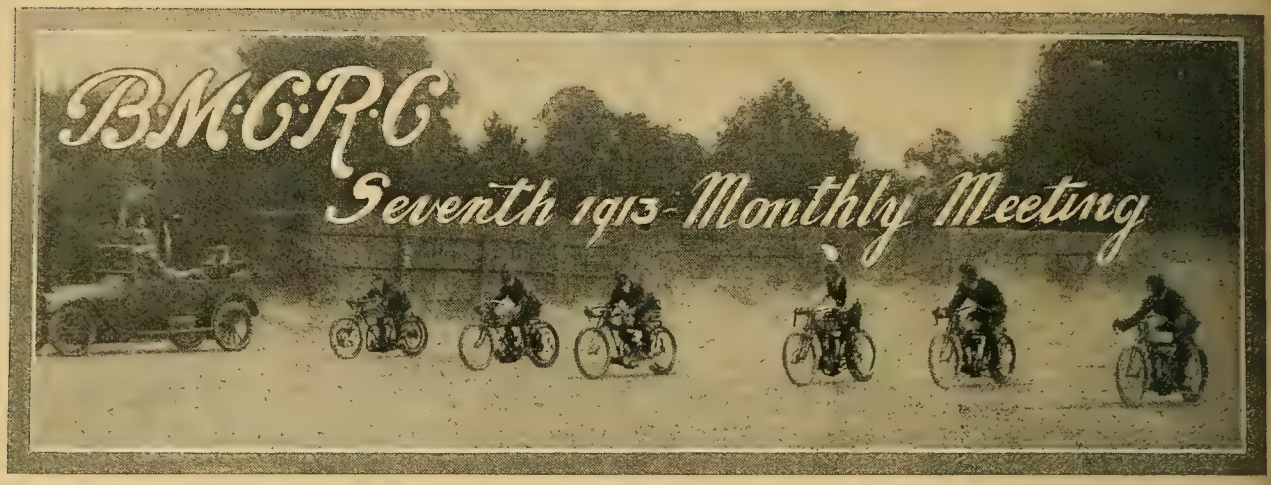
Driving from the Sidecar.

Sir,—In reference to Mr. F. Trafford's letter in *The Motor Cycle* of September 4th, I think that perhaps the enclosed photographs would interest you and others. I find this attachment very satisfactory, and it certainly meets a long-



STEERING FROM THE SIDECAR SEAT.
The sidecar attached to a four-cylinder F.N. (See letter from G. R. James.)

felt want. The device can be attached or detached in less than one minute, and no alteration is necessary in the controls or any other part of the mechanism. I have applied for a patent. G. R. JAMES.



Nearing the starting line in the 500 c.c. sprint race. G. E. Stanley ultimately proved to be the winner on his 3½ h.p. Singer.

THE B.M.C.R.C. was favoured with glorious weather for its September meeting, though a strong south-westerly wind was blowing against the competitors down the railway straight. The time trials, which formed the first event in the programme, were begun at 11.30 a.m. The competitors were started at the fork by Mr. A. V. Ebblewhite and were timed electrically over the measured kilometre and mile in the railway straight by Major Lloyd. The results were as follows:

Kilometre and Mile Speed Trials.

CLASS B.

	Times. Kilo. secs.	Mile. secs.	m.p.h.
1. G. E. Stanley (1-cyl. Singer, 349 c.c.)	34.8	56.6	63.60
2. J. P. le Grand (1 Singer, 348) ...	39	63.0	57.14
3. S. E. Elwell (2 Douglas, 350) ...	40.8	66.4	54.22

CLASS C.

1. G. E. Stanley (1-cyl. Singer, 499 c.c.)	31.2	51.6	69.77
2. L. Hill (1 Rudge, 499)	32.6	53.2	67.67
3. D. R. O'Donovan (1 Norton, 490) ...	33.2	53.8	66.91
4. F. W. Carryer (1 Imperial, 493) ...	36	58.8	61.22

CLASS D.

1. W. G. Howard (2-cyl Matchless, 744 c.c.)	32.2	52.6	68.44

CLASS E.

1. E. C. E. Baragwanath (2-cyl. Matchless, 986 c.c.)	29	46.8	76.92
2. E. Remington (2 Matchless, 986) ...	30	49	75.47
3. S. George (2 Indian, 994)	30.4	49.2	73.17
4. W. G. Howard (2 Matchless, 986) ...	33	52.4	68.70
5. O. M. Baldwin (2 Matchless, 986) ...	32.6	52.6	68.44

CLASS C.—Sidecars.

1. K. Holden (1-cyl. B.S.A., 499 c.c.) ...	43.6	69.6	51.72
2. J. Cocker (1 Singer, 499)	43.8	70.0	51.43
3. S. F. Garrett (1 Zenith-Green-Precision, 499)	45.8	73.2	49.18
H. C. Mills (1 Zenith-Green-Precision, 499)	52.8	84.6	42.55

CLASS D.—Sidecars.

1. E. B. Ware (2-cyl. Zenith, 748 c.c.)	48.2	70.0	51.43
2. F. W. Barnes (2 Zenith, 748) ...	37	70.6	50.99
3. G. T. Gray (1 Rudge, 750)	47.8	77.0	46.75

CLASS E.—Sidecars.

F. W. Barnes (2-cyl. Zenith, 986 c.c.)	37.0	60.0	60.0

CYCLE CARS.

1. B. H. Haywood (4-cyl. Singer, 1,096 c.c.)	31.18	50.87	71.18
2. G. W. Hands (4 Calthorpe, 1,088) ...	35.4	56.2	64.06
3. C. F. Halsall (4 Wilton, 1,072) ...	41	67.2	53.57

Haywood's wonderful performance resulted in his handsomely beating his own record which he accomplished on 17th May last, when he covered the flying kilometre in 33.64s. (66.50 m.p.h.) and the mile in 54.67s. (65.85 m.p.h.). In attempting record all the competitors had to keep outside the fifty foot line, as the timing tapes did not exceed this width. Some of the sidecar racing bodies were weird and wonderful contraptions, notably Ware's, which was labelled the "Earwig," and was built absolutely to fit the passenger. Cocker's sidecar chassis was fitted with vertical enclosed springs.

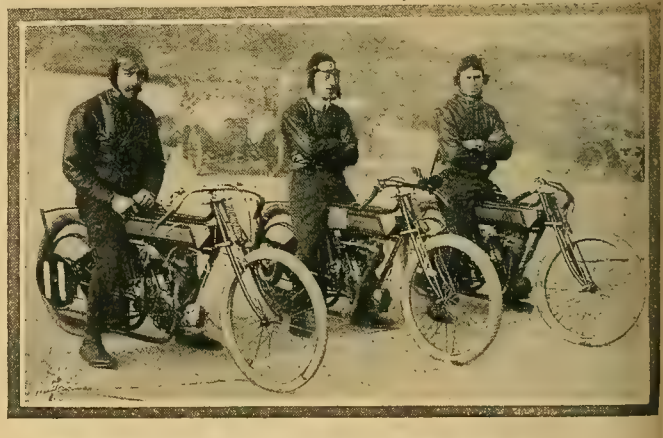
One Lap Sprint Races.

Events 2, 3, and 4 were one lap sprint races, which were run in the following manner. The competitors started about a quarter of a mile from the starting point, accompanied by the official car, driven by Major Lloyd and carrying Mr. Ebblewhite the starter. Near the timekeeper's box they formed into line, and at the dropping of the flag sprinted ahead. On two occasions we watched the start, through the courtesy of Major Lloyd, from the car, and very impressive it was.

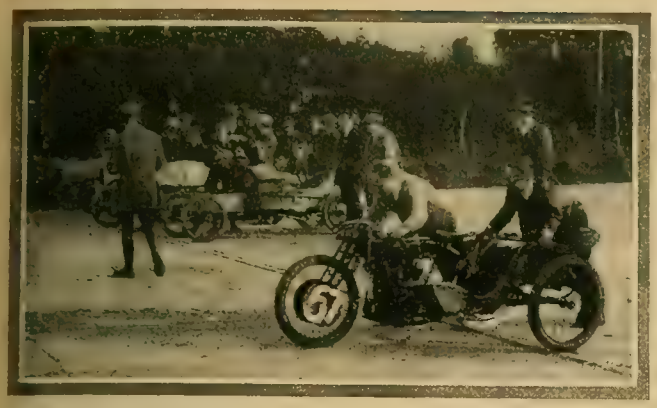
Event 2, for Classes A and B, resulted in an easy win for Stanley.

	m. s.
1. G. E. Stanley (1-cyl. Singer, 349 c.c.)	2 41
2. V. Busby (1 Sunbeam, 346)	2 48⅕
3. W. A. Jacobs (1 Singer, 348)	2 48⅖
4. J. P. Le Grand (1 Singer, 348).	
5. H. Greaves (2 Enfield, 350).	
6. E. E. Elwell (2 Douglas, 350).	
7. H. V. Colver (2 Enfield, 350).	
8. A. Holzapfel (1 Regal-Green-Precision, 347).	
9. D. Iron (2 Enfield, 350).	

The winner's speed was 60.77 m.p.h.



The winning Enfield team in the Senior One Hour Team Race. From left to right the riders are H. V. Colver, H. Greaves, and D. Iron.



Start of the ten miles record race, showing G. Griffith (8 h.p. Zenith sidecar) in the foreground, and the cycle cars in the background.

Event 3 was for Class C up to 500 c.c.

Holden was first away, but O'Donovan hung back, though, curiously enough, these two finished second in a dead-heat. Result :

		m.	s.
1.	G. E. Stanley (1-cyl. Singer, 499 c.c.)	2	42⅖
2.	D. R. O'Donovan (1 Norton, 490)	2	33
2.	K. Holden (1 B.S.A., 499)	2	33
4.	R. B. Ewens (1 Rudge, 499).		
5.	F. W. Carryer (1 Imperial, 493).		
6.	W. D. Hawkes (1 Ixion-Precision, 499).		
7.	C. G. Pullin (1 Rudge, 499).		

The winner's speed was 67.75 m.p.h.

O'Donovan and Holden settled their dead heat near the close of the meeting in a separate match, which resulted in a close race and a win for the former.

Event 4 was for Classes D and E. Wallace (Grandex) was in trouble at the start, and had difficulty in getting away. This moved Major Lloyd to compassion, so he went back to the fork and brought seven sturdy men to act as starters. The B.A.R.C. Sizaire had therefore to return with ten up. At the finish Hoare (C and H. Jap) cut right across the bank in front of those following him and drew close into the barrier before one realised that his front tyre had come off and that he had cleverly recovered himself. Result :

		m.	s.
1.	C. B. Franklin (2-cyl. Indian, 994 c.c.)	2	16
2.	E. Remington (2 Matchless, 986)	2	18
3.	O. M. Baldwin (2 Matchless, 986)	2	26
4.	W. H. Howard (2 Matchless, 986).		

Winner's speed, 71.94 m.p.h.

Senior One Hour Team Race.

Event 5 was the Senior One Hour Team Race, open to teams of three motor cycles of any one make, not exceeding 1,000 c.c. ; the winning team was to be the one riding the greatest aggregate distance in the hour.

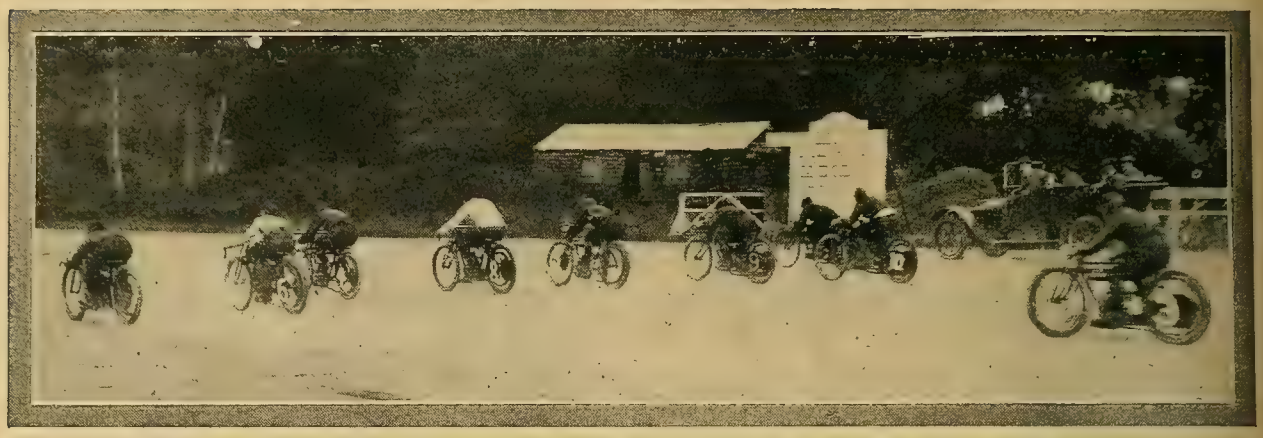
This race was chiefly noteworthy for the consistent riding of Franklin, who led throughout, and kept up a splendid average, and also the reliability of the Enfields, the smallest machines entered, which made their best performance of the season in this event. Of the Indians, Hill was soon out of the running owing to the pulling out of a chain bolt. Manners-Smith had trouble early, got going again, and started later, but retired after completing seven laps. Hill (Rudge) and the other Rudge riders stopped several times to change their belts. Franklin shed his exhaust pipe in his nineteenth lap, and Greaves lost a footrest in his seventeenth lap. The result was as follows :

		mls.	yds.
1.	H. Greaves (2-cyl. Enfield, 350 c.c.)	55	1,579
	D. Ison (2 Enfield, 350)	54	590
	H. V. Colver (2 Enfield, 350)	45	275
	Total	155	684
2.	C. B. Franklin (2-cyl. Indian, 494 c.c.) ...	67	926
	S. George (1 Indian, 497)	57	38
	B. A. Hill (1 Indian, 497)	5	766
	Total	129	1,730
3.	R. B. Ewens (1-cyl. Rudge, 499 c.c.)	52	1,582
	L. Hill (1 Rudge, 499)	51	162
	C. G. Pullin (1 Rudge, 499)	16	539
	Total	120	523
4.	R. Fenn (1-cyl. Triumph, 499 c.c.)	62	1,109
	W. Edmondson (1 Triumph, 499)	24	808
	J. A. Manners-Smith (1 Triumph, 499) ...	19	42
	Total	106	199

Sidecar Relay Race.

The Sidecar Four-lap Relay Race was for teams of two machines, one of each had to be fitted with an engine not exceeding 500 c.c. The laps were ridden alternately by each partner, whose passenger on the machine, stopping on the finishing line, handed a coloured scarf to his partner's passenger, whose machine started away at once. We noticed on Barnes's Zenith two special carburetters fitted to a special inlet pipe. These carburetters took air through Venturi tubes, which were capable of being closed by shutters when rapid acceleration was desired. At the start Mills broke his belt, and at the end of the first lap Garrett

Competitors lined up for the sidecar relay race which was won by F. W. Barnes (8 h.p. Zenith) and S. F. Garrett (3½ h.p. Green Precision).



Start of the 500 c.c. sprint race G. E. Stanley (3½ h.p. Singer), who, as usual, was very conspicuous amongst the winners, is seen lying last.

came in first and Sumner shot over the line. Barnes was first away. In the second lap Griffith was first in and Mills first away. Garrett stopped short of the line and had to push in. Ware got away in excellent form. Barnes was the first man home by a quarter of a mile, with Ware second. Mills did not finish. Result: Barnes and Garrett, 1; Sumner and Ware, 2. All rode Zeniths except Garrett, who, of course, rode a Green-Precision.

Singer Cycle Car's Fine Performance.

In the ten mile record race and sealed handicap, open to sidecars and cycle cars, the order of the first three never altered throughout the event. The Singer cycle car again distinguished itself, and was the only machine on Saturday to gain two records. The result was as follows:

Time.

	m. s.	m.p.h.
1. B. Haywood (4-cyl. Singer, 1,096 c.c.) ...	8 39⅖	69.31
2. F. W. Barnes (2 Zenith sc., 986) ...	10 21⅕	57.95
3. G. W. Hands (4 Calthorpe, 1,088) ...	10 40	
4. E. B. Ware (2 Zenith sc., 748)	10 54⅘	
5. C. F. Halsall (4 Wilton, 1,072)	10 56⅕	

Handicap.

	Start. m. s.	m. s.
1. B. Haywood (4-cyl. Singer, 1,096 c.c.) ...	scr.	8 39⅖
2. S. F. Garrett (1 Regal-Green-Precision sc., 499)	2 6	9 31⅗
3. J. Cocker (1 Singer sc., 499)	1 52	9 45⅕
4. E. B. Ware (2 Zenith sc., 748)	1 7	9 47⅖

The following records were established:

CYCLECAR CLASS.

B. Haywood (Singer) ... ... 8m. 39⅖s. ... 69.31 m.p.h.

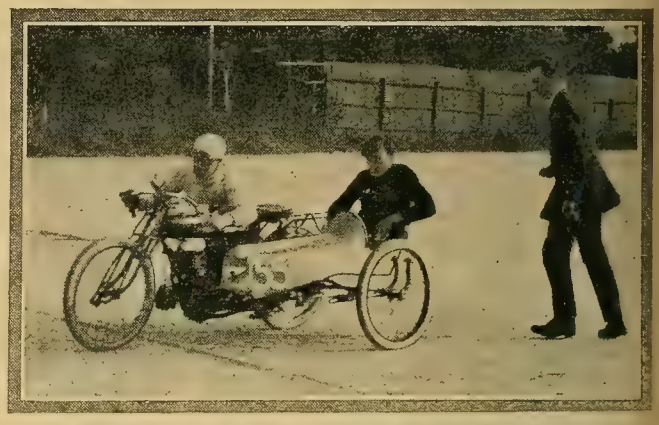
SIDECARS.

F. W. Barnes (Zenith) 10m. 21⅕s. 57.95 m.p.h. Class E.
B. Ware (Zenith) ... 10m. 54⅘s. 54.97 m.p.h. Class D.
J. Cocker (Singer) ... 11m. 37s. 51.65 m.p.h. Class C.

The final event of the meeting was the Press Handicap, distance two laps, which resulted in a triumph for *The Motor Cycle*. The first lap order was as follows: Osmond, Stough, Davis, Wallis, Hardy, and Richardson, and the result was a comfortable win for Wallis, with Osmond a good second.

	Start.	m.p.h.
1. C. E. Wallis, *The Motor Cycle* (1-cyl. Triumph, 499 c.c.)	1m. 30s.	52.05
2. D. Osmond, *The Motor Cycle* (2 Douglas, 350)	0m. 56s.	
3. O. T. Stough, *The Auto Cycle* (2 Enfield, 350)	1m. 39s.	
S. E. K. Richardson, *News Illus.*, Ltd. (1 Rudge, 499)	0m. 56s.	
F. A. Hardy (2 Douglas, 349)	1m. 20s.	

It is interesting to note that in the Neill Cup register to date Stanley heads the list with 254 marks, Mason is second with 124 marks, and Barnes third with 119 marks.



E. B. Ware (8 h.p. Zenith) starting in the sidecar relay race. This rider was first in Class D Time Trials.

CLUB COMPETITIONS IN YORKSHIRE.

Bradford M.C.C.

The second speed trials were held recently, and were run on handicap. Results:

Solo Class for the Roland Winn Trophy (awarded outright).
1. F. Doodson (3½ Elswick-Precision) 61.855 m.p.h.
2. S. Todd (3½ P. and M.) ... ... 55.045 ,,
3. D. Watson (6 Enfield) ... ... 58,841 ,,

Gold medal for fastest time of the day (solo) was awarded to Tim Wood (3⅜ Scott), 63,257 m.p.h.

Sidecar Class for the Briggs Cup (to be held for one year) and club standard gold medal.
1. W. Gilyard (8 Chater-Lea) ... 50.847 m.p.h.
2. P. Bentley (3½ P. and M)
3. C. Hart (3½ Rudge)

Palatine tyre for best performance by a private owner riding the same machine in both classes, F. Doodson (3½ Elswick-Precision).

Harrogate and District M.C.C.

The paperchase held on the 9th inst. proved a very enjoyable and interesting event, and was fairly well supported. Messrs. Grange and Nettleton on Bradbury and New-Hudson sidecars respectively were the hares, and were run to ground on the time limit after a most strenuous forty miles moorland course by E. Maynard (3½ three-speed Triumph), the only hound to complete the proper course, a long false trail at the finish proving the undoing of practically the whole of the competitors. The event finished at the top of an almost impossible hill called The Scar, which is situate between the Angram reservoir and Middlesmoor in Nidderdale.

Two Sidecar Attachments.

MESSRS. ROBERTSONS, of 157, Great Portland Street, W., are agents for the Viceroy sidecar, which we illustrate herewith. It is a particularly well-designed attachment, fitted with a body, the lines of which are very pleasing. Behind the seat there is ample room for luggage and spares.

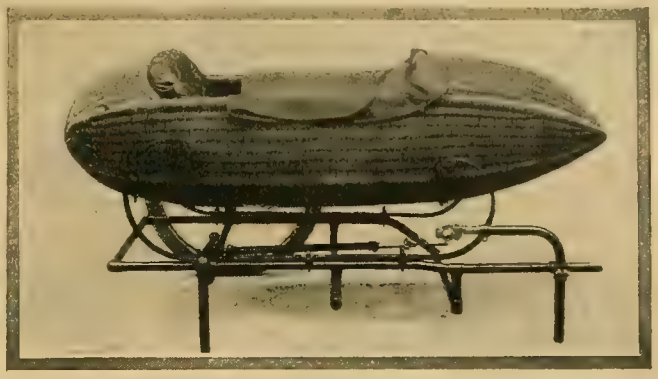
Messrs. Robertsons, who are also agents for the Henderson motor bicycle, inform us that it has been said that this machine, owing to its long wheelbase, is difficult to turn in a short space. We recently had an opportunity of seeing Mr. Robertson-Brown ride one of these machines with clutch in engagement and turn in a remarkably short space, the engine meantime running very slowly and firing with absolute regularity.

Another sidecar we recently examined, at Messrs. Reys, Great Portland Street, W., is the Swan. This attachment looked particularly attractive and comfortable. Strength, lightness, and simplicity of construction are claimed by the makers.

The suspension of the body is by means of two coiled springs fore and two aft.

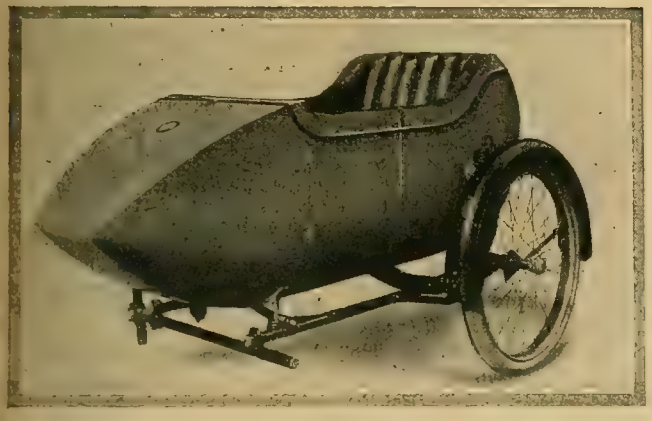
The chassis is of weldless steel tubing, some of which is of square section and specially strengthened. The wheel, with 26 × 2¼ tyre, has a nickel-plated rim with black centre and red lines.

The body, which is coachbuilt, is luxuriously upholstered and finished in grey. Pockets are fitted, and there is a cupboard under the seat. There is plenty of leg room, and the passenger is enabled to sit quite upright.



The Viceroy sidecar which is sold by Robertsons, Ltd. Ample room is provided behind the seat for luggage and spares.

Essex M.C. Annual 24 Hours Run.



The Swan sidecar, sold by Rey's Ltd., the body of which is sprung fore and aft by means of coiled springs.

The following is a complete list of the awards in the Woodford to York and Back Run, an illustrated description of which was published in the issue of September 4th :

GOLD MEDAL WINNERS.

Rider and machine.	Time error.
W. W. Webster (3½ Rudge)	10m. 8s.
L. G. Brown (3½ Corah-Jap)	10m. 12s.
A. C. Stephens (3½ Triumph)	9m. 42s.
H. R. Whitmore (3½ Rover)	9m. 4s.
R. G. Mundy (3½ T.T. Triumph) ...	4m. 19s.
H. J. Beal (4 L.M.C.)	6m. 54s.
G. T. Gray (5 Rudge)	4m. 4s.
Miss Berend (7 Indian sc.)	3m. 59s.
A. E. Brassington (6 Rex sc.)	8m. 3s.
F. L. Cook (4½ Calthorpe sc.)	9m. 32s.
A. E. Uffleman (8 Chater-Lea sc.) ...	4m. 50s.
K. A. MacDonald (3½ Singer sc.) ...	8m. 19s.
J. Chater-Lea (8 Chater-Lea cc.) ...	9m. 31s.

SILVER MEDAL WINNERS.

C. Pearson (2¾ Douglas)	15m. 28s.
F. Roberts (3½ Singer)	11m. 50s.
S. Tharp (3½ Triumph)	11m. 48s.
A. G. Peppercorn (3½ Bradbury)	24m. 35s.
B. A. Hill (7 Indian sc.)	12m. 49s.
W. C. Hemy (6 Clyno sc.)	11m. 7s.
J. H. Kerr (3½ N.S.U. sc.)	14m. 28s.
V. Garland (8 Williamson sc.)	19m. 0s.
A. Miller (6 Zenith sc.)	14m. 15s.
A. B. Phillips (8 Warne cc.)	16m. 43s.

BRONZE MEDAL WINNERS.

A. G. Cocks (2½ Connaught)	93m. 45s.
Miss Baxter (2½ Connaught)	85m. 57s.
F. H. Worley (6 Matchless sc.)	70m. 35s.
A. T. Stanton (3½ Bradbury sc.)	35m. 51s.
A. H. Gold (8 Williamson sc.)	218m. 8s.
L. Cass (6 Trump sc.)	70m. 38s.

SPECIAL PRIZES.

Triumph Silver Challenge Cup, for the best performance on motor cycle or passenger motor cycle.—Miss Berend.

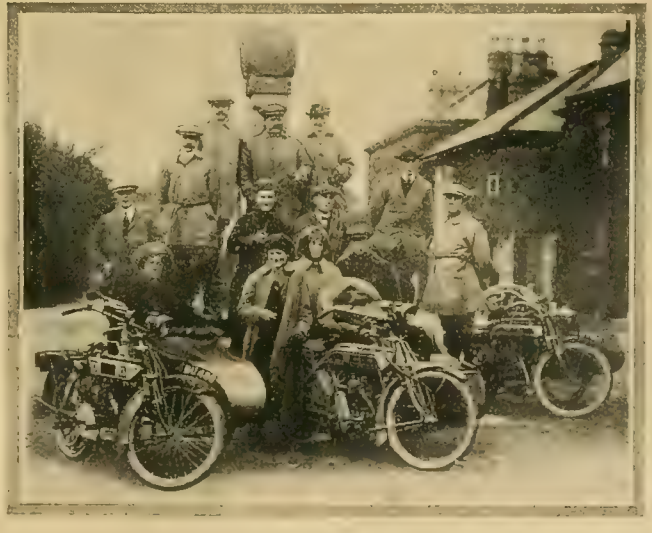
Set of three tyres, presented by the Victor Tyre Co., for best sidecar performance by a private owner.—Miss Berend.

Gold bracelet for best lady's performance.—Miss Berend.

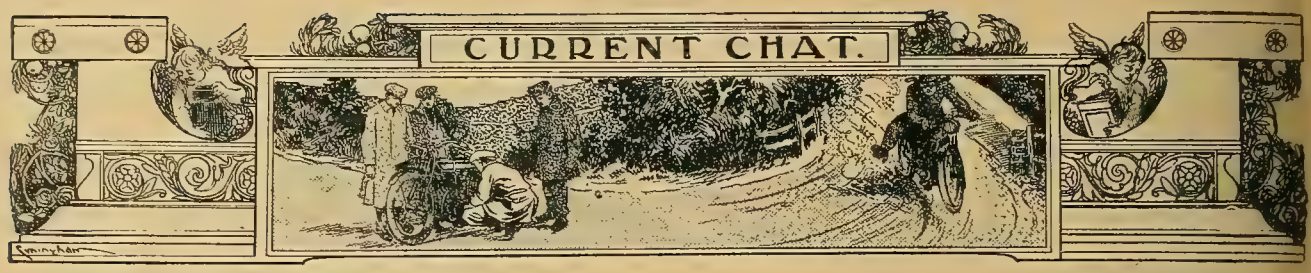
Gold medal, presented by the Hendee Co., for best solo performance by a private owner.—H. R. Whitmore.

Tyre, presented by the Palatine Tyre Co., for second best solo performance by a private owner.—A. C. Stephens.

Silver cup, presented by Mr. A. R. Abbott, for the best performance on a cycle car.—J. Chater-Lea.



Competitors in one of the Harrogate and District M.C.C. paper chases, grouped by the old stone cross at Ripley, the scene of the start.



TIME TO LIGHT LAMPS.

September	18	...	7.8
,,	20	...	7.3
,,	22	...	6.59
,,	24	...	6.54

Sutton Coldfield Trial—Prize for Teams.

Special prizes for teams of three have been presented by Messrs. Collier and Sons, Ltd., Matchless Works, Woolwich. Any three riders may combine to form a team, no matter what machines they ride. The prize will be awarded to the team making the best aggregate performance throughout the trial.

A North Country Meet.

A party of North-country motor cyclists to the number of fifty met at Aberdeen last week and took part in a hundred miles tour through some of the beauty spots of the county. Twenty were accompanied by lady passengers in sidecars, the remainder rode solo machines. The whole party was mounted on Rudges, and a very enjoyable time was spent.

The Gaillon Hill Climb.

This popular event, which takes place in France on the hill of Sainte Barbe, near Gaillon, will be held on October 5th. Gaillon is most accessible from either Dieppe or Havre, and consequently is easily reached by English competitors. The hill is perfectly straight, and has a gradient no worse than 1 in 10. The usual classes, up to 250 c.c., 350 c.c. and 500 c.c. for motor bicycles, and up to 350 c.c., 500 c.c., and 1,000 c.c. for cycle cars and sidecars, have been instituted. The entry for solo machines costs 10 frs., for sidecar combinations or cycle cars 20 frs. The cost of getting over is comparatively moderate, and it is therefore anticipated that there will be a good English entry. Entries should be addressed to *L'Auto*, 10, Rue du Faubourg-Montmartre, Paris.

Coventry's New Mayor.

Councillor S. Bettmann, one of the managing directors of the Triumph Cycle Co., Ltd., has been offered and has accepted the office of Mayor of Coventry for next year. Mr. Bettmann with his co-managing director Mr. M. J. Schulte started the business of the Triumph Co. in Coventry in 1890, and had previous to that date been in the cycle business in London, trading as S. Bettmann and Co. Mr. Bettmann is a vice-president of the Motor Cycle Manufacturers' Union, a member of the Council of the Society of Motor Manufacturers, and chairman of the Standard Motor Co., the makers of the Standard small car, particulars of which have been published in these pages.

Road Warnings.

Glasgow-Stirling Road at Millerston, Stepps, Cumbernauld and Denny.

A Novel Mascot.

G. K. Pippett, an enthusiastic rider of a 3½ h.p. Singer, carries a novel mascot on his machine. Recently he ran over a rat in the dark, picked it up and took it home. After having the skin dressed he is using it both as a mascot and a horn bulb cover.

Edinburgh M.C.C. Open Hill-climb.

The above event, which was announced to take place on Amulree on Monday last, has been indefinitely postponed. This is said to be partly due to the unfortunate accident which occurred to Mr. McGregor, the hon. secretary, and which was reported in these columns last week, and the difficulty of obtaining an efficient substitute.

Italian Motor Cycle Championships.

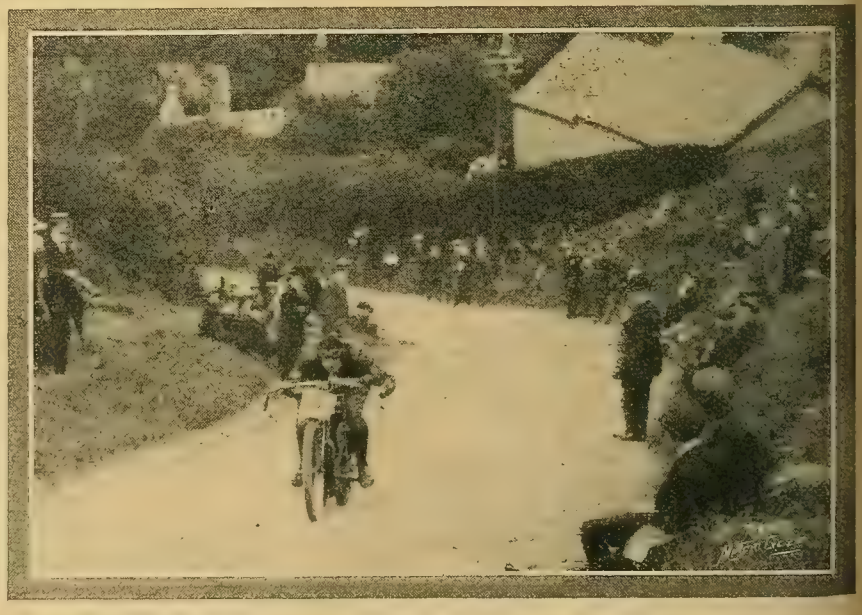
We have received particulars of the Circuito di Cremona, which was run off on the 7th September, and the winning of which in each section carries with it the title of champion of Italy in that particular class. The three classes were divided up for 250 c.c., 350 c.c., and 500 c.c. machines. Last year, it will be remembered, the 500 c.c. class was won by S. A. Rowlandson, on a Rudge. This year the distance was 196 miles, being five laps of about 39 miles 350 yards. England, France, Germany, Switzerland, and Italy were represented, thus quite an international flavour was imparted to the event. Among the riders were Ravelli and Vailati, who rode in this year's T.T., and a lady, Signorina Vittorina Sambri, who rode a Terrot, but unfortunately had to retire during the first lap. However, a Terrot won the little 200 c.c. class. Among the 350 c.c. machines Miro Maffeis gained a fine win on a 2¾ h.p. Douglas, these machines also obtaining fifth, seventh, and eighth places. The winner of this section averaged 45 m.p.h. In the 500 c.c. category, Carlo Maffeis won on a Moto Rêve, covering the course at an average speed of 53 m.p.h. This was considered a very remarkable feat, as undoubtedly it is, for it beats Rowlandson's time last year. The winners are brothers. A good many accidents occurred, but luckily none of them were serious. The lady rider created a good deal of interest, but unfortunately her machine caught fire soon after the start, so it was impossible to judge of her abilities as a *chauffeuse*.

SPECIAL FEATURES:

ACROSS FRANCE TO BELGIUM AND THE ARDENNES.

SOME 1914 MODELS.

FUTURE OF LONG DISTANCE TRIALS.



At the top bend of Pen-y-ball. A. J. Moffatt (5 h.p. Zenith) who made fastest time in Class "H".

A.C.U. Notes.

The Auto Cycle Union have issued 1,076 competitors' licences between January 1st and the present date.

The Exeter to Okehampton main road near the fourth milestone from Exeter is now being reconstructed. Motorists are recommended to travel *viâ* Dunsford and Moretonhampstead to avoid inconvenience.

A.C.U. One-day Trial.

As mentioned in our issue of September 11th, the A.C.U. one day trial, which was down to take place on September 24th, has been postponed. It is now proposed to hold a one day trial in its place on October 29th, open to cycle cars, when the course followed will be much the same as that used for the A.C.U. one day spring trial this year.

R.I.A. Improvements.

The Lancashire and Cheshire Branch of the R.I.A. is enquiring into the dangerous state of many of the canal bridges in the two above-mentioned counties. In many instances these bridges do not follow the direction of the roadways, but are at right angles, the approaching roads frequently joining the canal at an angle of 45°.

Motor Cycle Alpine Trial.

Madame Picaud, who rode as passenger with her son on a 5-6 h.p. Clyno sidecar in the Marseilles-Lyons Trial, has sent us an interesting account of this competition. The route traversed five Alpine passes, and at times reached an altitude of 7,200 feet above sea level. Among the passes climbed were the Col d'Allos (6,750 feet) and Col de Vars (6,375 feet). In one of the narrow streets of a village the Clyno met one of the "Cars Alpine" motor chars-à-bancs. There being no room to pass, the sidecar had to be pushed to one side with the sidecar wheel right on the bank. On the second day the Col d'Izoard (7,200 feet) was traversed, which is a new road only opened a fortnight ago. Many solo riders had to dismount and run alongside their machines, but both Frank Smith's and M. Picaud's Clynos climbed to the summit. The road then went *via* Briançon, the Lauteret (a long climb), La Grave, from which there are magnificent views, and the Sappey Pass. The trial finished with only nine survivors, and of these the Clyno was awarded a special prize for the best designed touring machine.

A.A. and M.U. Notes.

FLOODED ROADS.—The Association has made arrangements for erecting signs when the floods are out in the neighbourhood of Chertsey Lane in the wintry season.

HIGH SPEED AT SANDGATE.—The Sandgate Urban District Council has recently given serious consideration to the question of putting forward an application for a ten miles per hour speed limit through Sandgate, but it is decided, before making such an application,, to ask the Association to notify members of the great danger arising from fast motor traffic to children crossing from the houses to the beach, in the belief that this is not fully realised by drivers. Will motorists, therefore, make a point of driving very carefully along this particular stretch of road?

FUTURE EVENTS

Sept.	19-20.	Birmingham M.C.C. Open Trial to Carlisle and Back.
„	20.	Streatham M.C.C. Open Speed Trials at Brighton.
„	27.	Liverpool A.C.C. Open Reliability Trial.
Oct.	3.	Sutton Coldfield and Mid-Warwickshire A.C. Open Trial.
„	4.	B.A.R.C. Brooklands Meeting.
„	4.	Bristol M.C.C. Open Speed Trials.
„	11.	Coventry & Warwickshire M.C. Annual Open Hill-climb.
„	11.	B.M.C.R.C. Meeting and A.C.U. Championships.

List of "Expert" Riders.

Up-to-date the A.C.U. list of "expert" riders had reached a total of seventy-two. A list of these riders will be supplied to any secretary of a club affiliated to the A.C.U. if application be made to the secretary of the A.C.U., 89, Pall Mall, S.W.

Lubrication.

As the question of motor cycle lubrication is not by any means settled, it would be interesting to hear if any one has tried the Bosch Company's force feed lubricator, a description and illustration of which were published in *The Motor Cycle* of November 21st, 1912.

A.C.U. Championship Meeting.

The Auto Cycle Union will hold the motor cycle racing meeting for the A.C.U. championships at Brooklands on 11th October, starting at 11 o'clock. The first event to be run off will be a one-hour race for cycle cars and sidecars, and after lunch the Senior one-hour race and the Junior one-hour race, and a five laps race for motor cycles of 1,000 c.c. will be decided.

The Coventry and Warwickshire M.C. Hill-climb.

Mr. Fred Spencer, the hon. sec. for this hill-climb, informs us that a very large number of enquiries have been received from private riders for entry forms. There is every indication that the entries will constitute a record, and prove that this climb is looked upon as something of a "classic." The location of the hill will be kept a secret till the last moment.

Police Activity in North London.

A good deal of trapping is taking place in North London. In Bounds Green Road, for half a mile from the Jolly Butchers Hill proceeding from London a trap is being worked, while between the Promenade and the Green Dragon at Winchmore Hill there is a permanent trap, where no less than five policemen were recently on duty at the same time.

Should Lighting-up Time be Earlier.

A good deal of attention has lately been paid by the lay press to this question. As everyone knows, the official time for lighting-up is one hour after sunset, but it is felt in many quarters that it would be far safer if the time was advanced somewhat. In France lamps must be lit at the hour of sunset. We ourselves have sometimes been surprised to find that we have had another quarter of an hour or so before we need legally light up on several occasions, so dark was the evening. A good deal depends on the sort of weather experienced as to whether it is dangerous to wait till the legal hour, as in this variable climate of ours evenings vary so much in darkness. Of course, it may be argued that if it is too dark to ride in perfect safety though not yet lighting-up time, the careful motor cyclist would light his lamp, but most riders do not care to use up their carbide for a possibly quite short run unless necessary.

A scene in one of the depots during the Italian road race on the Cremona circuit. Our correspondent says great confusion occurs in the depots at all Italian races. The machine in the background is a Douglas, one of which finished first in its class.

A STRANGE EXPERIENCE.

A CORRESPONDENT recently queried us regarding the bad running of a single-cylinder water-cooled engine which he was using on a cycle car. The symptoms were that on level ground and downhill (if the engine were suddenly accelerated by opening the throttle) misfiring and bad running occurred if the throttle were opened more than half way; but if a hill were met, all signs of bad running disappeared, and the engine pulled extremely well and without any sign of misfiring. The symptoms pointed to the fact that the carburetter was badly adjusted, and that either too rich or too weak a mixture occurred beyond half throttle. Lowering of the compression, a new magneto, and three different types of carburetters had been tried, as well as numerous adjustments, and our advice was to try a Bowden-operated air valve on the inlet pipe. Finally, when the owner had practically exhausted his patience, he was advised by the makers of the machine to fit a spark gap. The owner then recollected that almost immediately after his arrival home from London (he resides in a northern town) he had noticed the spark gap which was originally fitted had been broken and removed, and in searching for the cause of the bad running it was overlooked that a spark gap had once been fitted. However, another spark gap was fitted, and this has certainly been coincident with the stoppage of the bad running.

The Function of a Spark Gap.

One is not accustomed nowadays to see outside spark gaps on motor cycles, although their use at one time was fairly general. On modern machines, however, they have practically disappeared, and it is quite a rarity to see one on either motor cycle or car. Our correspondent thinks that the reason why the spark gap causes better running is that the magneto on the single-cylinder engine in question is driven at engine speed, two sparks occurring during each of the four cycles, one spark taking place in "dead" gas, and that this causes the sparking plug points to become incandescent, and thus brings about premature ignition. His theory is that the spark gap reduces the intensity of the current, so preventing the points becoming incandescent. This cannot be a correct explanation of the phenomenon, as a spark gap, if anything, intensifies the spark.

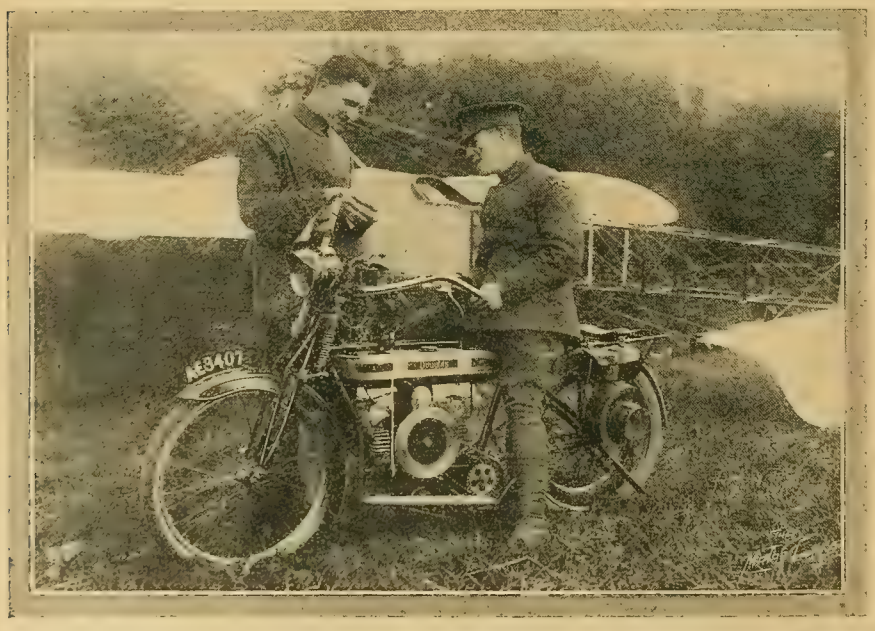
However, we think the experience is one of sufficient interest to warrant a special mention, because we cannot remember having ever heard of an engine being improved in running by the fitting of a spark gap. Spark gaps are usually tried to overcome the tendency of oily plugs to short-circuit, the spark gap causing any oily deposit to be burnt off as it is formed. Also, if it be already formed, the fitting of a spark gap, or even holding the high tension wire near enough to the sparking plug terminal to enable a spark to jump from the end of the terminal and so on to the plug, will often break down or destroy any bridge of oil which has connected the plug points.

Motor cyclists who possess engines which are prone to misfire and generally run badly if pushed beyond a certain speed may find that by fitting a spark gap they will overcome their trouble, but it is not necessary to experiment with spark gaps on modern machines, and particularly those which have the magneto running at half the engine speed, which is the usual method employed.

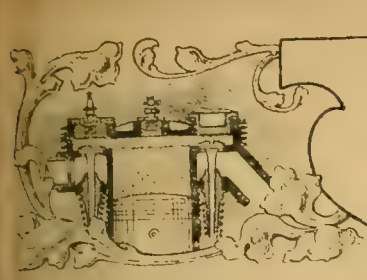
We submitted the above to Messrs. Lodge Bros. and Co., Birmingham, who say that the explanation of the bad running when the spark gap is not fitted is due to pre-ignition, caused by a spark in the cylinder at the wrong time. As the single-cylinder magneto is geared to run at crankshaft speed, there is the normal spark in the compressed gas, and a useless spark at the end of the exhaust stroke; that is to say, there is a spark each time the piston is at the top of its stroke. The magneto could also give a spark each time the piston arrives at the bottom of its stroke. There is an impulse in the position, but no cam to open the contact points. At high speed, however, the magneto would give a very small spark, even without the platinum points being opened. One of these small sparks would occur when the cylinder had just drawn its full charge. A small spark gap in series with the plug would be quite sufficient to stop this small spark occurring; probably increasing the gap of the sparking plug would have the same effect, but might make the starting more difficult.

It is possible that this stray spark is intensified by the contact points vibrating at the time that the impulse occurs in the magneto.

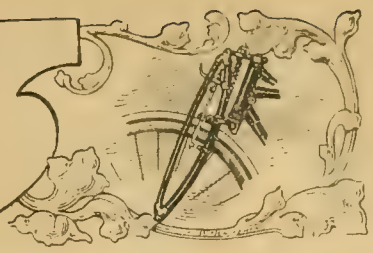
This is undoubtedly the correct explanation of the phenomenon.



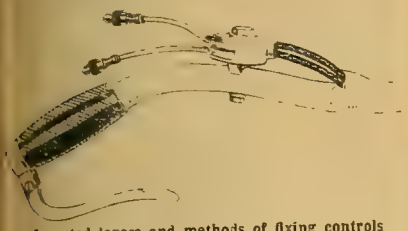
Motor cycles are being largely employed in this year's army manoeuvres, our photograph shows one of the motor cycle scouts attached to the Royal Flying Corps bringing a message to the aeroplane camp between Wantage and Shefford. His mount is a 2¾ h.p. Douglas.



1914 HUMBER MODELS.

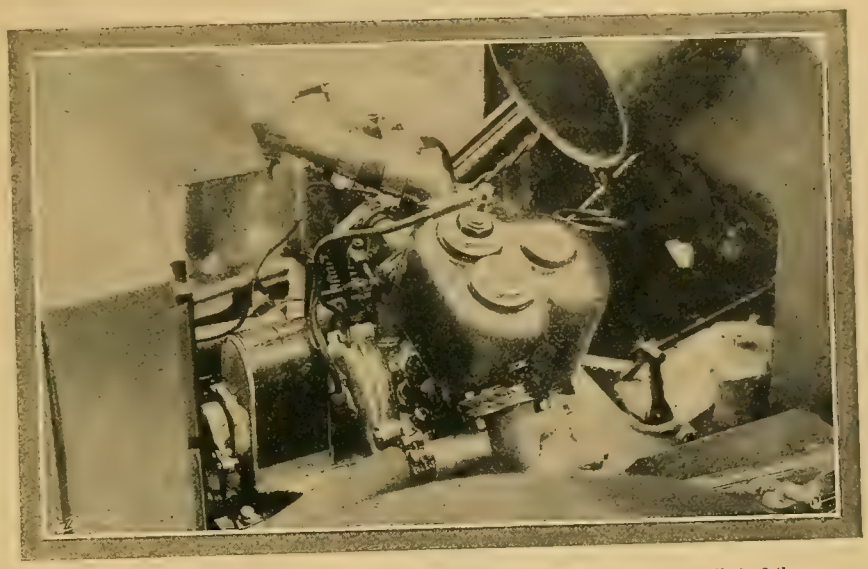


ONLY detail changes will be made for the 1914 season in the two Humber motor cycle models. The 3½ h.p. machine will, in future, be fitted with a wider tank and Best and Lloyd semi-automatic drip feed lubrication. No cut-out will be supplied, as the present silencer has been found both quiet and efficient. In future, the



Inverted levers and methods of fixing controls on the 1914 Humbers.

fork springs will be enamelled, a detail which will save owners considerable trouble, for it is almost impossible to keep plated springs bright. 2⅜in. tyres are to be standardised, which should increase the comfort of the machine as well as the tyre mileage, and the only other alterations lie in the handle-bars, which are now fitted with inverted levers and have been somewhat improved in shape. All Bowden wires are carried through the bars, and the control blocks are bolted instead of being clipped to the bars. The price of the machine will be reduced £5.

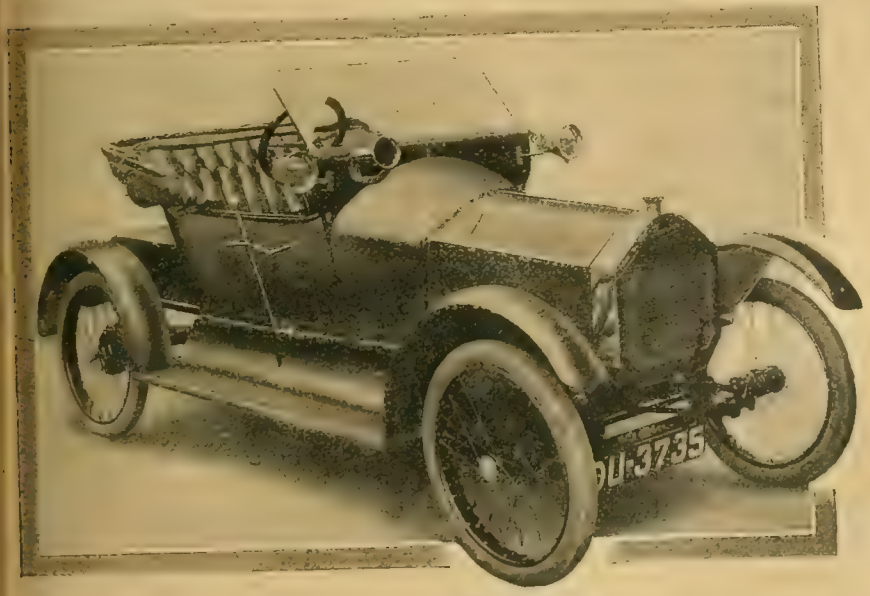


The new water-cooled engine fitted to the Humberette. The design is similar to that of the air-cooled model.

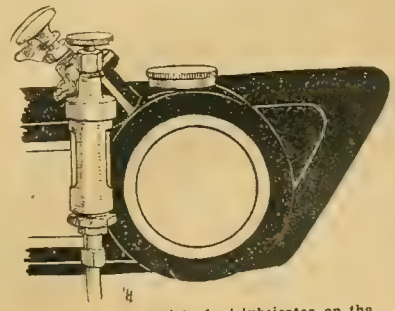
Most of the above changes apply also to the 2¾ h.p. twin. That is to say, the handle-bars are similar, drip feed lubrication, and enamelled fork springs are fitted, and no cut-out will be supplied, but will be replaced by a tail pipe. Adjustable tappets will be fitted to this model for the first time, a refinement which will enable riders to synchronise the timing to a nicety.

A Water-cooled Humberette.

With regard to the well-known and popular Humberette no alterations will be made, but a water-cooled model will be marketed, which is similar in all respects to the air-cooled model except for the cylinders and radiator. The jacketed cylinders are cooled on the thermo-syphon system, a neat radiator on the usual Humber lines replacing the dummy of the air-cooled type.

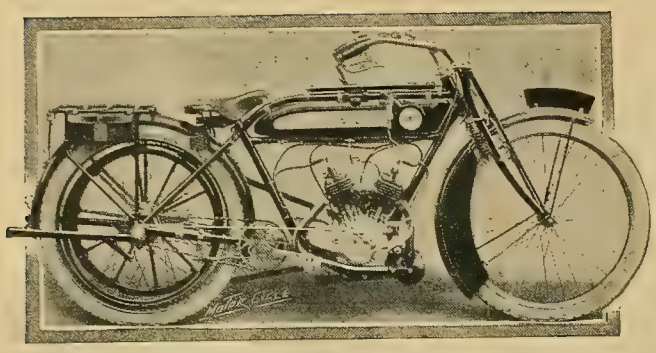


General appearance of the new water-cooled Humberette.



Arrangement of drip feed lubricator on the new Humber models.

The price of the air-cooled model, without hood screen and lamps, has been reduced to £110, and the water-cooled type, same specification, is £125. Both models are fitted with the above accessories for £10 extra.



The 2¾ h.p. Humber model showing 1914 refinements. Note the tall pipe to silencer and new handle-bars.

HILL-CLIMBING WITH A SIDECAR.

Whilst spending a week-end at Cromford, Derbyshire, W. H. Carson, the rider of a 5-6 h.p. single-cylinder Excelsior and sidecar, made an attempt on Green Hill, Wirksworth, which was the undoing of so many competitors in the A.C.U. East Midland Centre Trial on May 3rd last. This trial was fully described in *The Motor Cycle* of May 8th. Although the gradient is estimated as 1 in 4 and the surface extremely bad, the Elcelsior successfully climbed this hill at first attempt with an adult passenger on a 12 to 1 low gear.

So much local interest was displayed at the manner in which the hill was taken that the performance was repeated several times for the benefit of the villagers. This is said to be the first time this hill has been climbed by a single-cylinder machine with sidecar and passenger.

W. H. Carson climbing Green Hill, Wirksworth, on a 5-6 h.p. single-cylinder Excelsior sidecar.

CLUB NEWS.

Edinburgh M.C.C.

On Saturday next the above club will hold a members' event for the Sharp Trophy. There will be a speed contest—fast (half-mile), and slow (quarter-mile). Immediately afterwards competitors will be timed up Hartree Hill. The members' event will be followed by an open hill-climb, starting at 4 p.m.

Coventry and Warwickshire M.C.

The second annual committee run was held on Saturday and Sunday last, the destination being Rhayader. On Sunday the reservoirs in the Elan Valley were visited. Owing to heavy rain which fell on Saturday night and Sunday morning the reservoirs were very full, and the quantity of water falling over the dams presented a fine spectacle. The return journey was made *via* Leominster, Tenbury, and Abberley Hills.

Taunton and District M.C.C.

The above club held a speed-judging competition on Thursday, 4th inst. A course of two miles was traversed three times at the rates of 20, 18, and 15 m.p.h. No speedometers or watches were allowed. The result was as follows :

	Error.
F. Hansford (3½ Rover)	69⅕s.
A. J. Percy (3½ T.T. Rudge)	151½s.
G. Drayton (3½ Triumph)	161⅘s.
W. A. Hutchings (3¾ Scott)	179⅖s.

North Staffordshire M.C.

The third reliability trial was held on the 7th inst. over a course of 150 miles, starting from Whitmore, proceeding to Whitchurch, Ellesmere, Llanfyllin, Lake Vyrnwy, Bala (lunch), Llanygog, Shrewsbury, Market Drayton, and Whitmore. Results: 1, H. W. Teeton (3¾ h.p. James), full marks; 2, Jas. B. Sproston (2¾ h.p. Sunbeam), full marks; 3, W. Palmer (2¾ h.p. Douglas); 4, F. Tagg (2¾ h.p. Scott).

The Ashton Cup was awarded to the competitor making the best performance in the three reliabilty trials, this being won by H. W. Teeton (3¾ h.p. James), who gained full marks in each trial.

Manchester M.C.

A members' hill-climb will be held on the 20th inst. for motor cycles, cycle cars, and cars. The hill selected is a safe one near Buxton, and members will meet at the Midland Hotel in that town at 2.30 p.m.

The motor cycle and cycle car events will be on the "knock out" principle.

Entries (cars 5/-, motor bicycles 2/6) should be sent to the trials hon. secretary, Mr. C. E. Kettle, 210, St. Mary's St., Deansgate, Manchester.

Leicester and District M.C.C.

The third quarterly trial for the Edwards Cup was run on Thursday, the 4th inst., over a course of 74½ miles. The winner was the competitor who rode nearest to an average speed of twenty miles an hour, and made a non-stop run.

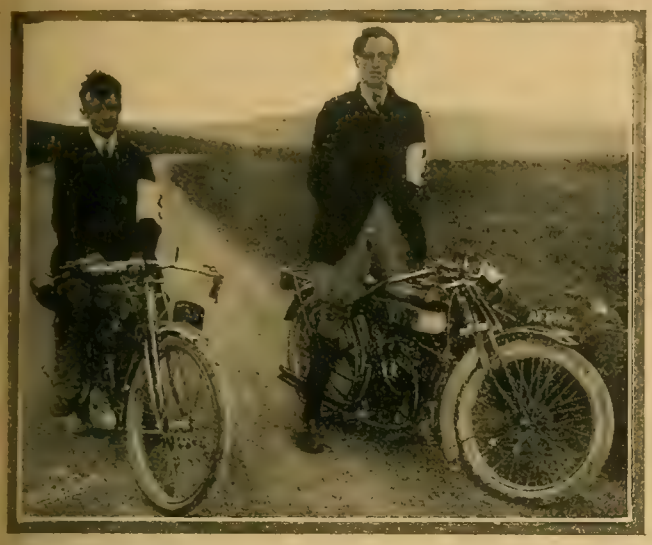
There were seven secret checks on the course, and the competitors making the least error in time were as follows: W. H. Chapman (A.J.S. sc.), 29m. 41s.; G. Upton (Bradbury sc.), 30m. 37s.; R. Wainwright (Campion), 35m. 40s.

Kingston-upon-Thames and District M.C.C.

The last event of the season will be a reliability trial for Mr. Butler's Cup, and will take place on the 21st September. The course will be from Kingston to Petersfield, *vid* Dorking, Guildford, Hindhead, and Liphook, and back home *viâ* Alston and Farnham, finishing at the Anchor Hotel, Ripley, about 4.30. The honorary secretary, Mr. J. W. Wilson, would be glad to see any intending members at this run.

North Devon M.C.C.

A hill-climb was held last week for the Mayor of Barnstaple's Cup on the South side of Codden Hill, Bishop's Tawton. A large number of spectators was present, including the donor of the cup. The results, which were decided on formula, were as follows: 1, F. C. Elliott (3½ Triumph); 2, W. H. Prideaux (2¾ Douglas); 3, P. Chanter (3½ Triumph); 4, T. Driscoll (3½ Triumph). Elliott's Triumph was an ordinary standard model, and had already covered over 7,000 miles previous to the climb.



Plymouth and District M.C.C. Hill-climb at Moorshop. (Right) P. H. T. Hoare (8 h.p. C. and H.-Jap) who made fastest time and (left) F. Thomas on a 3½ h.p. model of the same make.

The Public Schools M.C.C.

After the Streatham M.C.C. open international speed trials at Brighton next Saturday to which the Public Schools M.C.C. is sending a team, the members present will proceed to New Romney for the week end. Those desiring accommodation should write to Mr. C. Q. Roberts, Cottesmore, Fleet, Hants.

Westmorland M.C.C.

A fast and slow hill-climb was held on the 6th inst. at Hutton Park, near Kendal. The weather was favourable, and a fair number of competitors attended. Results:

		Fast.	Slow.	Difference.
		s.	m. s.	m. s.
1.	L. S. Parker (4 Scott) ...	68⅘	6 50 ...	5 41⅕
2.	Hy. Jackson (2¾ Sunbeam)	69⅗	5 52½ ...	4 42⅗
3.	R. M. Chaplow (2¾ Humber)	68⅕	5 21⅖ ...	3 53⅕

Cork and District M.C.C.

An afternoon reliability trial was held on the 10th inst. over a secret course, the use of speedometers and maps being banned. Result:

1. S. R. Hosford (3½ Zenith), Humber Cup.
2. S. H. Dring (2¾ Douglas), Mr. O'Callaghan's Prize.
3. John Healy (3½ Indian), Mr. J. Dwyer's Prize.
4. J. M. O'Neill (2¾ Douglas), Club Prize.

The course was a very sporting one, and quite unknown to nearly all the competitors.

Northamptonshire M.C.C.

Speed trials were held in Moulton Park, on the 11th inst., by kind permission of H. Manfield, Esq., M.P. The track was in excellent condition, and measured half a mile. Results:

	Rider and machine.	Time.	Formula.
	CLASS I.—SINGLES, SOLO.		
1.	Kinch (3½ Rudge)	33⅘s. ...	559
2.	Watkins (3½ Triumph)... ...	35⅖s. ...	590
3.	Stanford (3½ Triumph)... ...	40⅗s. ...	872
	CLASS II.—TWIN, SOLO.		
1.	Harris (5 Matchless)	33⅖s. ...	566
2.	Ward (2¾ Douglas)	39⅖s. ...	602
3.	Grose (7 Indian)...	31⅕s. ...	647
	CLASS III.—OPEN.		
1.	Harris (5 Matchless)	34⅖s. ...	619
2.	Kinch (3½ Rudge)	35s. ...	621
3.	Ward (2¾ Douglas)	40⅗s. ...	660
	CLASS IV.—SIDECARS.		
1.	Cameron (8 Zenith)	39s. ...	808
2.	Harris (5 Matchless)	46⅖s. ...	916
3.	Peck (3½ Triumph)	50⅕s. ...	974
	CLASS V.—CYCLE CARS.		
1.	Grose (Morgan)	50s.	
2.	Bensley (G.W.K.)	53⅖s	

Walthamstow M.C.

J. H. Kerr (3½ h.p. N.S.U.) has been awarded a silver cup for covering 200 miles over a standard course to schedule time.

Plymouth and District M.C.C.

The results of the hill-climb held on the 10th inst. at Moorshop were as follows. The course measured one mile.

SIDECARS (Twin-cylinder Class).

1, C. R. J. Roberts (6 Matchless); 2, W. J. Pitts (8 Chater-Lea); 3, T. Woolland (6 Rex); 4, J. Metherell (6 Rex); 5, T. D. A. Chapman (6 Rex).

SIDECARS (Single-cylinder Class).

1, A. Brand (4¼ Lincoln-Elk); 2, H. Holmes (4 Rex).

T.T. SINGLES.

1, T. Trinniman (3½ Rudge); 2, O. P. C. Collier (3¾ Grandex); 3, E. R. Stranger (3½ Peugeot).

T.T. TWINS

1, P. H. T. Hoare (8 Chenoweth and Hoare Jap).

Fastest time of day and club record, time 1m. 5s., a really brilliant performance for a club member.

TOURING MACHINES.

1, J. Mander (4 Rex); 2, G. E. Stephens (3½ Triumph)

The above is the last competition of the season and was most successful. The club membership now numbers 98

FORTHCOMING OPEN EVENTS.

Edinburgh M.C.C.

There will be seven classes in the Hartree hill-climb on Saturday next as follows: (1.) Lightweight handicap, not exceeding 400 c.c. (experts barred). (2.) Handicap exceeding 400 c.c. but not exceeding 600 c.c. (experts barred). (3.) Handicap exceeding 400 c.c. but not exceeding 600 c.c. (open). (4.) Handicap exceeding 600 c.c. (experts barred). (5.) Handicap exceeding 600 c.c. (open). (6.) Handicap for sidecars and cycle cars exceeding 450 c.c. (experts barred). (7.) Scratch race for any motor cycle, sidecar, or cycle car (open).

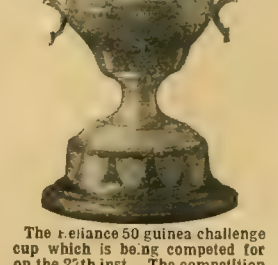
Bristol M.C.C., and Somerset A.C.

On Saturday, October 4th, speed trials (open and closed) will be run on the sands at Weston-super-Mare for motor bicycles, sidecars, cycle cars, and motor cars, starting at 11.30 a.m. The open classes will be as follows:

No 1.—Not exceeding 350 c.c., for solo machines.
No. 2.—Not exceeding 500 c.c., for solo machines.
No. 3.—Unlimited.
No. 4.—Not exceeding 500 c.c., for sidecars.
No. 5.—Unlimited.
No. 6.—Cycle cars. A.C.U. definition (three or four-wheelers).

The latest date for receiving entries will be the 26th inst. These must be sent to Mr. Philip Grout, Warmley, near Bristol.

Liverpool A.C.C.



The Reliance 50 guinea challenge cup which is being competed for on the 27th inst. The competition is the Liverpool A.C.C. open reliability trial.

A one-day open reliability trial for the Reliance Cup will take place on Saturday, the 27th inst., starting from Queen's Ferry at 8 a.m. The course will be a circular one in North Wales, and will include the ascent of Bwlch-y-Groes. Solo machines will cover 117¾ miles and passenger machines 6¼ miles less. To qualify for a gold medal the rider of a solo machine over 350 c.c. or passenger machines of 600 c.c. or over must climb every observed hill at the first attempt. Riders using smaller engines will be allowed one failure on observed hills without loss of medal.

Late entries close on the 20th inst., and all communications must be sent to Mr. S. W. Phillpott, 1, Oakdale Road, Mossley Hill, Liverpool.

Mersey M.C. Open Hill-climb at Pen-y-ball.

EXPERTS BARRED.

QUITE a large number of spectators turned out to watch the Mersey Club's open hill-climb at Pen-y-ball on Saturday last. Owing to recent rain the hill was somewhat loose and wet in places, which, added to the usual stony surface intersected at intervals with rain gullies, tended to prevent really high speeds. However, the bad parts of the hill were carefully swept, and on the whole the surface was quite fair. The climb was timed to start at three o'clock, and, in spite of this somewhat late hour, the first man was not sent away till just after 3.30. This, and the unnecessarily long waits between classes, rather protracted the event, and the last two classes were run off before a very small "audience," but, owing to fourteen absentees, the event was finished by the time stated (six o'clock).

Where Non-experts Fail.

Practising went on merrily before the event, and was responsible for one accident, Martin Anderson's 2¾ Humber being put out of action by some descending machines. Though Anderson was only slightly hurt, the smash was particularly regrettable, as his little Humber was going particularly well, and was quite one of the fastest lightweights present.

Throughout the day over-gearing was particularly noticeable. Fixed geared machines had too high gears, and variably geared machines were kept on their higher gears too much, and it is in this very point—correct gearing—that the experts score so much.

Each class was divided into a time and handicap event, competitors being handicapped on their previous times; thus each man had two tries at the hill, but no one was allowed to beat his time performance by more than 5%.

Class V., for single-cylinder sidecar machines, was the first to be run off, but attracted only two starters, Barnard (3½ Singer sc.) making easily the finest performance; he kept his engine roaring on the low gear and beat his adversary by nearly a minute. Results:

		m.	s.
1.	G. G. Barnard (3½ Singer sc.)	1	22⅘
2.	H. C. Marston (3½ Triumph sc.) ...	2	19⅗

The Passenger Classes.

Class VII., for passenger vehicles up to limit sizes (on time), followed. E. Longdon (8 Dot sc.) and H. W. Coopland (7 Indian sc.) had it all their own way in this event. Coopland's machine was misfiring slightly on the steep part, otherwise a close finish between these two would have ensued. W. H. Kelly (8 Rex-Jap sc.) and J. McKie (6 Clyno sc.) both came up steadily, as did the Humberette driven by A. C. Whitney. Results:

		m.	s.
1.	E. Longdon (8 Dot sc.)	1	14⅗
2.	H. W. Coopland (7 Indian sc.)	1	19⅖
3.	W. H. Kelly (8 Rex-Jap sc.)	1	43⅗
4.	J. J. McKie (6 Clyno sc.)	2	8⅘
5.	A. C. Whitney (8 Humberette) ...	2	26⅕

The above two events were next run off on handicap, the performances being much the same as before. H. C. Marston and A. C. Whitney both came to a standstill through gear changing. Results:

CLASS V. (Handicap).

		m.	s.
1.	G. Barnard (3½ Singer sc.)	1	24⅕
2.	H. C. Marston (3½ Triumph sc.) ...	1	24⅗

CLASS VII.

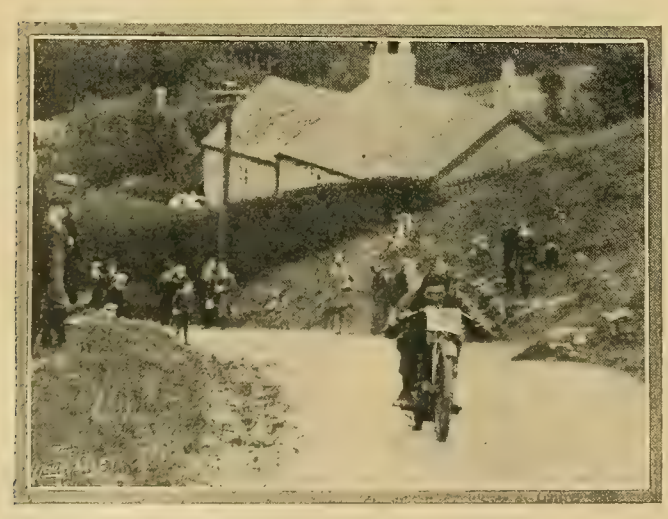
		m.	s.
1.	E. Longdon (8 Dot sc.)	1	13⅘
2.	W. H. Kelly (8 Rex-Jap sc.)	1	19⅕
3.	H. W. Coopland (7 Indian sc.)	1	22
4.	J. J. McKie (6 Clyno sc.)	1	24⅖
5.	A. C. Whitney (8 Humberette)	2	17⅖

Class III., solo up to 750 c.c., was poorly supported, there being only three starters. T. E. Cooper made two ascents, the second being not so good as the first. Sedgwick brought his Rudge up in good style, but A. J. Moffatt was clearly the fastest. Results:

		m.	s.
1.	A. J. Moffatt (5 Zenith)		57⅘
2.	J. H. Sedgwick (5 Rudge)	1	1⅕
3.	T. E. Cooper (4¼ Mead)	1	22⅖

Class IV., up to 1,000 c.c. Considering the size of the machines the performances in this class were poor. True, the hill was not in perfect condition, but there was a great deal of cutting out and the big machines did not seem to have the pace they should have. L. V. Barton (6 Rex) was an exception, and made a good show, and F. Shaw (8 Zenith) came up well, though he wobbled a good deal when changing gear. E. F. Baxter, who may usually be relied on to make a good performance, was not in form. W. H. Brown Bowley was overgeared and failed after getting over the worst part. (For results, see next page.)

W. H. Garlick (2¾ h.p. Hobart). This machine has both valves in the head and made a very fine ascent.



H. G. Liefeldt (Rudge) on the steepest portion of the hill. His performance was a remarkably fine one, as he made fastest time of the day.

Mersey M.C. Open Hill-climb.—

Time.

		m. s.
1.	L. V. Barton (6 Rex)	0 57⅘
2.	F. Shaw (8 Zenith)	0 60⅕
3.	W. Shaw (8 Dot)	0 60⅗
4.	N. C. Sclater (8 Matchless)	1 3⅕
5.	W. H. Kelly (8 Rex-Jap)	— —
6.	E. F. Baxter (6 Rex)	— —

The handicap performances in these two classes produced nothing remarkable. W. Shaw stopped owing to a dirty plug and an air leak due to his carburetter attachment working loose, and Sclater fell near the finish, fortunately without serious damage. Results:

CLASS III.

Handicap.

		m. s.
1.	J. H. Sedgwick (5 Rudge)	0 50⅘
2.	A. J. Moffatt (5 Zenith)	0 52⅕
3.	T. E. Cooper (4¼ Mead)	0 53

CLASS IV.

Handicap.

		m. s.
1.	L. V. Barton (6 Rex)	0 51⅘
2.	W. H. Kelly (8 Rex-Jap)	0 53⅕
3.	W. Shaw (8 Dot)	0 55⅖
4.	N. C. Sclater (8 Matchless)	0 59

Class II. (solo machines up to 500 c.c.) was quite the event of the day. Not only did it draw more starters than any other class, but it produced the fastest time of the day. This was done by H. G. Liefeldt, who rode magnificently, and who was one of the very few riders of fast machines who really let his mount go. Next fastest was L. Mogridge, whose Triumph produced a most wonderful crackle. Besides these, T. W. Hand, P. Webster, G. Barnard, and C. L. Binks all made fine performances.

It will be noticed that several of the times in this class are better than the best in the 1,000 c.c. class. Results:

Time.

		m. s.
1.	H. G. Liefeldt (3½ Rudge)	0 51⅘
2.	L. Mogridge (3½ Triumph)	0 53⅖
3.	T. W. Hand (3½ Hand-Jap)...	0 57⅖
4.	G. Barnard (3½ Singer)	0 57⅗
5.	P. Webster (3½ Martin-Jap)	1 1⅖
6.	C. L. Binks (3½ Fafnir)	1 9⅖
7.	H. V. Prescott (3½ Ivy-Precision)	1 11⅕
8.	S. W. Carty (3½ Ariel)	1 23⅗
9.	A. Marston (3½ Scott)	1 41

In Class I. up to 350 c.c. W. H. Garlick, on an overhead valve Hobart, made a particularly fine climb, his time being better than most of the 8 h.p. machines. Rees made the next best performance, but was 13s. slower. Results:

Time.

		m. s.
1.	W. H. Garlick (2¾ Hobart)	0 59⅕
2.	F. Rees (2¾ Douglas)...	1 12⅖
3.	C. J. Naylor (2¾ Douglas)	1 14⅗
4.	A. J. Jenkins (2¾ Douglas)	1 16

The results of the above two classes on handicap were as follows:

CLASS II.

Handicap.

1.	P. Webster (3½ Martin-Jap)	0 50⅕
2.	H. G. Liefeldt (3½ Rudge)	0 51⅕
3.	G. Barnard (3½ Singer)	0 52
4.	L. Mogridge (3½ Triumph)	0 54
5.	T. W. Hand (3½ Hand-Jap)	0 57

CLASS I.

1.	A. C. Naylor (2¾ Douglas)	0 57
2.	W. H. Garlick (2¾ Hobart)	0 60⅕
3.	F. Rees (2¾ Douglas)	0 60⅗
4.	A. J. Jenkins (2¾ Douglas)	1 2⅖

The following will be awarded prizes for the best amateur performance in each class:

Class I.—W. H. Garlick (2¾ Hobart).
Class II.—H. G. Liefeldt (3½ Rudge).
Class III.—A. J. Moffatt (5 Zenith).
Class IV.—L. V. Barton (6 Rex).
Class V.—G. G. Barnard (3½ Singer sc.)
Class VII.—E. Longdon (8 Dot sc.)
Class VI. did not receive sufficient entries.

After the climb the officials adjourned to the King's Head Hotel, where the results were properly worked out, and were made known by soon after 7 p.m.

Mr. Carty, the club secretary, was unfortunately rather late arriving, owing to pressure of business, which may have accounted for some of the delay. However, when he appeared he put in some hard work.

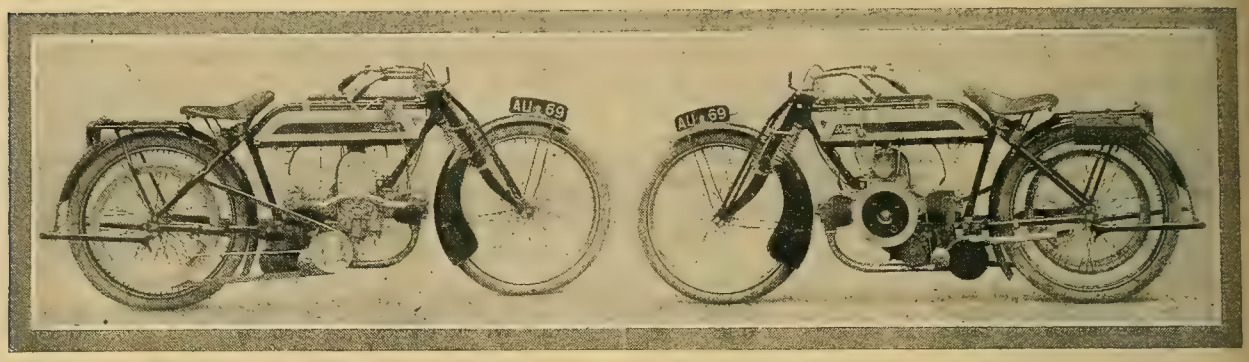
Where are the Amateurs?

We have heard a good deal lately with regard to the lack of opportunities for amateurs in hill-climbs, so that it is very disappointing to see an event organised specially to give them a chance so poorly supported. The Liverpool M.C.'s idea of holding an open expert barred climb on such a well-known hill was an excellent one, and deserved a large entry. Unless amateurs show more enthusiasm for events which are arranged specially for their benefit they cannot expect their complaints to be taken seriously. Of course, this event was held rather late in the season, but all the same we cannot think that the North-country amateurs can be as keen as they are said to be when they turn out in such meagre numbers.

W. Copeland (7 h.p. Indian sidecar) who was second on time in Class 7. E. Longdon (8 h.p. Dot sidecar) who won the same class on time and handicap.

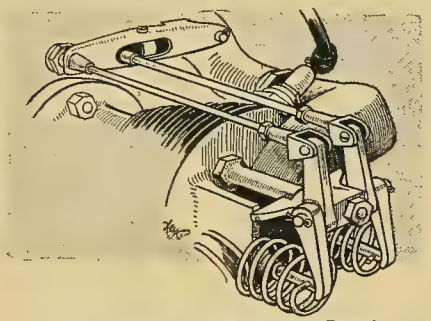
THE BROUGH 500 c.c. TWIN.

Special Features: Overhead Valves, Two-speed Gear Box, and Detachable Magneto.



Belt transmission and flywheel sides of the new 3½ h.p. twin-cylinder horizontally opposed Brough. The drive from the engine to the two-speed gear box is by chain.

AN exceedingly interesting machine, which is the result of three years' careful experimental work, is the 3½ h.p. horizontal twin Brough motor bicycle, made by Brough and Co., Basford, Nottingham. The engine is, of course, the most interesting feature of the machine. The dimensions are 70 bore by 64.5 stroke. The valves are of the overhead type, with the seating actually in the cylinder. The detachable portions, held in by a bridge piece, are merely the guides to the valve stems. The valves are so designed that in case of breakage they cannot by any means fall into the cylinder. The exhaust valve



Combustion head of the 500 c.c. twin Brough showing overhead valve mechanism.

is arranged so that it has a sharp lift and also closes quickly, thus keeping the engine cool. In fact, after between three and four thousand miles test running, the plating on the exhaust pipes is not discoloured in the slightest degree. The crank case is of one casting, so that oil leaks will be entirely absent. The cylinders are spigoted $\frac{5}{8}$in. in the crank case, thus rendering the fixing thereof very firm.

The carburetter is a special type of Senspray with a horizontal jet, attached to a short pipe brazed on to the centre of the inlet pipe, and is specially made for the Brough firm.

A Neat Magneto Coupling.

The U.H. magneto is fixed on the top of the crank case and held by nuts and two special washers, shown in the accompanying illustration. If these nuts are loosened, the magneto, which is driven by means of a dog, can be withdrawn instantly without disturbing the timing gear in any way.

The exhaust lifter is of particularly neat design, and is so arranged that the inside wire of the Bowden control pulls one lifter and the outside wire pushes the other, thus ensuring an equal lift on both valves.

The crank case release is situated on the top of the crank case, thus releasing the pressure and not wasting the oil.

Bolted underneath the crank case, and forming a unit with it, is the two-speed dog clutch gear box, the shaft of which is driven by chain from the engine-shaft.

The silencer is another interesting feature. It consists of a very large expansion chamber, into which the two pipes from the exhaust ports are led, so as to give a swirling action, the exit pipe being fairly long. It is very quiet, and should be quite devoid of back pressure.

Accessibility Well Studied.

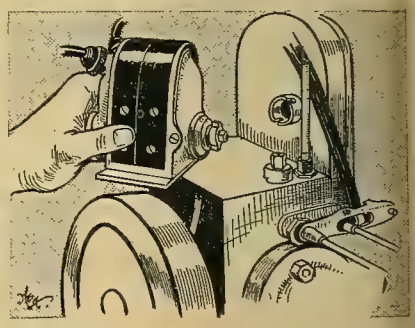
The whole machine is particularly well finished, the castings being very clean, while the chief point aimed at and attained is accessibility. An adjustable pulley is fitted, giving a range of gearing between 4 and 6½ to 1 on top speed. The rear brake is provided with a long shoe, which is carried in a slotted lug brazed on to the chain stay, and is applied by a good size pedal connected to the brake by a short rod giving a direct pull.

The back tyre is very accessible, as the mudguard is fixed by the carrier stays and the stand. Druid forks are fitted. The saddle is 29½in. from the ground, and the crank case clearance is 5in., which is a point of particular interest to colonial riders. The tank holds nearly two gallons of spirit. The lubricator is the well-known Best and Lloyd drip feed. The total weight of the machine, we are informed, is 154 lbs. It will be noticed from the illustrations that the frame is particularly well designed.

We had an opportunity of seeing this machine at Messrs. Robertson's garage, 159, Great Portland Street, W., recently, and were particularly impressed by the way in which it started from cold, and also by its extreme controllability. Brough and Co. are also bringing out another model, which is being specially designed for sidecar work as a kick starter and clutch will be fitted.

"THE MOTOR CYCLE" DIARY.

Sept. 20th.—Bristol B. and M.C. Members' Hill-climb.
" Hertfordshire M.C.C. Speed Trials.
" Ipswich and District M.C.C. Speed Trials.
" North Birmingham A.C. Paperchase.
" Western District M.C. Petrol Consumption Test.
Sept. 23rd.—Banbury and District M.C.C. Members' Hill-climb.



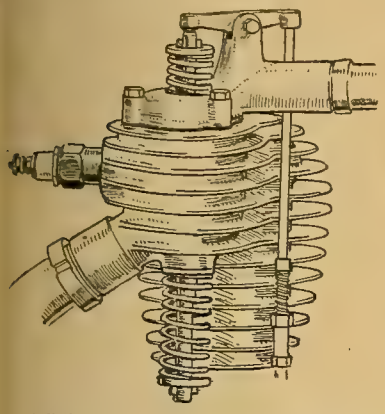
Showing the simple method of detaching the magneto. Note the special washer for holding down the magneto base plate, the air release pipe (shown broken), and the exhaust lifter arm.

OILDAG.

We have lately made a short trial of Oildag, a new lubricant, which is a deflocculated graphite made by artificial means which is far finer and purer than commercial graphite. This graphite is a by-product formed in the manufacture of carborundum by the Acheson Co. A small tin of this is mixed with a gallon of lubricating oil which must not be in any degree acid. The Oildag is then held in suspension after being well mixed and is said to have a very beneficial effect upon the valves and cylinder. It can be used with advantage on any bearing surfaces. Oildag can be obtained from Mr. B. W. Shilson, 28, Spencer Avenue, Coventry.

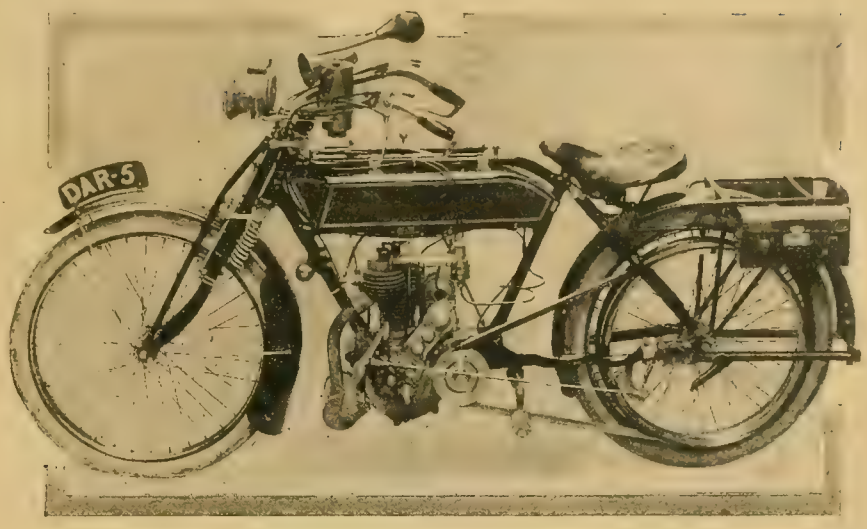
The 2¾ h.p. Villiers on the Road.

DURING the last few days we have had the opportunity of testing a 2¾ h.p. Villiers power unit on the road, and we can fairly state that for a fully fitted touring machine of its size the power produced was remarkable. The machine, which was kindly lent us by the Villiers Co., was by no means a new one, but our first short trip showed that it had ample power, and



Cylinder of the 2¾ h.p. Villiers showing overhead inlet valve mechanism, spring tappet, etc.

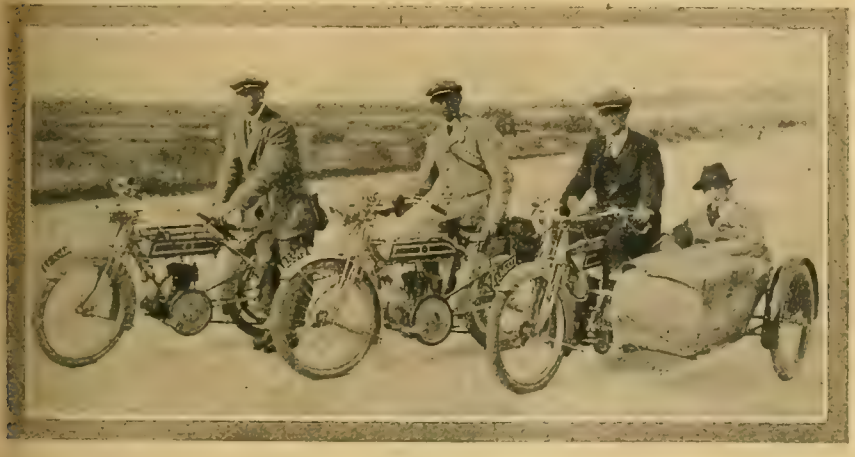
would pull up a hill of 1 in 9 on top from a very slow start—no mean performance for a 350 c.c. engine on a 5½ to 1 gear. It will be remembered that the two-speed gear is incorporated in an extension of the crank case, and is driven by an enclosed silent chain. The gear was quiet in action and changing is particularly easy. On Saturday last the machine was ridden to Brooklands, and gave no trouble whatever except for a choked oil pipe, a misfortune which might have occurred to any machine. On a trial round the course an unofficial speed of 46 m.p.h. was obtained for the lap, which must be considered distinctly good for an untuned touring machine. The handle-bar controlled clutch is extremely handy and a very convenient device, especially in traffic, and on the machine in question the phosphor bronze cone works particularly smoothly. Altogether we are thoroughly satisfied that the 2¾ Villiers is a soundly constructed unit



The 2¾ h.p. two-speed Villiers on which we made our test last week-end.

The Blackburn Motor Bicycle.

WE recently spent an interesting time at the works of Messrs. Burney and Blackburn, Berkhamstead, inspecting the latest models turned out by the firm. Since the machine was described in *The Motor Cycle* early this year (Jan. 16th), the design has not undergone any startling alteration. The frame has a longer wheelbase, slightly different back stays, and a new design of release valve which does not allow any escape of oil. The silencing arrangements are both neat and effective. The exhaust gases, after passing through a long pipe, enter a pear-shaped aluminium expansion chamber. The first pipe is blocked by the tapered end of the exit pipe, which fits into it, the gases issuing through holes into the expansion chamber, which they finally leave through holes in the exit pipe. The exit pipe is of ample length and has a flattened end, while a series of holes is drilled from its extremity for some distance. These, besides relieving back pressure, considerably reduce the noise, and we were so well impressed with the idea that we tried it on our own machine, with most satisfactory results. Druid forks are now fitted. It is interesting to note that the handle-bars are tapered so that the rider may have a comfortable grip at and near the extremities, while towards the centre they are considerably thicker and consequently have ample strength. The large outside flywheel, which is one of the chief features of the engine, is considerably lighter than the two inside flywheels of the average 500 c.c. single. So easily does the machine start that, on seeing Mr. C. S. Burney start his single-geared mount at walking pace, we asked him if a decompressor was fitted. He at once pointed out that such was not the case, as the easy starting at slow speeds and the wonderful slow running were chiefly due to the large flywheel. On the road we found the machine to be perfectly delightful. The particular model we rode was fitted with the Sturmey-Archer three-speed gear. The accompanying photograph shows three types of Blackburn machines, the 3½ single gear, and the 3½ three-speed model, ridden by the brothers Burney, and the sidecar model driven by C. Q. Roberts. The Blackburn is certainly a well-made and well-designed machine. It made its first important *début* by winning a gold medal in the recent Six Days Trials.



Three types of the latest pattern Blackburn, photographed at Brooklands.

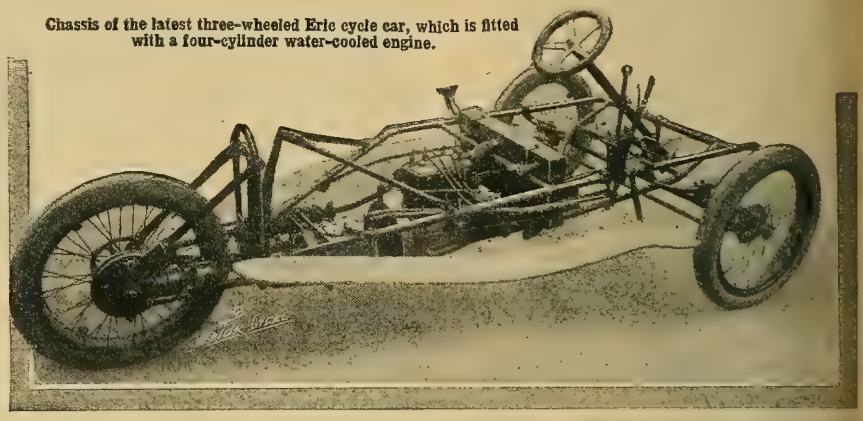
The 1914 Eric Three-wheeled Sociable.

IT is just eleven months since we described the Eric Sociable, which is manufactured by the P. and C. Syndicate, of Northampton and Bedford. It will be remembered that the frame is tubular, and is chiefly noteworthy for the system of back springing employed. The rear wheel is carried in a separate double triangular frame, attached to the forward end of the base of which is a single laminated steel spring, the top of which is anchored to the main frame. The near side of the two triangles which carry the rear wheel is hinged, so that after undoing one nut it may be swung to one side, leaving the wheel entirely exposed, so that a tyre repair may be easily effected. Ordinary semi-elliptical springs are fitted to the front wheels.

The chief improvement for 1914 is the fitting of a four-cylinder water-cooled engine. This has the cylinders cast *en bloc*, and the cylinder dimensions are 56 × 76 mm. The valves are enclosed, and the lubrication is by pump delivering the oil from a sump to the main bearings and spraying it to all moving parts. Both the engine and the three-speed gate change gear box are manufactured by Messrs. Salmon, of Burton-on-Trent, who are specialists in this sort of work.

The Bosch magneto is driven by skew gearing. The water-circulation is arranged on the thermo-syphon principle, the radiator being carried below the body, but in a position which renders it accessible to the air. The final drive is by bevel gearing, while the propeller-shaft has a universal joint at each end.

During a twelve mile run we noticed that the vehicle was particularly well sprung—in fact, although only the roughest type of test body was fitted, it was impossible to tell whether one was on a three-wheeled or a four-wheeled car, while the engine ran very smoothly.



Chassis of the latest three-wheeled Eric cycle car, which is fitted with a four-cylinder water-cooled engine.

Nine Months with a Modern Lightweight.

IT is always a sad moment when one has to part with a trusted mount, and the writer can say that he has never said good-bye to a more keenly appreciated motor bicycle than his 2¾ h.p. Douglas. It was delivered in September last year at short notice, and was practically a 1913 model. In fact, the only conspicuous 1912 features about it were the mudguards and the inlet pipe.

Its first journey was from London to Le Mans, which it accomplished successfully, though it was quite "raw." However, the trip there and back did it a great deal of good, and after the silencer had been cleaned out (as the engine had been much over-lubricated), it finished the last part of the journey in splendid form.

Since that date it has followed numerous trials and competitions and accomplished much valuable work in the shape of sundry business calls.

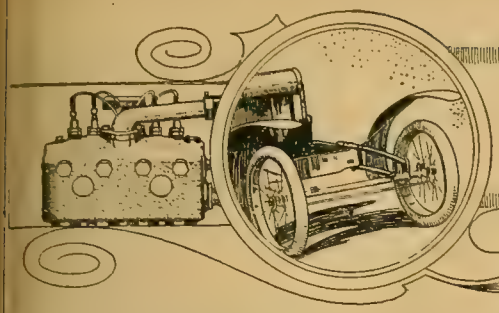
To our mind the control was improved by the fitting of a Lukin carburetter, which behaved splendidly, and is now doing equally good work on another Douglas owned by a well-known motor cyclist. Later a Binks was fitted, which was just as satisfactory. Both have been reviewed in *The Motor Cycle*, and both have left the owner a profound admirer of the automatic carburetter. For town work and general purposes a good, well-tuned, automatic carburetter cannot be beaten. True, it may not be quite so economical, and may be a shade less efficient than the two-lever type, but, take it as a whole, it is entirely satisfactory.

Naturally, in the course of following trials the machine was put at and successfully climbed many abnormal hills, and on these occasions the adjustable pulley, which enabled a general reduction of gears to be made, came in handy.

Among the excellent qualities possessed by the Douglas were its comfort, owing to the handle-bars and riding position, which were quite ideal, the vibrationless qualities of its well balanced horizontal engine, and its extraordinary steadiness on the greasiest roads. The machine proved itself to be reliable, and the valves were never changed, while the ease with which the engine started was quite remarkable. One could literally walk it off when seated in the saddle by engaging low gear, raising the exhaust lifter, and taking a couple of lazy steps before releasing the valve.

When new the exhaust was rather too noisy, but this was remedied by removing the baffle plates and stopping the holes in the silencer by means of a plate riveted on, and by fitting a long exit pipe.

In giving our experiences with this machine, our chief difficulty is to avoid praising it unduly, but its behaviour was so satisfactory that we cannot but give it the eulogy it has earned. The machine also had a good turn of speed, and could attain nearly fifty miles an hour on Brooklands, while its final achievement while in our possession was to gain a gold medal on the London-Edinburgh run. It suited the particular work it was intended for admirably, and now that it has left our possession it is greatly missed.



CYCLE CAR DESIGN.

THE INFLUENCE OF CORRECTLY-PROPORTIONED GEAR RATIOS.

A MATTER which will have a very great influence on the success of the cycle car is the correct choice of the gear ratios. This is, properly speaking, a subject which is divided into two parts, first the ratio of gear on the top speed, second the ratios of the various speeds to each other.

Cycle cars are of such various types as regards the transmission gear that it is not so easy to generalise about them as in the case of cars whose transmission varies very little. However, a large proportion of cycle cars have a direct drive on the top speed and some kind of change-speed gear giving one or more lower speeds, and this type will therefore be assumed.

In this case it is usually not difficult to change the ratio of the top speed, and this can therefore be varied according to the load and the engine power. The only remark necessary to make about it is that it is well, when designing the transmission, to arrange that a considerable variation of gear can be provided if required. Thus in a bevel driven axle the casing should be so arranged that a considerable variation of gear can be used without either of the wheels fouling the casing.

Variation of Ratio in Gear Box.

The change-speed gear is, however, in a very different position, for it is usually not at all easy to vary the ratios between the different speeds when once the box is built up, at all events without considerable expense. In some forms of change-speed gear this can no doubt be done, but in many it involves an alteration of the centres of the wheels.

The two most important gears to settle are the top and bottom. The latter must, of course, be low enough for the vehicle to ascend any hill it is likely to come across, while the former must give reasonable speed on the flat without unduly racing the engine. If the difference between the top and bottom ratios be too small, it will be found that if the car is geared high enough to run nicely on the flat it will fail on steep hills, while if geared for the hills on its bottom the engine will have to race a great deal on the flat.

On the other hand, if the difference between the top and bottom be too great the car will be very slow on hills when the first speed is in use. To those who tour in a great variety of country this is the lesser evil of the two. In considering the bottom speed of a cycle car, it is well to remember that cycle cars may largely take the place of motor cycles and sidecars in the future, and that sidecars are very much used in the North, where the country is hilly.

Practically all sidecar machines have a change-speed gear and usually a much higher power in proportion to their weight than cycle cars.

If a cycle car is to be capable of going up all the hills which are likely to be met with in a tour over picturesque country, it must be capable of ascending a gradient of 1 in 4, and, further, it should be capable of doing this even if the surface is not in very good condition. It may be thought that this is an excessive allowance, but Sutton Bank is slightly steeper than 1 in 4, and it is situate on a main road. Cycle cars should not, however, be confined to main roads, and, if other examples are taken, there are many hills worse than Sutton Bank, *i.e.*, many are as steep and have much worse surface and often sharp turns at the steep part.

Gear Ratio for 1 in 4 Grades.

The tractive resistance of a motor car on a gradient of 1 in 4 is one-fourth the weight of the vehicle plus the rolling resistance on the road. If the road resistance be taken at 60 lbs. per ton, which is by no means high for this type of hill, then the total resistance is 620 lbs. per ton.

It is therefore evident that the low gear must be low enough to give a tractive force of this amount or the car will fail on hills. The low speed is, therefore, fixed by this regardless of the number of speeds provided.

The most convenient top speed, however, will depend largely on the number of speeds provided. It is extremely inconvenient to have the gaps between the speeds too great, while, on the other hand, for a given weight and price, the fewer speeds the greater the

Miss M. Corkindale, of New Zealand, an enthusiastic rider of a 2¾ h.p. three-speed New-Hudson which she manages with perfect ease.

Cycle Car Design.—

power which can be provided, hence the bottom speed can be higher.

Gear Proportions and Tractive Force.

Taking the three-speed car first with a direct speed on top and the usual motor car type of change speed gear, it is not usually worth while to gear it to go up hills on top speed steeper than about 1 in 18 continuous rise. A car so geared will go over practically the whole of the Portsmouth Road on its top, and to gear it lower means running the engine excessively fast. This means a tractive force of 184 lbs. per ton on the top speed.

That is to say, the tractive force on the low speed must be 3.4 times that on the high. If the loss in friction were the same on the bottom gear as the top the ratio between the top and bottom speeds would be the same as that of the tractive forces, *i.e.*, 3.4. In practice, however, the drive of the low speed is usually through two extra gears, and there is, therefore, a considerably greater loss through friction. This must be added to the gear ratio, so that if the extra friction is 10% the total gear ratio between top and bottom must be 3.75.

The best ratio for the intermediate speed can be found in a similar manner if it is settled what gradient the car should ascend on second.

Two or four speed cars can have their gear ratios calculated in a similar manner, the ratios being naturally less in the two-speed, as steeper hills will have to be taken on the top to avoid dropping on to the bottom gear, while they can be higher in the four-speed as there are three lower speeds to fall back on instead of two.

Past Failures must not be Repeated.

In the past many failures have occurred through the ratio between the top and bottom gears not being wide enough, and it is most important that this should not be repeated in the cycle car. People will generally want their cars to go a reasonable speed on the flat without racing the engine, and as trial runs are usually mainly on moderately flat roads this will largely determine the sale of the cars. If the ratio is too low this will mean the car failing on the hills, and nothing excites ridicule of any type of motor in these days so much as failure to go up hills. Now failure to go up hills does not always depend on want of engine power, but is largely due to the designer not having proportioned the low gear correctly.

As an instance of this, the case of a certain car may be mentioned which had a ratio between top and bottom speed of practically 3 to 1. This car was run in the Scottish Trials three years running, and every year failed to get up the hills without being pushed, though none of the trial hills were steeper than 1 in 5. Had the low gear been lowered to about one-fourth of the top it would have got up them easily.

ENGINEER.

The General Utility of Candour.

THOSE who closely followed the reports of the Auto Cycle Union Six Days Trials at Carlisle will remember that, in allotting marks, the judges took into consideration the question of "general utility." Precisely what these gentlemen meant is known only to themselves, and so far as their official report reveals anything, the secret is still locked in their breasts. To the ordinary "motor cyclist in the street" such a term would convey that a machine which gained full marks in this respect was a go-anywhere mount, would start from a standstill, and be exceedingly flexible under load. As all the survivors of the strenuous trial must have been fairly competent to pass such tests, otherwise they would not have found themselves in Carlisle skating rink under the judges' eyes, one is a little at a loss to know how or why the judges gave or deducted marks under this heading. And this non-revealing of official knowledge gained by inspection of the surviving machines opens up a very important point affecting the private user, for whose benefit these trials are, or ought to be, mainly conducted. For the most careful perusal of the judges' report reveals precisely—nothing!

It is a document, the composition of which, by a rising diplomat, would immediately mark him down for promotion to the highest ambassadorial post. It says so little in such a number of words. We are told, for instance, that control wires were often broken and badly fitted. Why are we not told to which machines these remarks apply? Again, the report says that many machines showed signs of considerable oil leakages, but no mention is made of the offenders. How then can the prospective purchaser decide which is the most suitable machine for his requirements; and so on throughout the report? This lack of candour, I consider, by a body such as the A.C.U., is entirely to be deplored. The whole essence of a big trial is to reveal the truth and the *whole* truth. Why cannot a complete report on every finishing machine be tabulated and published? Are the manufacturers averse to such a course, and, if so, is the A.C.U under the thumb of the manufacturers? The whole report is a masterpiece of partial revelation. I, for one, hope that in succeeding years the authorities will lift the veil with rather more freedom than they do at present. By this means trials would increase enormously in value; and, after all, the private-owner pays the piper in the long run, so it is only fitting that he should call the tune.

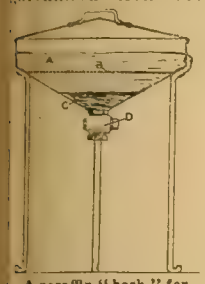
As things are at present the A.C.U. is nothing like so outspoken as is the R.A.C. when that club issues reports of trials held under its auspices. It does not matter how small the accessory to be tested, or how important the car, the report is always a plain unvarnished, bald statement of what happened during the trial, and showing precisely how the article in question comported itself under test. Let the A.C.U. follow suit. Technical reports may not be the most enlivening of literature, but to the student of form they convey as much interest as a perusal of "Ruff's Guide" does to the racing man. The form of all machines in a trial should be made public, and they should be entered for trial under that understanding. I do not in the least imply that facts are deliberately withheld, but I do urge most strongly that future reports should be complete documents.

SPARKS.

AMONG THE ACCESSORIES.

Paraffin "Bosh" for Cleaning Purposes

Messrs. Ralph H. Haylock and Son, 3, Queen Victoria Street, E.C., have introduced a paraffin "bosh" for cleaning machines, or parts of machines, which will be of considerable use to motor cyclists who have their own motor houses. The "bosh" consists of a cylindrical galvanised iron vessel, nineteen inches in diameter, supported on three legs and having a perforated metal filter placed about two inches from the top. The function of this filter is to obtain a clear body of paraffin or petrol free from all sediment and dirt, which always gets stirred up by the brush when it is dipped into the liquid to clean the machine. The apparatus is fitted with a lid at the top preventing evaporation when not in use, and a plug cock at the bottom for cleaning out the accumulated sediment. Its price is 12s. 6d., and besides being handy it should soon save its cost owing to the way paraffin or petrol is economised.



A paraffin "bosh" for cleaning purposes.
A. Filtered paraffin.
B. Filter.
C. Sediment.
D. Plug drain cock.

Cann's Rustproof Tyre.

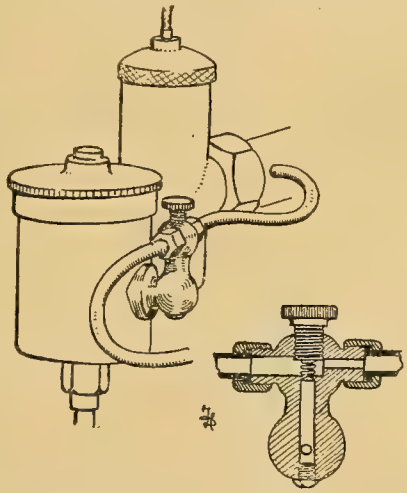
We have had one of these tyres in use for some little while on the back wheel of a chain-driven two-speed machine. The distance traversed is, up to the present, 1,900 miles (by speedometer). The ribs on the tread show practically no sign of wear, and the edges are as sharp as when first fitted. The tyre is not cut nor has it been punctured, and the rubber on the walls is still in perfect condition.

We have already published a description and illustration of this excellent tyre; it will therefore suffice to remind our readers that the bead is covered with a strip of chrome leather, which strengthens the tyre and at the same time prevents any rust there may be on the rim from having any injurious effect on the rubber and canvas of the bead. We are glad to be able to say that our experience of this tyre has been such as to give us a high opinion of it.

Tom Cann, Ltd., Applegate Street, Leicester.

A Bypass.

An improved type of bypass is at present before us, one of the chief features of which is the fact that there are no tiny orifices, and that the jet is of normal size. The device consists of a small jet chamber with a screw top to control the suction on the jet. This chamber is attached to the float chamber with the orifice $\frac{5}{8}$in. below the petrol level, and from it a small pipe is led to the main inlet pipe; a second pipe is arranged to draw warm air from any convenient part. The bypass weighs only a few ounces, and can be fitted by any average mechanic. The chief object of the bypass is, of course, to obtain slow-running and easy starting, but it is also claimed that cooler running results from its use.



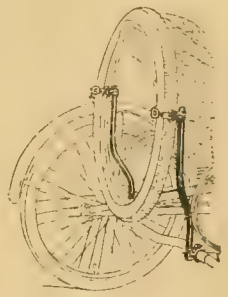
Section of Badcock's bypass also sketch showing how it is fitted to the carburetter.

F. Badcock, 110, Woodville Road, Thornton Heath, Surrey.

Spare Tyre Carrier.

The attachment of a spare tyre to the sidecar seat or chassis is sometimes rather awkward to arrange, depending on the design of the sidecar, and if attached in such a position that the tyre rubs against any projecting bolt or nut on the chassis, it is often found, after it has been carried about for a thousand miles or so that, on attempting to use it, the cover is badly chafed, particularly if the straps are not buckled very tightly.

Hunts, Ltd., 117, Long Acre, W.C., have sent us an illustration and particulars of their sidecar spare tyre carrier, which consists of a couple of adjustable arms attached to the rear tube of the sidecar chassis by means of clips. The strap holders at the top of the arms are adjustable to any position, and will hold any size of tyre. The arms and clips are enamelled black, and the price per pair is 10s. 6d.



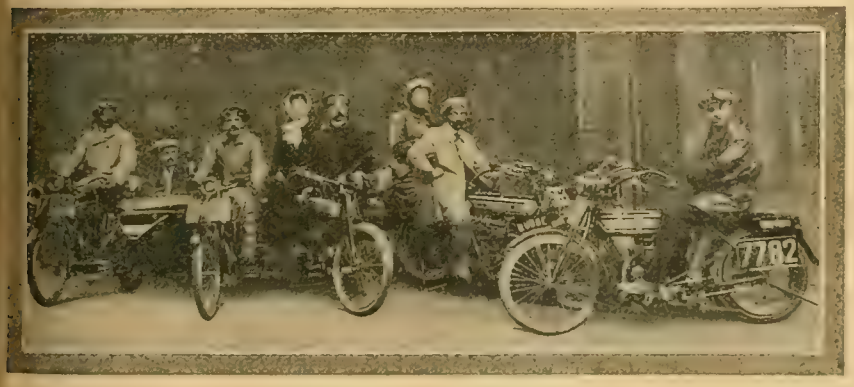
Sidecar spare tyre carrier.

The E.I.C. Mixture Detector.

A rapid and fairly accurate method of tuning up a carburetter is to use a plug with a glass window, by means of which the colour of the explosion flame may be seen. The Electric Ignition Co., Ltd., of Sampson Road North, Birmingham, have just introduced a little device called the "Mixture Detector," which we illustrate. This consists of a T shaped adapter to screw into the valve cap, the sparking plug being screwed into the top of the adapter. The window is composed of a quartz glass plug $\frac{1}{2}$in. in diameter and $\frac{1}{4}$in. thick, fastened in the arm of the T by a gland nut, so that it is readily detachable. In the case of standard sparking plugs the points of the electrode can be seen, so that in case of a supposed failure of spark, if the engine be revolved over compression, while the points are watched, the strength of spark may be examined. The adapter increases the capacity by $2\frac{1}{2}$ c.c. only, so the compression ratio is not seriously affected; in fact, it is not appreciable when the adapter is used in one cylinder of a $2\frac{3}{4}$ h.p. Douglas.

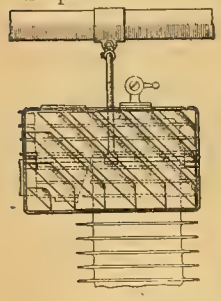
The E.I.C. "Mixture Detector."

The adapter may be employed for fitting an extra sparking plug, if it be wanted for double sparking. It is worthy of notice that inspection windows made of common glass, are dangerous, as when the glass gets hot, if water such as heavy rain fell on it, it would probably fly to pieces. The quartz glass windows used in the E.I.C. Co.'s mixture detector have been heated to a red-hot glow and immediately plunged into a bucket of water, when the distortion did not exceed one 1,000th of an inch.



A group of Belgian riders of Rudge motor cycles. In sending us this photograph, Mr. C. Holz, jun., who is at the extreme right of the picture, says "The Motor Cycle" is much appreciated in Belgium.

A Leg Shield and Air Deflector.

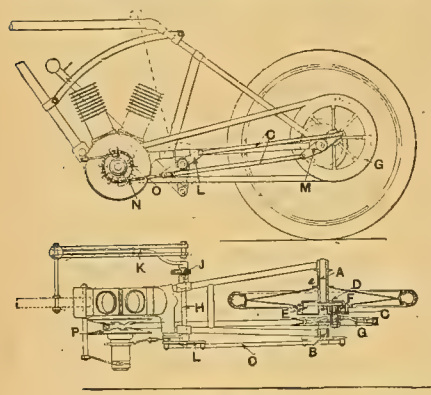


Suspended from the frame at each side of the engine is a baffle formed with louvres. This baffle acts as a leg shield, and the louvres are so set as to prevent heat being radiated on to the rider's legs, and also to deflect the air on to the hot cylinder. — Walton Maughan, No. 13,956, 1912.

PATENTS by Eric W. Walford A.C.I.P.A.

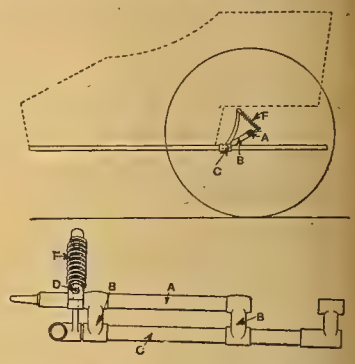
A Gradually Variable Drive.

In belt transmission, in which the drive is direct from the engine pulley to the rear wheel, it is usually necessary, in order to obtain a low gear, to employ a small engine pulley. The invention illustrated herewith comprises a gradually variable drive incorporating a reducing gear in the back wheel, whereby the employment of an extremely small engine pulley is obviated. The rear axle comprises two portions A B, each of which is cranked, the crank webs being connected by a crank pin C, which comprises two non-circular parts projecting one into the other. The hub D carries an internally toothed annulus E engaged by a pinion F carried by the boss of the driven belt pulley G, which, as will be seen, is mounted on the crank C, and is thus eccentric to the rear wheel. Mounted in the frame of the machine is a shaft H, one end of which carries a pinion J engaged by a sector on an operating rod K. Fixed on the shaft H is a lever L connected to a corresponding lever M on the rear axle part B by parallel links C; and it will be seen that movement of the rod K will rotate the shaft H, and rock the levers about their pivots. This rotates the cranked axle A B, moving the centre of the rear pulley G nearer to or from the engine-shaft. Simultaneously with this movement, the engine pulley is adjusted by a chain N engaging a chain wheel O carried by the movable pulley flange P, which is mounted upon inclined planes on the boss of the fixed flange. It will thus be seen that, as the engine pulley is varied, the eccentricity of the rear pulley G takes up the belt slack, whilst the drive to the rear wheel is through the reducing gear consisting of the pinion F and annulus E.—C. J. Bamford, No 10.754, 1912.



The Rollo Sidecar Suspension.

In this spring suspension the sidecar axle A is mounted by means of links B on a transverse member C of the frame. Between a projection D on the axle and a strut on the member C is arranged a coil spring F, and it will be seen that the wheel and axle A are free to rise and fall to absorb road shocks.—The Rollo Car Co., Ltd., and J. Farren, No. 20,749, 1912.



The Stag Engine.

The bore and stroke of the Stag engine, described in a recent issue, are 90 × 120 mm.

An Excellent Record.

We are informed by Messrs. A. J. Stevens and Co., Ltd., Wolverhampton, that the A.J.S. machine ridden by F. H. May in the A.C.U. Six Days Trials this year was bought second-hand in 1912, and that it had run for several thousand miles before it gained a silver medal, which is excellent testimony to the lasting qualities of these machines.

Henderson Improvements.

One of the most imposing-looking machines on the market is the four-cylinder Henderson. No doubt it would have become more popular for sidecar work if it had been fitted with a change-speed gear. Next year's model, however, will be so equipped, and a further refinement will be a very largely increased clutch surface.

New Zealand Trader's Visit.

We are informed that Mr. J. B. Clarkson, of New Zealand, who is well known in the cycle, motor cycle, and cycle car trade, is about to pay his annual visit to this country, and that he will arrive in England about October 20th. This information may be of interest to some of our readers. Mr. Clarkson's address whilst in England will be: London, c/o 1st Avenue Hotel, Holborn; Birmingham, c/o Messrs. Keep Bros., Ltd., 35-36, Great Charles Street.

Lady Godiva Mascot.

Mr. R. B. Harwood, of the City Garage, Coventry, is putting on the market shortly a neat mascot. This consists of a plated rod about 4in. long and plated clip for attaching to the handle-bar. At the top of the rod is fixed a small silk flag with a sketch of Lady Godiva on horseback woven into it. The prices will be 1s. 6d. (small size) and 2s. 6d. (large size). The mascot we saw was attached to an A.A. badge. It will also be sold for attaching to the radiator cap of cars.

The Dunlop Challenge Golf Cup.

On 3rd October the competition for the Dunlop Golf Cup will be held for the fifth year on the Coventry Golf Club's links at Finham Park. This event is open to golfers in the cycle, motor cycle, car, and allied trades. Quite a festive day is spent, for after the competition has been played off a dinner is held in the evening at the Masonic Hall, Coventry. Intending competitors should send in their names as soon as possible to Mr. Alfred Bednell, 13, Queen's Road, Coventry.

Bradbury Twin Cylinder.

The dimensions of the new model twin-cylinder Bradbury illustrated and described in our issue of September 4th are 74.5 mm. bore and 86 mm. stroke giving a cubical capacity of 749.75.

A Bosch Novelty.

We have received from the Bosch Magneto Co. a small mirror mounted in celluloid, which is designed for examining the contact-breaker of a Bosch magneto, which is sometimes placed in an inaccessible position. These mirrors can be obtained from the Bosch Co., price 2d. each.

Catalogues Received.

An attractive catalogue has been received from the Metropolitan Machinists' Co., Ltd., who have a large stock of accessories of general use to the motor cyclist.

A catalogue of accessories useful to the cycle carist has been received from Barker's Motor Dept., Kensington, W.

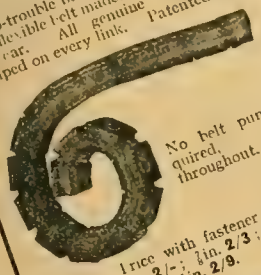
The Stepney Spare Motor Wheel, Ltd., has sent us a catalogue for 1914.

Races in Finland.

Particulars are to hand of motor cycle races recently held at Aggleby, Helsingfors, Finland, in which British machines, as usual, performed well. The Humber particularly distinguished itself, winning the class up to 2 h.p. and also that up to 4 h.p., in addition to the Special Prize of Honour for the machine which accomplished the most meritorious performance and made fastest time.

"SERVICE" BELTING.
BRITAIN'S BEST.

The no-trouble belt, always grips, never slips; most flexible belt made. Best for sidecar and cycle car. All genuine "Service" Belts stamped on every link. Patented 1956/10.



No belt punch required, cycleted throughout.

Price with fastener: ½in. 1/9; ⅝in. 2/-; ¾in. 2/3; 1in. 2/6; 1⅛in. 2/9.

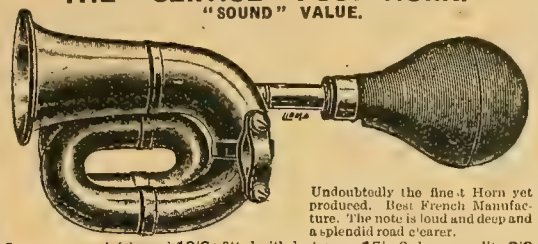
Bellicum FOR Motor Cycle Belts. THE SERVICE CO., LTD.

This useful preparation—sold only by us—will double your belt mileage. Stops slipping. Clean to handle. Carries like a plug. 6d. per bar

FOUR SPECIAL ITEMS FOR SPECIAL SERVICE.

We specialise in Motor Cyclists' Requirements and assure satisfaction in the goods we supply. We carry the **Largest Stocks** and can thus give **prompt delivery of anything** for motor cyclists' use. **Try us—write, wire, or 'phone.**

THE "SERVICE" POST HORN.
"SOUND" VALUE.



Undoubtedly the finest Horn yet produced. Best French Manufacture. The note is loud and deep and a splendid road clearer.

Sent on approval if desired, **13/6**; fitted with dust gauze, **15/-**. Ordinary quality, **9/6**

The "SERVICE" VALVE TAPPET ADJUSTERS.
Neat—Strong—Effective.

Restore lost power to an old engine by giving correct valve lift.

Four thicknesses, **3d.** each or **9d.** the set.

Service Spare Petrol Cans.

For fastening to carrier. 1 quart size, **1/-**. ½ gal. size, **1/3**. 1 gal. size, **2/-**.

Agents for "Stag" Engines. Cycle Car Model in stock—Of special interest.

Write for particulars.

The SERVICE Co., Ltd.,

'Phone: 260 Central. Wires: "Admittedly, London."

289-292-293, High Holborn, LONDON, W.C.

(The Trade Supplied).

SERVICE "SNIPS"

Bowden Countershaft Two-speed Gear, for Triumph, with back wheel and frame parts, almost new, **£6 - 10 0**

Triumph Free Engine Hub, complete, built up with rim, etc., good as new - **£5 - 0 - 0**

Mabon Clutch for Triumph - - **37/6**

1913 U.H. Magneto 50° Twin, guaranteed perfect, nearly new **£3 - 3 - 0**

Peter Union corrugated covers:
26 × 2¼, **21/-**
26 × 2½, **25/-**
Extraordinary value

Triumph Carburetter, new, **30/-**

F.R.S. Backrests, **15/-**

Harrison ,, **3/6**

Second-hand Tyres and Belts in stock.

Write for Clearance List, hundreds of bargains.

Special Agents for F.R.S. Lamps.

London Agents for Leamington Chairs, etc.

BRAMPTON VARIABLE GEAR

The Successes of riders using this gear afford conclusive proof of its efficiency and reliability. Those of Mr. H. Newman are typical:—

3rd place in the Junior T.T. and 3rd and 5th Fastest Laps, 7 successes in Hill-climbs and Reliability Trials during the last year.

The Brampton gives seven speeds, free engine, and a positive drive in all weathers. It is simple, easily operated, and can be fitted to practically all engines where the boss does not necessitate a recess in pulley flange of more than 7/16th in. deep.

The Brampton Variable Gear is both a convenience and an economy, for it enables a medium powered machine to do the work of a high-powered one, and to take hills and negotiate traffic with an ease that would be impossible without it.

Crower Square, Matlock,
July 8th, 1913.

Dear Sirs,
I am highly delighted with my Gear. I have run about 2,000 miles since I put same on machine. She grips perfectly on hills, even with Sidecar attached. For traffic work it is absolutely ideal.
S. FEARN.

PRICES:

2½ h.p.....**£3 10 0** 3½ h.p.....**£4 4 0**

Write to-day for full particulars.

BRAMPTON BROS., Ltd., Oliver St., BIRMINGHAM.

17,871,000 EXPLOSIONS

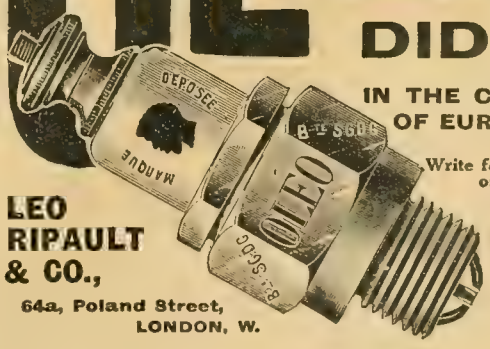
WITHOUT MISFIRE, WITHOUT SOOT.

OLEO

THE PLUG.

DID IT

IN THE CIRCUIT OF EUROPE.



Write for catalogue of these wonderful plugs.

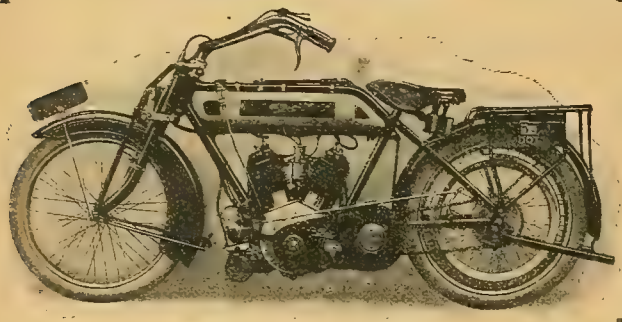
LEO RIPAULT & CO.,
64a, Poland Street, LONDON, W.

TYPE 6D.
4/-.

DOT

DEVOID OF TROUBLE

MOTOR CYCLES.



Speedy. Silent. Reliable.

Notice what our Standard Touring Combinations did at

COLWYN BAY SPEED TRIALS:

CLASS 16—
F. C. Topham - 8 h.p. DOT and Sidecar - FIRST.
E. Longden - 8 h.p. DOT and Sidecar - SECOND.

CLASS 18—
E. Longden - 8 h.p. DOT and Sidecar - SECOND.
Only beaten by 10 h.p. Cycle Car.

CLASS 14—
H. REED - 8 h.p. DOT - - - - SECOND.

Full particulars from—

H. REED & CO.,
38, Ellesmere St., Hulme, Manchester.
Telephone: 2125 Central.

THE

'U.H.'

MAGNETO

Gives a Fiery Spark.
Thoroughly Waterproof.
Absolutely Reliable.
Fires Regularly.
Does not Miss.

S. WOLF & CO., LTD.,
115, Southwark Street, LONDON, S.E.

Telephone: 5172 Central, 2734 Hop.
Telegrams: "Widerstand, London."

C.D.C.

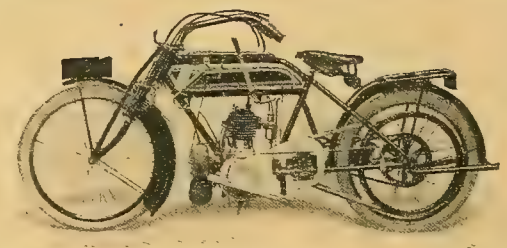
"LINCOLN ELK" New Models, 1913.

Manufactured Completely by

J. KIRBY,
Broadgate, LINCOLN.

Telephone: 484. Telegrams: "ELK," LINCOLN.

Wholesale Agents for Scotland:
The North British Machine Co., Ltd.,
56 & 58, Great Clyde Street, Glasgow.



4¼ h.p. 2-speed Model	£46	0	0
3½ h.p. Standard ,,	£35	0	0
3 h.p. ,, ,, ,,	£31	10	0
2¼ h.p. ,, ,, ,,	£29	10	0

All Models fitted with Palmer Tyres, Bosch Magneto, and Footrests. "Druid" Spring Forks.

Sole London Agent:
REY,
Heath Street Motor Works,
5, Heath Street,
Hampstead, London, N.W.

RANGER

"ALL BRITISH"

CYCLE CAR The Sensation of the Year!

A wonderful car of tried and proven reliability as the following letter from a well-known Midland Engineer shows:
August 19th, 1913. "I am taking this opportunity of writing to you about my experience with the car itself. At the outset you will be pleased to hear that I have had as much real pleasure and satisfaction out of driving the little car, as any motor vehicle I have had during the past 15 years. I have driven the car myself over 1,000 miles, and she has probably been another 1,000 miles with other drivers. I think it's a safe statement that she has never given a minute's anxiety or trouble on the road."

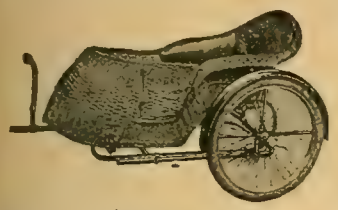
PRICE, with smart two-seater body, side and tail lamps, **£105.**

For full specification and other information write to:

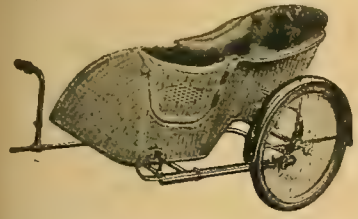
POLYRHOE CARBURETTERS, LTD., 144, Gt. Portland Street, London, W.

CORONET SIDE CARS

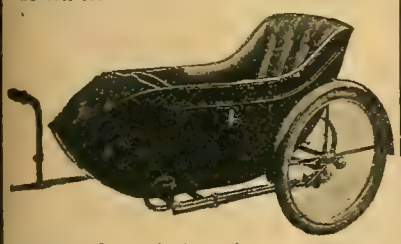
are correctly constructed to give the utmost satisfaction to users. The design is pleasing to the eye, and has no freakish look. Avoid risk of disappointment by specifying a Coronet, which are fully guaranteed and manufactured under the best possible conditions.



MODEL 9.—Underslung frame, body fitted with side door, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£7 7s.**



MODEL 8.—Underslung frame, high-class reed cane body, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£8 17s. 6d.**



MODEL 7.—Underslung frame, coach-built body, tool-box under front, also under seat. A real high-class sidecar. **£10 15s.**

SENT CARRIAGE PAID.
TRADE SUPPLIED.

TEE BEE SEAT-PILLAR
(for lowering seat).
Price 5/-.

This attachment is particularly suitable for improving the riding position of machines which are too high. It will be noticed that clearance is left for the peak of the saddle, which allows the saddle to be placed well forward.

BOOTH'S MOTORIES,
Keighley Mills,
Bedford Street North,
HALIFAX.
Telephone 1062.

MOTOR BICYCLES FOR SALE.

1912 T.T. Roadster Matchless, do 60; £38.—Crosse, jeweller, Rotherham. [X9903

BRAND New Douglas, shop-soiled, single speed; £39.—Crosse, agent, Rotherham. [X9905

SUNBEAM, 2¾h.p., 2-speed gear, brand new.—Holt, Central Garage, Heywood. [X9862

3½h.p. Rex, lamp, horn, spare tyre, belt; £23.—110, Chester Rd., Warrington. [1743

TRIUMPH, 3½h.p., 1910; £20; ready for road.—Particulars, 81, Chesham Rd., Bury. [1804

P. and M., new 5 weeks ago; £60; also sidecar.—Rawnsley, draper, Servia Rd., Leeds. [X9958

1912 Bat-Jap, single speed, equal in every respect to new; £37.—Blamire, Forshaw St., Barrow. [X9965

1913 Douglas, model P; £39.—Further particulars from M. Gregson, 12, Hesketh Rd., Southport. [X9805

LATE 1912 2½h.p. Torpedo Precision, list £36, as new; £21; approval. — 80, Bispham Rd., Southport. [X9896

B.S.A., 1911, excellent condition throughout, usual spares, lamp; £32.—Silkstone, Priory Glen, Pontefract. [X9946

1911 Triumph, decompressor, lamp, spares, good order, no fault; £30.—174, Sussex Rd., Southport. [X9953

3½h.p. De Dion Bouton Motor Cycle, h.b.c., good tyres; £6/15.—Muir, 45, Stockport Rd., Manchester. [X9954

3h.p. Bat, good climber, low, B.B.; approval willingly; photo; £8, a bargain.—7, Claremont Av., Nicholson St., Hull. [X9592

1912¾ Triumph, F.E., perfect condition, speedometer, all accessories, little used; bargain, £40.—J. N. Atkinson, Bingley. [X9911

RUNWELL-PRECISION, 1910, 3½h.p., just overhauled, perfect condition, very fast; £22/10.—Wilson, 5, Rose Hill, Bolton. [X9963

SUNBEAM 1913 2¾h.p. Cycle, only been used about 150 for demonstrating, perfect order; £50, or nearest offer.—Lloyd, Davygate, York. [X20

3½h.p. Motor Cycle and Forecar, F.E., 2-speed; first cheque for £5 receives bargain; in good running order.—Grafton, 72, Ryland St., Ardwick. [X9891

CHATER-LEA, worm driven axle, with Hoffmann's bearings, and thrust washers, perfectly new; accept £19, or offers.—Albert Farnell, Bradford. [X9813

REX, 1912, 6h.p., 2-speed, little used, in splendid condition, good tyres, Continental combination; £40.—Howie, 61, Boundary St., Rochdale. [1714

3h.p. Fafnir, Chater frame, B. and B., 40 amp. accumulator, Matchless pulley, new Michelin, Service belt, good order; £10.—Broomhall, Haigh, near Barnsley. [X9979

1913 Triumph, free engine, in perfect condition, very little used, Lucas horn; will accept £40; no exchange.—Wilfrid Robinson, Stainley, Bamford, Rochdale. [X9923

MAY We Suggest that if your local agent has not the motor cycle or cycle car that you are wanting, you ask him to write to Hitchens', Ltd., Morecambe, for same. [0331

TRIUMPH, free engine, 1911; Rover, free engine, 1912; Triumph, standard, 1910; Triumph, free engine, 1909; all in excellent running order.—Stockdale, Lytham. [X8797

1913 3½h.p. B.S.A., free engine model, new Bates cover on rear, and Kempshall front, new 1in. Dunlop belt, Lucas lamp, horn, etc., as new; £40, or near offer.

1912 Brand New 3-speed Rover; list £61/12, to clear £48.

1912 Brand New Fixed Engine Rover; list £49; any reasonable offer accepted.

1913 B.S.A., F.E.; list £56/10, first cheque over £47.

1913 B.S.A., T.T., automatic lubrication, h.b.c. to mag.; list £49/5, ours £42.

1913 Ivy-Precision, 3½h.p., high compression, forced induction, automatic drip feed, etc.; list £45/10, to clear £38.

1913 2¾h.p. Ivy-Precision, finished Ailsa grey; list £38, ours £32.

1911 Rudge, fixed engine; first cheque over £25; not ridden 1,000 miles.

THE Latest in Lightweights; 1h.p. Imp, weighs 50 lbs. only; list £22, take £19 for quick sale.—

HARTLEY CLEGG, Ltd., Burnley. [X8963

ARIEL 1912½, 3½h.p., Armstrong 3-speed, Ariel decompressor, Coronet sidecar, coachbuilt; cost £72/15, complete, accept £40 cash.—Shipley, Stainforth, Doncaster. [X9983

SHOP-SOILED Unused 6h.p. A.J.S. Combination; maker's price £92/10, our price £82/10 cash; guaranteed.—The Motor Mart Co., Old Lancaster Rd., Morecambe. [0338

TRIUMPH 1910, perfect condition, Cowey speedometer, Xl'all pan saddle, lamp, horn, belt, tube case, spare valve, etc.; £26.—Cunningham, Ventnor Terrace, Halifax. [X9900

Nearly Sold Out

Buy now. Save £17.

£52 10s. machine for £35 10s.

We offer a Brand New 1913 Machine at a reduction of £17 off list price, or we will accept **£9 down and 12 Monthly Payments of £2 5s.**

Read the following specification, and secure one of the biggest bargains ever offered.

NEW 1913 3½ h.p. A.S.L.-PRECISION.

Fitted with 3¾ h.p. Precision engine, Bosch weatherproof magneto, Best and Lloyd drip feed lubricator, Hutchinson rubber-studded tyres, handle-bar control, and complete with stand, carrier, number-plates, toolbag, and spare spring. Limited number only. If you are a cash buyer we will

ALLOW A DISCOUNT.

We will take your present machine in exchange if required. We will supply 2-speed gear and free engine for **£6** extra. Don't miss this bargain.

OFFERS WANTED FOR THE FOLLOWING:

New 1913 3-speed 3½ h.p. **HUMBER.**
8 h.p. **BAT-J.A.P.**, P. and M. 2-speed **£35 10**
3½ h.p. **REX**, 1909 model, magneto..... **£15 10**
4 h.p. Twin **N.S.U.** on Rex frame, magneto **£13 10**
3½ h.p. **PREMIER**, 1911½, B.S.A. 2-speed **£32 10**
3¾ h.p. **HUMBER**, 1913, 3-speed model, done about 200 miles, complete with sidecar **£48 0**
8 h.p. **G.W.K.**, 1912 model, not much used **£98 0**
2 h.p. **HUMBER** Lightweight, 1912 ..... **£25 0**
3¾ h.p. **A.S.L.**, brand new, 1913 model **£35 10**
3¼ h.p. **PREMIER**, 1913 model, 3 speeds, only run 500 miles **£46 10**
6 h.p. **BAT**, 1913, chain drive, like new **£58 10**
3½ h.p. **N.S.U.**, free engine, splendid order **£19 10**
3½ h.p. **QUADRANT**, 1908, magneto **£15 10**
TWIN HUMBER, 1912 Lightweight, free engine .. **£29 10**
2 h.p. **MOTOSACOCHE**, 1910, magneto **£13 10**
3½ h.p. **REX**, 1910 model **£17 10**
SCOTT, 1909, 2 speeds, nice condition **£19 10**
MORGAN Runabout, 1912, screen, hood, side tool boxes, new 3in. tyre **£67 0**
6 h.p. **TWIN REX**, magneto, H.B. control **£12 10**
3½ h.p. **QUADRANT**, magneto, spring forks..... **£11 10**
3¼ h.p. **REX** **£4 15**
6 h.p. **REX** Sidette, 1913 model; cost £80 ..... **£49 10**
3½ h.p. **TRIUMPH**, 1907 model **£18 10**
8 h.p. **BAT-J.A.P.**, 2 speeds, with £9 Sidecar **£39 10**
2 h.p. **SINGER** Lightweight, 1911 ..... **£13 10**
2½ h.p. **MINERVA**, h.-b. control..... **£4 15**
6 h.p. **CLYNO**, 1912, with Sidecar..... **£45 0**
2 h.p. Ladies' **MOTOSACOCHE**, 1910..... **£15 0**
4 h.p. **ROC**, free engine, magneto..... **£14 10**

PUSH CYCLES TAKEN IN EXCHANGE.

MISCELLANEOUS.

New N.S.U. 2-speed Gears, adjustable pulleys, for Bradburys, Rudges, Singers, 1910 and 1912 Triumphs. Cheap to clear.

XL'All Pan Seat Saddle **25 0**
Millford Sidecar Body, with cushion **9 6**
New 26 × 2½ Heavy Rubber-studded Continental **26 6**
New 26 × 2¼ Heavy Rubber-studded Continental **25 0**
Nearly new 4¼ h.p. Precision Engine **£12 0 0**
3½ h.p. Quadrant Engine, pulley, silencer..... **£2 17 6**
Chater-Lea Sidecar, cane body..... **£3 5 0**
Good Trembler Coil..... **6 0**
New Cane Sidecar Body, side door **£2 10 0**
Triumph Free Engine, built into wheel..... **£2 10 0**
Nearly new Binks Carburetter **£1 5 5**
N.S.U. 2-speed Gear and Free Engine..... **£2 10 0**
New Wicker Sidecar Body, side door **£1 9 6**
Ditto, canoe front **19 6**
Good Rigid Sidecar **£3 7 6**
Nearly new Coronet Sidecar **£4 10 0**
Bosch Magneto, suit Triumph **£2 2 6**
N.S.U. forecar, cane body, less tyres **14 6**
Triumph Pattern Handle-bars, 1in. stems **4 6**
2-cylinder Plain Coil **5 6**
26 × 2½ Front Wheel, with Dunlop tyre **17 6**
New Twin Bosch DAV Magneto, 45°, 48°, and 50° **£2 19 6**
New 1913 Armstrong Mark VI. 3-speed Gears. Delivery from stock. Trade supplied.
Nearly-new Mark VI. 3-speed Gear **£5 15 0**
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New Mirror Lens Lamp and Generator **13 9**

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MAUDES' MOTOR MART

1913 NOT 1912.

6 H.P. REX DE LUXE,
complete with Portland £13 13 0 Sidecar, lamp, horn, registration, etc., ready to be ridden away and FULLY GUARANTEED,

£70-0-0

or, payable £17 10 0 deposit, and twelve monthly payments of 87/6.

EXCHANGES ARRANGED.

Write for Terms and Discounts.

'PHONE, CALL, or WIRE.

NEW 1913 MODELS
FOR DELIVERY FROM STOCK.

TRIUMPH, 3½ h.p., 3-speed, "C"	£59 15
ZENITH, 6 h.p. model, kick start	£78 15
REX, 3½ h.p. model, 2-speed	£49 0
B.S.A., 3½ h.p., 2-speed, chain drive ...	£60 0
PREMIER, 3½ h.p., 2-speed gear	£56 0
REX, 6 h.p. model, 2-speed	£54 0

TRADE SUPPLIED.
EXCHANGES ARRANGED.

SECOND-HAND BARGAINS.
ALL GUARANTEED.
Full Specification on Request.

1913	**GREEN-PRECISION,** 3½ h.p., water-cooled, 3 speeds, chain drive, as new....	£45
1912	**ZENITH,** 6 h.p., Canoelet Sidecar ...	£50
1912	**MATCHLESS,** 8 h.p., free engine ...	£49
1912	**MATCHLESS,** 6 h.p., T.T. model ...	£40
1912	**REX,** 6 h.p. Portland Sidecar	£47
1912	**BRADBURY,** 3½ h.p., 2-speed, Sidecar	£40
1912	**BRADBURY,** 3½ h.p., Montgomery Sc.	£41
1912	**PIERCE,** 5 h.p., 4-cylinder, 2 speeds	£45
1912	**BAT,** 6 h.p., spring frame	£30
1912	**HUMBER,** 2 h.p., lightweight	£22
1912	**PREMIER,** 2½ h.p., 3-speed model.	
1912	**DOUGLAS,** 2¾ h.p., 2 speeds, kick start	£42
1911	**F.N.,** 2½ h.p., 2 speeds	£25
1911	**INDIAN,** 7 h.p., 2 speeds, and Sidecar	£42
1910	**V.S.,** 5-6 h.p., 2 speeds, spring forks..	£26
1910	**DOUGLAS,** 2¾ h.p., twin, magneto ..	£25
1910	**ENFIELD,** 2½ h.p., twin-cylinder	£20
1909	**HUMBER,** 3½ h.p., 2 speeds, Sidecar	£24
1909	**HUMBER,** 3½ h.p., 2 speeds	£20
6	h.p. **N.S.U.,** magneto, 2 speeds.....	£24
2¾	h.p. **DOUGLAS,** magneto, nice light-weight.....	£18
2	h.p. **MOTOSACOCHE,** magneto machine	£11
2	h.p. **MINERVA,** excellent order	£6
2½	h.p. **KERRY,** magneto ignition	£12
1¾	h.p. **N.S.U.,** magneto, nice lightweight ..	£9
5	h.p. **F.N.** Cycle Car, 2 speeds, 4 wheels..	£40
5	h.p. **REX,** twin, wants repairs	£9
4½	h.p. **F.N.,** 4-cylinder, needs overhaul ...	£8
HUMBER CAR, 15 h.p., 3 speeds and reverse, magneto, gate change, five-seater, hood, screen, Stepney, speedometer, lamps, horn, etc., excellent order. Exchange motor cycle or combination .....Price £52		

Deferred Payments, 5% extra.
EXCHANGES ARRANGED.

Maudes' Motor Mart,
136, Great Portland Street, LONDON, W.

'Grams: Abdicate, Wesdo, London. 'Phone: 552 Mayfair

MOTOR BICYCLES FOR SALE.

FREE Engine Triumph, 1912, 3 lamps, horn, 2 new belts, cane sidecar, perfect, £45; also 1906 Triumph, spring forks, Whittle, B. and B., £13.—Walton, Dawson Sq., Burnley. [X9403

2¾h.p. Werner, mag., 1912 B.B., Druids, footboards, adjustable pulley, studded tyres, good belt, tubes, low, fast; must sell; £11/10, offers.—E. Parker, 35, Clarendon Rd., Blackpool. [1801

TO Scott Agents, and to agents in districts where not represented.—We can deliver Scott machines from stock on good trade terms. Write for our wholesale list at once, enclosing trade card.—Hitchens, Ltd. Morecambe. [0333

5-6h.p. Bat-Jap, Whitsuntide, T.T. tourist model, new 2½in. tyres and belt, automatic lubrication, lamp, horn, tools, etc., not done 2,000 miles, complete; cost over £70, accept £45 for immediate sale; owner left England.—Scorrer, 141, Coltman St., Hull [X9912

WE have a few brand new 1913 motor cycles of various makes, which we are interested in selling on best cash, deferred, or exchange terms, the latter only on low-priced machines.—Write, stating requirements and allowances, The Motor Mart Co., Old Lancaster Rd., Morecambe. [1171

SALE of 1913 shop-soiled Zeniths, never been on road.—3½h.p., kick starter, listed £63, our price £52; 6h.p., kick starter, listed £78/15, our price £65; 6h.p., standard, listed £71/8, our price £59. There is one each only left, therefore get on the jump quick. No deferred or swaps entertained at these prices.—Hitchens, Ltd., Morecambe. [0334

8h.p. Twin Minerva and Sidecar, 1912, Bosch mag., Saxon forks, B. and B., footboards, just overhauled, £40; lightweight mag. Wolf, £9; 2¾h.p. T.T. New Hudson, overhead valves 3 speeds, and free engine, £35; 2¾h.p. Minerva, Amac, Bosch, £14; 3½h.p. Rex, Druid forks, £6/10; good offers for the above invited.—103, Derby St, Bolton. [X44

NORTHERN Depot, Ltd., Everything Motorish, Leece St., Liverpool.—Rex-Jap solo and sidecar combinations in stock, also Millford Herald, Corvette, and Premier sidecars; exchange depot for D A. cylinders. 2¾ h.p. Douglas lightweight, £23; 1h.p. auxiliary sets for pedal cycles; largest exhibition of accessories in the north at popular prices; N.D.L. oilskin motor cycle suits with leather belt, 30/6, sold elsewhere at 45/-. Call and examine stock, no obligation to purchase. [X4

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

A.J.S., all models, immediate delivery; Douglas likewise.—Marston, 26, Bridge St., Chester. [X9899

BIG Reductions on Stock Shop-soiled Machines, all makes; send for list.—Marston, 26, Bridge St., Chester. [X9897

SEND for Marston's List of second-hand motor cycles. —Marston, 26, Bridge St., Chester. [X9898

LATE 1911 3½h.p. Triumph, in grand condition; £23; first cheque secures.—Llew. Davies, Barmouth. [X9697

3½h.p. Rex, condition almost new, faultless, accessories, overalls, everything; £23.—9, London Rd., Derby. [X9915

1913 2¾h.p. Sunbeam, only used for demonstration purposes; what offers?—Orton, 35, Friar Gate, Derby. [X9931

4h.p. Campion-Jap, 19 months old, in good condition, with all accessories; £28.—J. Bewley, 5, Queen St., Derby. [X9774

2½h.p. Ariel, Hellesen, perfect running order, suit beginner; bargain, £5.—Stevenson, 56, New St., Oakengates. [X9817

DOUGLAS, 1912, G, little used, dropped and touring handle-bars, lamp, horn, tools; £35, offers.—Canby, Arboretum Rd., Walsall. [X9408

2½h.p., sound condition, 1913 B. and B., variable jet, all spares, tools; sacrifice, £5/10.—Box 4,111, *The Motor Cycle* Offices, Coventry. [X2

1910 F.E. Triumph, recently overhauled by makers, tyres good, lamp, horn, spares, speedometer, £30; 1913 £7/15 Herald sidecar, £4.—Stanley Davies, Welshpool. [X9770

1911 Triumph, F.E., splendid condition, Brooks padded saddle, adjustable pulley; cost about £60, sacrifice £27.—Cotterell, 46, Bull St., Darlaston, Staffordshire. [X9852

1912 Triumph, with Sturmey-Archer 3-speed gear, speedometer, Lucas 3-gn. head lamp, belt case, horn, spare belt, and mirror; £50.—Beresford, Tettenhall Rd., Wolverhampton. [X9702

GREAT Bargain.—3½h.p. Imperial-Jap, S.A. 3-speed, month old, demonstration, cost £54/17, £47 cash; 1911 Douglas, £25; 3h.p. N.S.U., 2-speed, mag., £15; 3½h.p. Minerva, Hellesen, £8; all in splendid condition. —Cycle Depot, Blaenau Festiniog. [X12

DOT, 3½h.p., Sturmey-Archer 3-speed gear, free engine, built for sidecar, extra heavy 2½in. Bates tyres, handle starting; all latest fittings, only been out for test; cost £62/10, sell £45, prompt cash; Montgomery conchbuilt sidecar extra.—Dracup, 8, Railway Bank, Hyde. [X9803

The Druid

—the proved PERFECT Spring Fork

—It's the SCIENTIFIC DESIGN and PERFECT SPRINGING principle which places "The Druid" so far ahead of any other Spring Fork—that's the reason why it is adopted on the leading machines of the day—and the fact that it

was fitted on the majority of winningmachines in the A.C.U. SIX DAYS' TRIALS

is proof of its supremacy.

—The "Druid" eliminates all vibration, bouncing and road shock—ensures perfectly true steering—admits of no side-play whatever—and is *completely* effective in promoting the rider's perfectcomfortandsafetyawheel

—The "DRUID" can be fitted to any existing machine quite easily—write for our 'Booklet' containing full particulars.

A. DREW & Co.,
Leopold Street,
BIRMINGHAM.

—and fitted on the WINNING machine in the 1913 JUNIOR T.T. RACE.

SUPREME FOR SOLO AND SIDECAR MACHINES

R.H.Sr

£10-10-0

Ten guineas is all it costs to bring your mount up-to-date by the addition of the

1913½ ROC

SIDECAR PATTERN

Two-speed Gear.

(6 Days' World's Sidecar Record type)

The 1913½ big clutch type has been designed expressly for passenger work.

It solves all gear worries and guarantees you satisfaction.

The 1913 Roc gear was already recognised the last word in motor cycle gears for solo use.

The 1913½ big clutch type is just what thousands of "sidecarists" have awaited and expected.

The Roc gear was the first of all motor cycle gears—it is the first to-day. Nothing could be smoother, easier to operate, or be more reliable.

No better investment for the money is possible than in this 1913½ Roc dependable gear, fitted complete for ten guineas.

Write for particulars, stating make and h.p. of your machine.

No delay in delivery.

ROC GEAR Co.,

HAYMILLS, BIRMINGHAM.

London : Robertson's, 157, Gt. Portland St., W

MOTOR BICYCLES FOR SALE.

ALLDAYS, 1912, 3½h.p., Roc 2-speed, fast solo or sidecar machine, good condition, engine excellent, tyres sound, new 1m. Lyso; £53.—4,067, *The Motor Cycle* Offices, Coventry. [X9390

TRIUMPHS, latest 1913 3-speed, free engine, and T.T. roadster models in stock for immediate delivery; cash, exchanges, or easy payments. — Premier Motor Co., Ltd., Aston Rd., Birmingham. [0340

1913 Bradbury, 3-speed gear, £49; 1913 Premier, 3½h.p., 2-speed, and countershaft, £46; 1911 Indian, 7h.p., new 1913 clutch, new tyres, £38/10; 1911 Humber lightweight, good condition, £17.—Jas. Plastow, Osborne St., Grimsby. [X69

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon and Bedford.

1913 Scott, immediate delivery from stock.—Flanders, Norwich and Yarmouth. [1420

INDIAN, 7-9h.p., free engine, slightly used, best equipment; £45.—James Bailey, Soham. [1751

TRIUMPH, 1912¾, Herald sidecar, accessories, unused tyre; £42.—89, Denmark St., Bedford. [X9784

3½h.p. Matchless-Jap, 1911, good condition, Mabon free engine; £26.—Hugh Funthorpe, Dereham, Norfolk. [X9410

CLYNO, 1912 pattern, 2-speed, chain drive, Palmer cord tyres, in perfect condition; any trial; £41.—Robinson's, Green St., Cambridge. [1900

2½h.p. Moto-Reve Twin, mag., adjustable pulley, perfect running order; any trial; £20, or offer, cash; new B. and B. carburetter, 25/-; Amac, 20/-.—Arthur Howlett, Southwold. [1776

3½h.p. T.T. Ariel, Armstrong 3-speed, Zephyr steel piston, special timing, Senspray, lamp, horn, watch, speedometer, everything absolutely like new, very fast, will guarantee machine perfect; £45.—Boswell, Sevenoaks, Eaton, Norwich. [X9821

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

HUMBER, 1909, 3½h.p., free engine, Roc 2-speed, accessories; £20.—Badger, Pennar, Pembroke Dock. [1645

DOUGLAS, standard, late 1912, in first-class order; £28, absolute lowest.—G. H. White, Croft Rd., Evesham. [1277

BRADBURY, 1913, 3-speed, belt guard, brand new, £55; Bradbury, 1912, excellent condition, new belt, very little used, £28.—Beacon, Garage, Penarth. [X17

1913 Premier, standard, 3½h.p., purchased July, not ridden 500 miles, new condition; too powerful; bought lightweight; £39.—4,108, *The Motor Cycle* Offices, Coventry. [X9850

2¾h.p. Minerva, 1913 B. and B., new Pedley belt and tyre, low, just overhauled, re-plated, and enamelled, go anywhere, climb anything; first cheque for £10 secures.—Lancaster, Yarpole, Leominster. [X9117

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

TRIUMPH, 1913, 3-speed, very little used; £50.—Cherry, 16, High St., Banbury. [X9402

SCOTT, latest 1913 model, brand new; £58, great bargain.—Ginger, Motors, Banbury. [X9936

SCOTT, 1913, 700 miles, as new; only £55; getting car.—Pepper, Milford Hill, Salisbury. [X9851

1913 3½h.p. Twin Matchless, chain, belt, unused; list £63, nearest offer.—Balfours' Motor Works, Banbury. [X3

MATCHLESS, 1913 models for immediate delivery.—Sole Oxfordshire agents, The Morris Garage, Oxford. [0313

PHELON and Moore, 1913 models for immediate delivery.—Sole district agent, The Morris Garages, Oxford. [0203

PRECISION, 1911, 3½h.p. engine, just overhauled at works, lamp, horn; £20, or nearest.—Mouck, Garth, Evesham. [X9892

1913 B.S.A., chain driven, 2-speed, perfect condition.—Apply to A. Bonham Carter, Salamanca Barracks, Aldershot. [X9396

RUDGE Multi.—Deliveries from stock; trial runs given; exchanges entertained; trade supplied.—Official agent, Barnes, Slough. [9139

3½h.p. Bradbury, N.S.U. gear, 800 miles, like new; wanting lightweight; with accessories, £50, or offer.—Isaac, St. Martin, Salisbury. [X9705

REX, 5-6h.p., 2-cyl., 2-speed, free engine, 2 new Kempshall tyres, good sidecar machine, in excellent running order.—Harris, Garage, Slough. [1719

2¾h.p. 3-speed A.J.S., 1913, new last April, ridden 550, Lucas lamp, speedometer, horn, tools, good as new; cost £61, £45.—Pool, King's Rd., Fleet, Hants. [1662

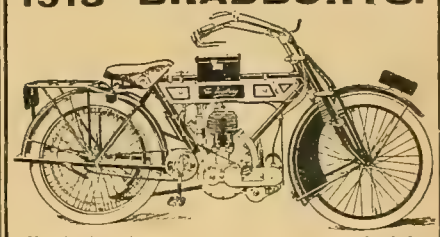
THE BIG SINGLE

84½ × 95

We offer a Brand New 1912 4 h.p. Tourist **REX, 84½ × 95,** with Bosch magneto, B. and B. carburetter, push pump and feed lubrication, spring forks, Cantilever seat, 26 × 2¼ non-skid tyres stand, carrier, toolbag, number-plates, pump, tools, and new F.R.S. standard lamp with grid generator, for **£34 10s.** Makers' prices of these goods are £46 and £2 13s. 6d. respectively. Cash offers or exchanges considered, as we wish to clear, **regardless of cost.**

Exchange offers wanted for

1913 BRADBURYS.



Tourists' Models, **£48.** Two or Three Speeds, **£60.**
Easy Payments from **£10** deposit.

Make your old machine up to date by fitting a

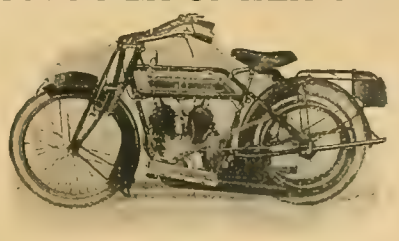
£5 10 1912 **ARMSTRONG** 3-speed Gear, Brand New, and complete with belt rim and controls.
Mark II., **£5 10 0.**
Mark III., **£6 2 6.**
1913 Mark VI., **£10 10 0.**
Usual price, **10 Gns.** and **12 Gns.**

WHY WAIT ? Despatch from stock. Trade supplied.

SECOND-HAND.			Every one guaranteed.		
£29	10	1912 4 **Rex**	**Humber,** 3½, F.E.	£10	10
£15	10	2½ Mag. **Rex**	**Rover,** 3½, clutch	£29	10
£12	10	3½ **Rex**	2 Mag. **Minerva** .	£11	0
£16	10	3½ Mag. **Birch**	**F.N.** Lightweight	£9	10
£27	10	5½ 2-sp. **N.S.U.**	'12 3-sp. **Bradbury**	£47	10
£17	10	3½ **N.S.U.**	3½ Light **Rex** ...	£10	10
£19	10	3½ F.E. **Minerva**	1911 6 F.E. **J.A.P.**	£34	10
£35	10	'12 F.E. **Quadrant**	5½ **Rex**	£15	10
£8	10	3 **Humber**	Twin **Moto-Reve**	£15	10
£26	0	**Humber,** 3½, 2-sp.	**James,** 1910, 3½ .	£16	10
£16	0	**Singer,** 3, mag.	4½ Twin **Minerva**	£15	10
£10	0	**P.F.,** 3½	1912 **Rudge** Multi	£42	10
£34	10	'11 **Rex** Twin, 2-sp.	**Motosacoche,** mag	£15	10
£27	10	'09 **Rex** Twin, 2-sp	**Werner,** Twin ..	£12	
£55	0	New Twin **REX** de Luxe and Sidecar.			
£45	0	1911 Twin **REX** Sidette, chain drive.			
£47	10	1912 **RUDGE** Multi and Sidecar.			
£47	10	1912 **CLYNO** and Sidecar.			
£42	10	1913 2-speed Twin **REX,** nearly new.			
£47	10	1912 **WALL** Tricarriage. Cost 90 Guineas.			
£31	0	5½ h.p. 2-speed **N.S.U.** and Sidecar.			

Easy Payments from one-quarter deposit and Twelve Monthly Payments.

1913 REX or REX-JAP



1913	6 h.p. 2-speed **REX**	£62 10
1913	6 h.p. 2-speed **REX,** chain drive	£67 15
1913	6 h.p. 2-speed **REX-JAP**	£71 8
1913	8 h.p. 2-speed **REX-JAP**	£73 10

Callers receive special Exchange quotations.

Collier's Motories,
Westgate, Halifax, England.

ROBERTSONS

SPECIFICATION

OF

THE WONDERFUL 8 H.P. 4-CYL.

HENDERSON

ENGINE . .	4-cylinder, 8 h.p., 2⅜ × 3in. bore and stroke, M.O.V., overhead inlet valves, adjustable tappets, white metal big ends, folding starting handle.
CARBURETTER	Schebler, automatic, with bye-pass. Operated by SINGLE steel wire from handle-bar.
IGNITION .	Bosch D.U.4 (car size).
SILENCER .	Sealed-up joints, no back pressure, and practically noiseless.
LUBRICATION	Sight feed drip.
TRANSMISSION	⅝ × ½in. chain through "Eclipse" clutch.
TANK . .	Petrol capacity, 3 gallons; oil capacity, ½ gallon.
FRAME . .	1¾in. × 13G, top tube sloped away at rear, triple-stem type head, and very efficient spring fork.
WHEELBASE	65in.
WHEELS . .	28 × 3in., 40 heavy gauge spokes.
GUARDS . .	With valances all round, front and rear.
BRAKES . .	Foot-operated (twin pedals for R. or L. foot) external band brake; hand-operated powerful Bowden front rim brake.
FOOTBOARDS	Aluminium, with heel rests and rubber pads.
STAND . .	Strong kick-up type.
SADDLE . .	Comfortable padded-top Middlemore.
TOOLBAG .	Large leather top tube type, with complete set of tools.
CARRIER .	Very strong tubular, with rear number-plate attached.
FINISH . .	Dark Royal blue, aluminium, and white.
SPEED . .	4 to 70 m.p.h. without declutching.
PRICE . .	70 guineas complete.

IMMEDIATE DELIVERY. COME AND HAVE A TRIAL RUN.

WE HAVE A GOOD SELECTION OF SECOND-HAND AND SHOP-SOILED MOTOR CYCLES AND SIDECARS OF ALL THE LEADING MAKES, AND THESE TWO SECOND-HAND CYCLE CARS.

1913 **CROUCH,** 8/10 h.p., w.c., 3 speeds and reverse, hood, screen, large flex horn, speedometer, 1 car and 2 cycle car headlights, acetylene tail light, large car generator, clock, Stepney with unused s.s. Hutchinson, large kit of tools including jack, etc. All as new and guaranteed Cost £175. Will accept **£120**

1913 **WALL TRICARRIAGE,** 5 h.p., 2-speed, shaft drive, speedometer, watch, horn, hood, luggage carrier, acetylene side lights, tail lamp and full kit of tools. Guaranteed in perfect order **£75**

'PHONE: MAYFAIR 5767

157, GREAT PORTLAND STREET, W.

MOTOR BICYCLES FOR SALE.

HARTWELLS' Garage, Chipping Norton.—Triumph and Douglas agents; also agents for Swift cycle car for Banbury, Burford, and Chipping Norton.

TRIUMPH, 3-speed, 3½h.p., free engine, clutch: in stock; £59/15.—Hartwells'.

DOUGLAS model O, £48; in stock model R, £52.—Hartwells'.

ENFIELD Autolette in stock, £138.—Oxfordshire agents, Hartwells'.

TRIUMPH, 1912, free engine, in fine order throughout, new 1in. Dunlop belt, lamp, horn, and tools; £39.—Hartwells'.

LEVIS, 2¾h.p., done 50 miles, with horn, new, beautiful machine; £30 for quick sale.—Hartwells. [1786

CYCLE Cars and Motor Cycles.—Immediate delivery of Singers and Humbers; trade supplied; we are also immediate cash buyers; trade.—Rose, Portsmouth. [X9986

2½h.p. J.A.P. Lightweight, B. and B. variable jet carburetter, adjustable pulley, Bosch mag., engine, tyres, perfect; £14, offers.—Whitaker, Temple St., Aylesbury. [1692

TRIUMPH, 1908, new tyres and belt, recently overhauled by makers, with 1913 cylinder and piston, costing £10; perfect condition, lamp, horn, complete; £21.—Doxey Milner, Tewkesbury. [1775

3½h.p. Triumph, late 1912, free engine, carefully used, perfect condition, with or without light comfortable sidecar; £45 complete.—F. G. Summerton, 22, Promenade Villas, Cheltenham. [X9929

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

BARTLETT'S Have Levis Machines in stock.

BARTLETT'S Have Arno Machines in stock.

BARTLETT'S Have Martin Machines in stock.

BARTLETT'S Have Humber Machines in stock.

BARTLETT'S Have Elf Motor Cyclettes in stock.

BARTLETT'S.—1913 T.T. Brooklands Martin; list 57 gns., clear £52/10.

BARTLETT'S.—1913 4h.p. twin Martin, 3-speed gear; list 65 gns., clear £55.

BARTLETT'S.—1913 Chater-Lea, 8h.p., 3-speed gear box, and sidecar, as new; cost £100 bargain, £62/10.

BARTLETT'S.—1912 Arno, 3½h.p., T.T. model; £27/10.

BARTLETT'S.—1912 Rudge, free engine, large tank; £31.

BARTLETT'S.—1912 Grandex-Precision, 2½h.p., 2-speed gear, as new; £25.

BARTLETT'S.—1911 Premier, 3½h.p., free engine; £26.

BARTLETT'S.—1911 F.N., 2¼h.p., 2-speed gear; £22/10.

BARTLETT'S.—1912 Fafnir-Chater-Lea, 3½h.p.; £24.

BARTLETT'S.—1911 Kerry-Abingdon, 3½h.p.; £26.

BARTLETT'S.—1910 Bat, 8h.p., and sidecar: £24/10.

BARTLETT'S.—1910 Enfield twin lightweight, £16.

BARTLETT'S.—1911 Bat, 6h.p., and sidecar; £40.

BARTLETT'S.—1913 Arno lightweight, shop-soiled; £27/10.

BARTLETT.—1913 Arno, 3½h.p., T.T., as new; £35.

BARTLETT'S, 2 and 3, The Parade, Kilburn ('Phone: 4807 Hampstead), and 141, The Broadway, Hendon. [1884

1913 Douglas, 2-speed, not ridden 1,500, unscratched; £39.—Nightingale, Crawley. [X8581

BAT-J.A.P., 1910, 3½h.p., Mabon, Senspray; £23.—214, Kew Rd., Richmond. [X26

P. and M., new, uncrated; must realise; £59.—B., 3, Queen's Av., Winchmore Hill. [1415

RACING 2¼h.p., all grey; bargain, £7/10, or offer.—165, Kempton Rd., East Ham. [1717

TRIUMPH, excellent condition; £27, bargain.—Sheldrick, 4, Stratford Grove, Putney. [1845

3½h.p. Brown, Bosch, B. and B., new 1in. Dunlop; £17.—51, Coventry Rd., Ilford. [1689

DOUGLAS, 1912, 2-speed; bargain, £32, lowest.—69, Brigstock Rd., Thornton Heath. [1741

JAMES GROSE LTD.,

Telephones: 7712 Central, 1297 North.

OLD JEWRY, CHEAPSIDE, E.C., and at 255-257, Holloway Rd., London, N.

SPECIAL.

A few lines, soiled, but otherwise perfect.

Sidecar, complete	£3 15
Lycett Pan Seat Saddle	19/-
XL'All Saddle	24/-
810 × 90 Car Tube	14/-
700 × 85 Michelin Cover	19/-
7ft. 3in. × ⅝in. Dunlop Belt, second-hand	1/6
Chater-Lea Handle-bars, with Roughrider Grips	3/6
26 × 2½ Dunlop Studded Cover	24/-
1913 B. and B. Carburetter	22/6
1913 B.S.A. Carburetter	35/-
26 × 2½ Avon Sunstone Cover	38/-
650 × 65 Avon Combination Cover	45/-
26 × 2½ Continental Cover	13/6
26 × 2½ Dunlop Cover	15/-
Garner Whistle	9/6
Jones' Speedometer	52/-
Cowey Speedometer, done 3,000	50/-
Stewart Speedometer	45/-
Cowey Speedometer	65/-
Lucas 50/- Lamp Set	40/-
Lucas 60/- Lamp Set	50/-
Tynesider Pillion Seat	17/6
A.K. Knee Grips	4/9
26 × 2½ Pedley Cover	37/-
⅝in. Clincher Belt	9/-
1,200ft. beam F.R.S. Lamp	46/-
26 × 2½ Bates Extra Heavy Cover	42/-
Bowden Valve Grinder	6/6

Sidecar Aprons	4/6 and 7/6
Tubular Footrests, fit 1¼in., rubber ends	3/11
Roni Burners	6d.
Backrests, fit any saddle	2/6
Motor Cycle Toolrolls, canvas	1/3
Patchquick Outfits	10½d. and 1/10½

GET our LIST.

Special prices quoted.

Motor Cycling Caps, with ear rolls	2/6
Tan Leather Caps, with ear rolls	4/6
Rubber Goggles, with spare glasses	pair 5½d.
Sidecar Lamp Brackets	1/6
SUITS—Waterproof, double breasted, high storm collar, dust and windproof, fawn, double texture (worth 25/-)	16/6
LEGGINGS only	pair 5/6
SEATLESS TROUSERS only	pair 9/6
Exhaust Valves, to suit all engines	each 2/3
PEDLEY ⅝in. BELTS (Wear guaranteed.)	foot 1/9
PEDLEY 1in. BELTS (Wear guaranteed.)	foot 2/3
PEDLEY 1¼in. BELTS (Wear guaranteed.)	foot 2/6

2/6 allowance for old belts.

LEATHER BELTING, 3-ply, ⅝in. 10½d., 1in. 1/- ft.

SILENT SILENCERS, the Grose, 2/6.

ARMSTRONG 3-speed and Free Engine Hub, Mark III., complete with levers and controls, and belt rim new. **£5 5**

SPECIAL.

HUTCHINSON 1913 COVERS, soiled, but guaranteed—

Brooklands, 26 × 2, **12/6**; 26 × 2½, **15/6.**

Tourist Trophy, 26 × 2½, **21/6**; 26 × 2½, **22/6.**

Passenger, 26 × 2½, **27/9**; 26 × 2½, **28/9.**

Cash returned if not satisfied.

1913 MOTOR CYCLES in Stock.

TRIUMPH, 3-speed	£59 15
Model R **DOUGLAS**	£52 0
Model P **DOUGLAS**	£48 0

SECOND-HAND MOTOR CYCLES.

1913 **DOUGLAS**	£39 0
1912 **TRIUMPH,** free engine	£35 0
1912 2½ h.p. **ENFIELD,** bargain	£25 0
1909 **TRIUMPH,** bargain	£18 18

Complete stock of B.S.A. Motor Cycle Parts.

Motors taken in exchange. Est. 1876.

TERMS—Nett Cash. **WRITE FOR LISTS.**

MOTOR BICYCLES FOR SALE.

AGLES.—Rover, 1913, 3-speed model, brand new; offers.

AGLES.—Bradbury, 1913, 3-speed model, brand new.

AGLES.—Rudge, 1912 T.T. model, exceptionally fast, perfect condition; £28.

AGLES.—Bradbury, 1912, standard model, new condition, all accessories; £29.

AGLES.—N.S.U. 4h.p. twin, Bosch, 1911 spring forks, 2 speeds, free engine; £22.

AGLES.—Bat-Jap, 1912, 3½h.p., spring frame, T.T. handle-bar, very fast; £27.

AGLES.—N.S.U., 3½h.p. Model de Luxe, Bosch mag., spring frame, latest pattern spring forks, other improvements, brand new; £37.

AGLES.—Bradbury, 1912, N.S.U. 2-speed gear, free engine, had little use; £35.

AGLES.—N.S.U., 3½h.p., T.T. model, 85×88, Bosch mag., enamelled grey; £19/10.

AGLES.—Enfield 2¾h.p. twin, late 1912, 2 speeds, free engine, chain drive, footboards, nearly new; £29.

AGLES.—N.S.U. 3½h.p. Popular, improved spring forks, 1in. belt, adjustable pulley; £20.

AGLES.—L.M.C., 3½h.p., Bosch mag., spring forks, nearly new tyres and belt; £20.

AGLES.—N.S.U. 2-speed gears to fit Triumph, Bradbury, J.A.P., B.S.A., Precision, Rudge, T.D.C., other makes, the easiest gear on the market to fit, alteration to motor cycle necessary; trade enquiries invited.

AGLES and Co., High St., Acton, N.S.U. West London district agency. Tel.: 556 Chiswick. [X9994

LMER'S Garage, Tooting.—The pre-eminent providers of unprecedented bargains.

LMER'S Garage, Tooting.—The recognised mart for motor cycles. Attend the fortnightly auction sales.

LMER'S Garage, Tooting, and see for yourself. Next three sales, Oct. 1st, Oct. 15th, and Oct. 29, at 2 o'clock.

LMER'S Garage, Tooting.—Catalogue free. Entries invited. Terms, no sale no charge.

LMER'S Garage, Tooting.—Write for No. 2 monthly booklet, full of interest.

LMER'S Garage, Tooting.—The selection of motor cycles below is submitted. Inspection invited.

LMER'S Garage, Tooting.—4h.p. Mauser, twin-cyl., mag., kick starter, h.b.c., spring forks, as new;

LMER'S Garage, Tooting.—3½h.p. 1912 Triumph, F.E., grand condition; clearance, £35.

LMER'S Garage, Tooting.—3½h.p. 1912 Singer, F.E., very nice condition; great bargain, £35.

LMER'S Garage, Tooting.—3½h.p. 1912 Humber, 2-speed, and sidecar; £36.

LMER'S Garage, Tooting.—1½h.p. F.N. lightweight, handy little machine; £5.

LMER'S Garage, Tooting.—5-6h.p. Minerva and sidecar, very fine lot; £16.

LMER'S Garage, Tooting.—3½h.p. Humber, 1911¾, grand solo mount, bargain, £25; also 4¼h.p. Fafnear, as new, £30.

LMER'S Garage, Tooting.—3½h.p. L.M.C., F.E., 1913, brand new; £47/10.

LMER'S Garage, Tooting.—2h.p. Minerva, £5; 2¼h.p. Atlas, £4; 2¼h.p. F.N., £10.

LMER'S Garage, Tooting.—4-5h.p. F.N., 2-speed, and sidecar; £25.

LMER'S Garage, Tooting.—4h.p. Stevens, Bat, and sidecar, powerful lot; £12/10.

LMER'S Garage, Tooting.—3½h.p. 1913 Rudge, T.T., grand machine; bargain, £35.

LMER'S Garage, Tooting.—4¼h.p. Kelecom and sidecar; cheap, great bargain, £9.

LMER'S Garage, Tooting.—3½h.p. Rex, £7/10; 2¾h.p. Minerva, £10/10; 2¼h.p. Peugeot, £5; 2¼ J.A.P., £8.

LMER'S Garage, Tooting.—Sole address, L. N. Palmer's Garage, Merton Tram Terminus, Tooting (nr. Victoria, 10 mins. Wimbledon). Motor buses 39, and 66.—'Phone: 208 Streatham. [X76

UGLAS, 1912, single-speed, splendid condition, lamp, horn, etc.; only wants seeing; £26.—Below

ATCHLESS 1913, 3½h.p. twin, 3-speed, not done 1,000, fitted with every accessory, as new; £55, £70 Below.

UMBER, T.T., 2¾h.p. twin, 3-speed, very fast machine, perfect order; £32.—Arthur Mylam and 42, High Rd., Streatham, S.W. 'Phone 1451 Tham. [1885

TOR Cycle, old fashion, extra good condition; cheap.—155, Penton Place, Walworth. [1810

12¼, T.T. Rudge, spares, etc., practically new; 28 gns.—137, Rye St., Bishop Stortford. [1765

11 Triumph, good condition; £25, or near offer.—Bounds Garage, 223, High Rd., Kilburn. [1849

THE REASON WHY

you should purchase your mount from us. If you intend having a new machine you will be well advised to negotiate the business with us as we are ACCREDITED AGENTS for all the desirable makes, and we will with pleasure accept your old machine in part payment if you wish.

The second-hand motor cycles we offer are, without exception, minutely overhauled and guaranteed, and the following selection is representative of our stock :

Date.	H.P.	Particulars.	Price.
1911	3½	**BAT,** T.T. roadster, special Druid spring forks	£25
1912	6	**BAT,** standard	£36
1912	3½	**BAT,** 2-speed	£37
1912	3½	**RUDGE,** clutch model	£36
1907	3½	**TRIUMPH,** 2-speed gear, and Millford Sidecar	£24
1909	3½	**TRIUMPH,** roadster	£23
1910	3½	**TRIUMPH,** roadster	£25
1911	3½	**TRIUMPH,** clutch model	£35
1912	3½	**TRIUMPH,** clutch model	£40
1912	3½	**B.S.A.,** 2-speed, with Imperial Sidecar, 16 guinea model	£67
1912	3½	**INDIAN,** clutch model	£34
1913	3½	**MATCHLESS,** T.T. model, 90 × 77½ mm. engine	£31
1911	3½	**BRADBURY,** standard	£28
1912	3½	**BRADBURY,** 2-speed, with canoe wicker Sidecar	£43
1912	2¾	**HOBART,** lady's model, 3-sp. gear	£28
1910	3½	**HUMBER,** 2-speed	£25
1911	3½	**HUMBER** 2-speed	£32
1912	2¾	**HUMBER,** 3-speed	£33
1910	7	**V.S.,** 2-speed	£25
1912	3½	**ZENITH,** Gradua gear	£36
1913	6	**ROYAL ENFIELD,** 2-speed gear, kick starter, Cowey speedometer, lamp set, horn, and Royal Enfield Sidecar (coachbuilt)	£65
1912	8	**CHATER-J.A.P.,** No. 7, 3-speed gear, Cowey speedometer, Lucas horn, F.R.S. lamp set	£58
1912	3½	**P. & M.,** standard model	£46
1909	3½	**QUADRANT,** Bosch magneto, B. & B. carburetter, h.b.c.	£18
1910	5	**REX** de Luxe, 2-speed, with Chater-Lea Sidecar	£33
1911	3½	**KERRY-ABINGDON,** new tyres	£28
1909	3	**ROVER,** Bosch magneto	£15
1910	5	**SAROLEA,** Bosch magneto	£14
1911	2¾	**ENFIELD,** standard model	£22
1911	2½	**F.N.** Tricycle, 2-speed, and clutch	£18
1913	6	**A.C.** de Luxe, very fully equipped	£75

DEFERRED PAYMENTS ARRANGED FOR NEW OR SECOND-HAND MACHINES.

We are officially appointed repairers to the A.C.U., R.A.C., A.A., and M.U., which fact established beyond all doubt our ability to see that your motor cycle is **perfect** before it leaves our hands.

EASTERN GARAGE,

418, Romford Rd., Forest Gate, E.

Telephone: 10 Stratford.
Telegrams: "Exaraco, London" C.D.C.

MOTOR BICYCLES FOR SALE.

MINERVA Twin, 4½h.p., h.b.c., spring forks, guaranteed; £22.—25, Dangan Rd., Wanstead [1715

LEVIS, famous 2-stroke.—Postcard Harry Walker, official agent, The Garage, Muswell Hill. [X8153

ROVERS, all models, from £48 15, or 55/- monthly; deferred payments no extra.—Lamb's, below.

DOUGLASES, all 1913 models, from £48, or 55/- monthly.—Lamb's, below.

B.S.A.'s, all models, from £48/10, or 70/- monthly.—Lamb's, below.

HUMBERS, all models, from £35, or 40/- monthly; deferred payments no extra.—Lamb's, below.

JAMES, all models, from £48, or 50/- monthly; deferred payments no extra.—Lamb's, below.

ENFIELDS, all models, from 50 gns., or 60/- monthly; no extra for deferred payments.—Lamb's, below.

TRIUMPHS, all models, from £49/5, or £3/3 monthly.—Lamb's, 151, High St., Walthamstow. [0716

ROVER, 3½h.p., 1913, 3-speed, Armstrong gear; £56.—Selfridge and Co., Ltd., Oxford St., W. [1683

LEA-FRANCIS, 1913, 3½h.p., twin-cyl., 2-speed countershaft gear, chain drive; £63.—Selfridge and Co., Ltd., Oxford St., W. [1684

TRIUMPH, 1911, clutch, splendid condition; £30, nearest.—188, Queen's Rd., Peckham, S.E. [X9780

ENFIELD, 1911, twin, 2¼h.p., perfect condition; £15, must sell.—4, Elmcroft Av., Golder's Green [X9972

DOUGLAS, 1911, standard, splendid condition, accessories; £23.—Selkirk, 98, Gellatly Rd., New Cross. [X9356

1912 4h.p. Rex, free engine, new condition; £30, bargain.—8, Cameron Rd., Seven Kings, Essex [1697

3½h.p. N.S.U., mag., tyres and condition excellent £20.—Humphries, 8, The Village, Charlton, S.E. [1840

3½h.p. Rover, 1911, free engine, clutch model; £28.—W.E., 1, Portman Mews South, W. [1795

BALHAM.—Ivy-Precision, 1912, 3½h.p., perfect order, new condition; £28.—Peacock, 274, High Rd., Balham. [1818

MINERVA 3h.p., mag., B. and B., splendid condition; £15.—Price, 1a, Leighton Av., Leigh-on-Sea. [1750

REX Motor Cycle, 3½h.p., B.B.C., good tyres, splendid running order; £8.—P. Bishop, Gt. Wakering, Essex. [X9919

DOUGLAS, 1913, new condition, horn, watch, speedometer, spares; £35.—Bayliss, 5a, Hamfrith Rd., Stratford. [1846

2½h.p. Minerva, mag., very low, in good condition; £11; after 5 p.m.—3, Victoria Rd., Kingston-on-Thames. [1764

IF You Want Bargains in 2nd-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet St., London. [X9705

TRIUMPH, 1911, perfect, complete with spares and accessories; any trial; £22/10.—Sams, 48, Ingelow Rd., Battersea. [X9843

V.S. Motor Cycle Agency.—8h.p. Matchless, V.S., 2-speed, free engine, and Matchless sidecar, 1912 model; £55.

V.S. Motor Cycle Agency.—7-9h.p. V.S., Peugeot, twin, 2-speed, free engine, 1910 model; £35.

V.S. Motor Cycle Agency.—5-6h.p. V.S., Peugeot, twin, direct wheel, 1908 model; £20.

V.S. Motor Cycle Agency.—5-6h.p. V.S., Peugeot, twin, direct wheel, 1909 model; £25.

V.S. Motor Cycle Agency.—3½h.p. V.S., Peugeot, single, direct wheel, 1909 model; £20.

V.S. Motor Cycle Agency.—7-9h.p. V.S., Peugeot, twin, 2-speed, free engine, and sidecar, 1910 model; £40.

V.S. Motor Cycle Agency.—8h.p. V.S., J.A.P., 2-speed, free engine, 1913 model, £67; and 6h.p. ditto, £65.

V.S. Motor Cycle Agency.—M. Geiger and Co., 44, Clipstone St., Gt. Portland St., W. Spare parts for V.S. machines and Peugeot engines. All repairs done on these premises. [1870

3½h.p. Brown, latest watertight Bosch, B. and B., Drnids, perfect condition; £14/10.—Crees, Fingringhoe, Colchester. [X9591

£5/10.—2¾h.p., Precision engine, perfect condition, good tyres; bargain.—Beale, 45, Crescent Rd., Upton Manor, E. [1648

IVY-PRECISION, 3½h.p., 1912¾, little used, condition perfect; £28, or exchange Douglas.—35, Kenilworth Rd., Penge. [1837

SINGER, 2¼h.p., 2 speeds, free engine, in perfect condition.—Downing, Uxbridge Rd., Hampton Hill, Middlesex. [1835

6h.p. Rex de Luxe, 1911, 2-speed, F.E., tyres perfect, lamp, mirror, etc.; £35.—Seen at 229, Broadway, Bexley Heath, Kent. [1687

DOUGLAS, all models, for immediate delivery; trade supplied.—Rey, 5, Heath St., Hampstead, and 175, Gt. Portland St., W. [9668

MOTOR BICYCLES FOR SALE.

TRIUMPH, 1910-11, standard, 3½h.p., tourist, perfect in every way; must sell quickly; £25.—C., 130, Brixton Rd., S.W. [X9864

ROC, 1910, 4½h.p., 2-speed, free engine, excellent sidecar machine; £19, or near. — Weachers, 1, Silverhall Place, Isleworth. [1740

TRIUMPH, 1912¾, free engine, not done 600 miles; £40, genuine bargain. — 228, Pentonville Rd., King's Cross, London, N. [1362

1909 Triumph, purchased April, 1910, lamp, Cowey, horn; any trial; £28.—Rosery, Bedford Rd., Harrow-on-the-Hill. [1869

5-6h.p. Twin Indian, green, fixed engine, B. and B.; £30, or exchange lightweight.—Write, Bourn, 43, Queen's Rd., Beckenham. [X9859

INDIAN, 1913, 7h.p., 2-speed, practically new; £62, no offer.—247, Vauxhall Bridge Rd., Victoria Station. 'Phone: 5486 Victoria. [X9700

6h.p. Bat-Jap, latest 1913, done 1,000, 3-speed gear, speedometer, lamp, etc.; bargain, offers.—Cranmore Garage, Potters Bar. [1783

TRIUMPH, T.T., 1908, lamp, tools, etc., recently renovated by makers; £20.—11, Elmar Rd., West Green Rd., Tottenham, N. [1788

BAT-J.A.P., 8h.p., 1912, F.E., Cowey, Lucas horn, accessories, back seat for passenger, whole perfect; cost £70, sell £40.—23a, Greville Rd., Kilburn. [0348

CASS'S.—Trump-Japs, 1913, special bargain, 6h.p., 3-speed, kick starter, decompressor, best frame in market; 60 gns., list £69/10.

CASS'S.—F.N., 1912, as new, 5-6h.p., clutch model, special sale price £38; also 1910 model, £22.

CASS'S.—Quadrant, new, 4½h.p., 3-speed Armstrong, climb anything; list price £59/10, bargain £49/10.

CASS'S.—Quadrant, 1912, 4½h.p., 3-speed, gold medal winner, fast and reliable; £38.

CASS'S.—Hazlewood, 2¾h.p. J.A.P., 3 speeds, and accessories, nearly new; sacrifice £32/10.

CASS'S.—Sunbeam, 2¾h.p., 1913, 2-speed, complete with Lucas, accessories, about 3 weeks old, as new; bargain, £50.

CASS'S.—Indian, 7-9h.p., 1912, and coachbuilt sidecar, 2-speed, perfect condition, very fast; £56.

CASS'S.—All makes, new and second-hand, motor cycles and cycle cars supplied, sidecars, tyres, accessories; deferred payments.—Cass's Motor Mart, 5, Warren St., W. (opposite Tube Station). Tel.: 3624 Mayfair. [1829

MATCHLESS, T.T., 3½h.p., 1912½, ball bearing engine, all accessories; giving up; any examination; £35.—116, High St., Wandsworth. [X9861

TRIUMPH, clutch, 1912¾, lamp, generator, horn, spares, never used, not wanted; seen after 6; £39.—121, Upper Clapton Rd., London. [1211

2½h.p. Singer, 1912, free engine, splendid condition, Garner whistle, spare belt (new); £26.—Waddington, 40, Wrottesley Rd., Woolwich. [X9783

ENFIELD, 1912, 2¾h.p., 2 speeds, free engine, perfect order, just overhauled, accessories; 30 gns., or best offer.—Room 21, 20, King St., W.C. [1651

3½h.p. Motor Cycle, Simms mag., decompressor, new Lyso belt, Wood-Milne tyres good; £12, or offer.—C/o Watson, Hayes, Middlesex. [1866

3½h.p. 2-speed Humber; £26; handle starter, perfect condition, only done 3,000 miles, 1911.—Williams, 12, Lower Regent St., S.W. [1467

DOUGLAS, 1913, Model O, 2-speed, splendid condition, spares and accessories; £40.—F., 24, Ordnance Rd., St. John's Wood, N.W. [1796

WERNER, 2½h.p., lamp, horn, etc., good condition; owner going abroad; must sell; £7/10, or offer.—Leader, 248, Wandsworth Rd., S.W. [X9920

BRADBURY 3½h.p. 3-speed Models are perfect, £60; standard models, £48.—Agents, Bright and Hayles, 73, Church St., Camberwell. [1822

BRADBURY Bargain.—We have 3½h.p. 3-speed Armstrong model, 1913, shop-soiled, otherwise brand new; reduced to £49/10 to clear. Catalogue free.—Bright and Hayles, 73, Church St., Camberwell. 'Phone: Hop 50. [1823

3½h.p. Triumph, 1910, in new condition, £23; also 2½h.p. motor cycle, requires new cylinder and inner tubes, 30/-.—E. Cooper, Chilham, Kent. [X9848

1911½ Clutch Triumph, speedometer, lamp, horn, belts, tubes, spares; £30, or close offer; ride 50 miles purchaser.—Webster, Hadleigh, Essex. [1667

3h.p. Lincoln Elk, F.E., new March, done 250, hardly soiled, spares, overalls; £34, or offer.—Garage, 228, Stanstead Rd., Forest Hill. [1872

BAT, 7h.p., 2-speed, handle starting, Senspray, variable pulley, lamp, horn, re-bushed, tyres excellent; bargain, £27.—Astolat, Berlin Rd., Catford. [1802

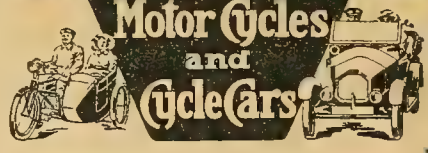
TRIUMPH, 1908, T.T. model; Enfield 2¾h.p., 1910; Austral 3-wheeled sociable runabout; cheap or exchange.—Kelco Motories, Smarden, Kent. [1736

1912 Triumph, free engine, delivered 1913, beautifully equipped, absolutely as new; nearest £40.—35, Forest Drive West, Leytonstone. [1793

COLMORE DEPOT

for

Motor Cycles and Cycle Cars



PAUSE, you who contemplate buying. Think before you purchase.
THESE PRICES SPEAK FOR THEMSELVES. Compare them, and, when making comparison, CONSIDER there is

NOT A CROCK

not a doubtful starter amongst them all. All are, considering their age and make, in excellent condition. COLMORES STAND BEHIND EACH ONE. Need more be said?

YOU CAN TRUST THE COLMORE.

North, South, East, and West, hundreds of satisfied clients, made happy by "COLMORE SERVICE," gladly attest this fact.
It's the end of the season, we know, but if the reductions below mean loss of profit to us, they mean also gain, inasmuch as in the selling we shall have gained another friend.

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PREMIER, 1911, 3½ h.p. free engine.. .. .. £25
ZENITH, 3½ h.p., Gradua gear £24
B.S.A., 1913, 2-speed, F.E. £45
Colmore **BAT,** special 3-speed, new, very fast £48
TRIUMPH, 1909, 3½ h.p. £20
TRIUMPH, 1913, 3-speed, shop-soiled £52
NEW HUDSON, 1913, 3-speed, used 200 miles £48
DOUGLAS Model R., shop-soiled £48

Satisfied customers are the real basis of business success.

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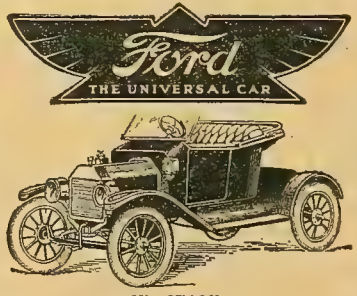
SCOTT, 1913, 2-speed free engine with sidecar £64
MATCHLESS, 8 h.p., 1912, 2-speed, free engine with coachbuilt sidecar, SCARCELY SOILED £63
MATCHLESS, 1913, 2-speed, chain drive, with Canoelet sidecar £72
MATCHLESS, 1913, 3½ h.p., 6-speed.. .. .. £53
NEW HUDSON, 3-sp. with C.B s c., used 200 mls £57



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Think of us if it is a cycle car you need.
We teach you to drive, charging you the price of the Car only.
We stock only cars that have proved their merit. For instance—
The long awaited A.C. £100 four-wheeler.
The luxurious four-cylinder of the same make at **£165**
The graceful, speedy, **MORGAN.** (We have an exceptional bargain at **£75.**)
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31, Colmore Row, Birmingham; 49, John Bright St., Birmingham; 261, Deansgate, Manchester; 31, Renshaw St., Liverpool; 62, High St., Leicester.

MOTOR BICYCLES FOR SALE

MORGAN and Maxwell, The Motories, 80, High St., Streatham, London.—Keen prices, quick delivery, better terms than you can obtain elsewhere.

MORGAN and Maxwell.—Aster-Ribble tricar, 6h.p., 2-speed; £12/10.

MORGAN and Maxwell.—Bat, 2¾h.p. De Dion, sing frame; £10.

MORGAN and Maxwell.—Bat, 7-9h.p., 1913, 2 sp all accessories; £65.

MORGAN and Maxwell.—Bat, 8h.p., and sidec 1913; £60.

MORGAN and Maxwell.—Clyno, 5-6h.p., late 191 speeds, Binks, and coachbuilt sidecar; £45.

MORGAN and Maxwell.—Enfield, 6h.p., 191 speeds, and sidecar, as new; £68.

MORGAN and Maxwell.—Indian, 1913, 7-8h.p as new, and sidecar; £75.

MORGAN and Maxwell.—Ivy-Precision, 3½h.p., 1911, free engine, Dunlop specials; £22.

MORGAN and Maxwell.—J.A.P. lightweight, 2½ £7.

MORGAN and Maxwell.—Lincoln Elk, 4¼h.p., 1 2 speeds; £32.

MORGAN and Maxwell.—Minervas from £5 ea

MORGAN and Maxwell.—Motosacoche, 2½h.p., 1 £22.

MORGAN and Maxwell.—New Hudson, 1912, 3½ 3 speeds; £40.

MORGAN and Maxwell.—N.S.U., 1910, 6h.p speed, and sidecar; £32.

MORGAN and Maxwell.—P. and M., late 191 speeds, Kempshalls, accessories; £43.

MORGAN and Maxwell.—Rudge, 1912, N.S.U speeds, fine; £30.

MORGAN and Maxwell.—Rudge, 3½h.p., free en £27.

MORGAN and Maxwell.—Singer, 2½h.p., T.T., 3 speeds, Bosch; £35.

MORGAN and Maxwell.—Triumph, 2½h.p.; £10

MORGAN and Maxwell. Triumph, T.T., 1911 compressor, special engine and fittings; £32

MORGAN and Maxwell.—Triumph, 1911, Tourist condition; £30.

MORGAN and Maxwell.—Triumph, 3½h.p., 1913, 3 speeds, brand new, never used, shop-s

MORGAN and Maxwell.—Wolf 1½h.p. lightw £5.

MORGAN and Maxwell.—Zenith, 6-8h.p., 1913, soiled, Gradua gear, Hutchinsons, Bosch, light, speedometer, complete with Gloria new Pro sidecar, all tools, lamps, fittings; price £100, wit surance policy.

MORGAN and Maxwell's Miscellany.—A.S.L. pillar, as new, 21/-; Binks 2-jet carburetter, Triumph back wheel, 10/-; free engine back wheel, Albion pulley, 5/-; Rushmore lamp and automatic ator, £2; decompressor, 5/-; Lodge plugs; Cowey Smith speedometers, almost new lamps, etc.; write Morgan and Maxwell, 80, High Rd., Streatham, don. [X

TRIUMPH, 1909, splendid condition, overha by Triumphs, fully equipped; nearest £ St. Winifreds, Cambridge Park, Leytonstone. [

TRIUMPH, free engine, 1911, Dunlop tyres and back rest, mirror, lamp, accessories, fine tion; £30.—Hall, Tufton St., Ashford, Kent. [

DE DION, 2¾h.p., new h.b.c. carburetter, Pa and Clincher studded tyres, running perfect; any evening.—Kitson, 10, York Rise, Highgate. [

F.N., 2¼h.p., 1912, 2-speed, free engine, shaft d perfect, not done 3,000, Cowey, lamp, horn, mi spares, etc.; £30.—Roscoe, Asylum, Brentwood. [

BUCHET, 2¾h.p., Amac, h.b.c., new accumul footboards, good tyres, very low, perfect; £9 near offer; ride away.—9, Stoke Rd., Guildford. [

ENFIELD, 2¾h.p., 1912, 2-speed, free en thoroughly overhauled, good climber; £30, or trial.—Chapman, 44, Whitstable Rd., Canterbury. [

SCOTT, 1911, late model, 2-speed, kick starter, accessories, machine has been very little used, is in perfect order; £34 cash, or easy terms.—B

MOTOSACOCHE, late 1911, 2½h.p., free en h.b.c., has been little used, in good order; cash, or easy terms.—Below.

1910 Triumph and Sidecar, £25 cash, or easy te bargain. The above machines are guaranteed us to be thoroughly overhauled, and in perfect run order.—Elce and Co., 16, Bishopsgate Av., Camo St., E.C. 'Phone: Avenue 5548. [

KERRY, spring forks, variable pulley, new Du back, new handle-bars, excellent engine, g order, and complete; £6/10.—13, Peckham Rye, [

SEPTEMBER 25TH, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND FORTY-EIGHTH CONSECUTIVE ISSUE.

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Sidecar and Cycle Car Trials.

THE announcement that the Auto Cycle Union will hold next month a one day reliability trial devoted entirely to cycle cars, and, more important still, a Tourist Trophy Race for this class of vehicle next year, will be welcomed by those interested in this type of machine. The trials held hitherto have not been the means of attracting a really representative entry, as instance the Six Days event; thus in all probability a trial solely confined to this class of vehicle, in order that the performances cannot be overshadowed, may be more of an inducement to cycle car makers to enter their products. Incidentally, if the rules are properly framed, the October trial may, for the time being at any rate, overcome the difficulty in regard to the performances of three-wheeled cycle cars being ignored by the general public owing to their being relegated to a different class from the four-wheeler.

Undoubtedly the event, if well supported, will be the means of giving the cycle car movement a much needed fillip just at a time when new models are about to be introduced, but, as regards future trials, we should be sorry to see sidecars excluded as a regular course. What ninety per cent. of potential cycle car buyers want to know is which type of machine is most likely to suit their needs in respect of reliability, comfort, and low running costs—sidecar or cycle car?

There are now luxurious sidecar outfits on the market which exceed £100 in cost, and they are, too, being sold in considerable numbers; their owners cannot have overlooked the claims of the light four-wheeler before making their choice, consequently we would prefer to see future trials open to sidecars and cycle cars until there is nothing to choose between the general body of them in respect of reliability, hill-climbing, and all round excellence. Then the buyer who has £100 to £150 to spend on a reliable passenger machine will be able to make his choice with safety and with the comforting knowledge that he has invested in the most satisfactory type of vehicle.

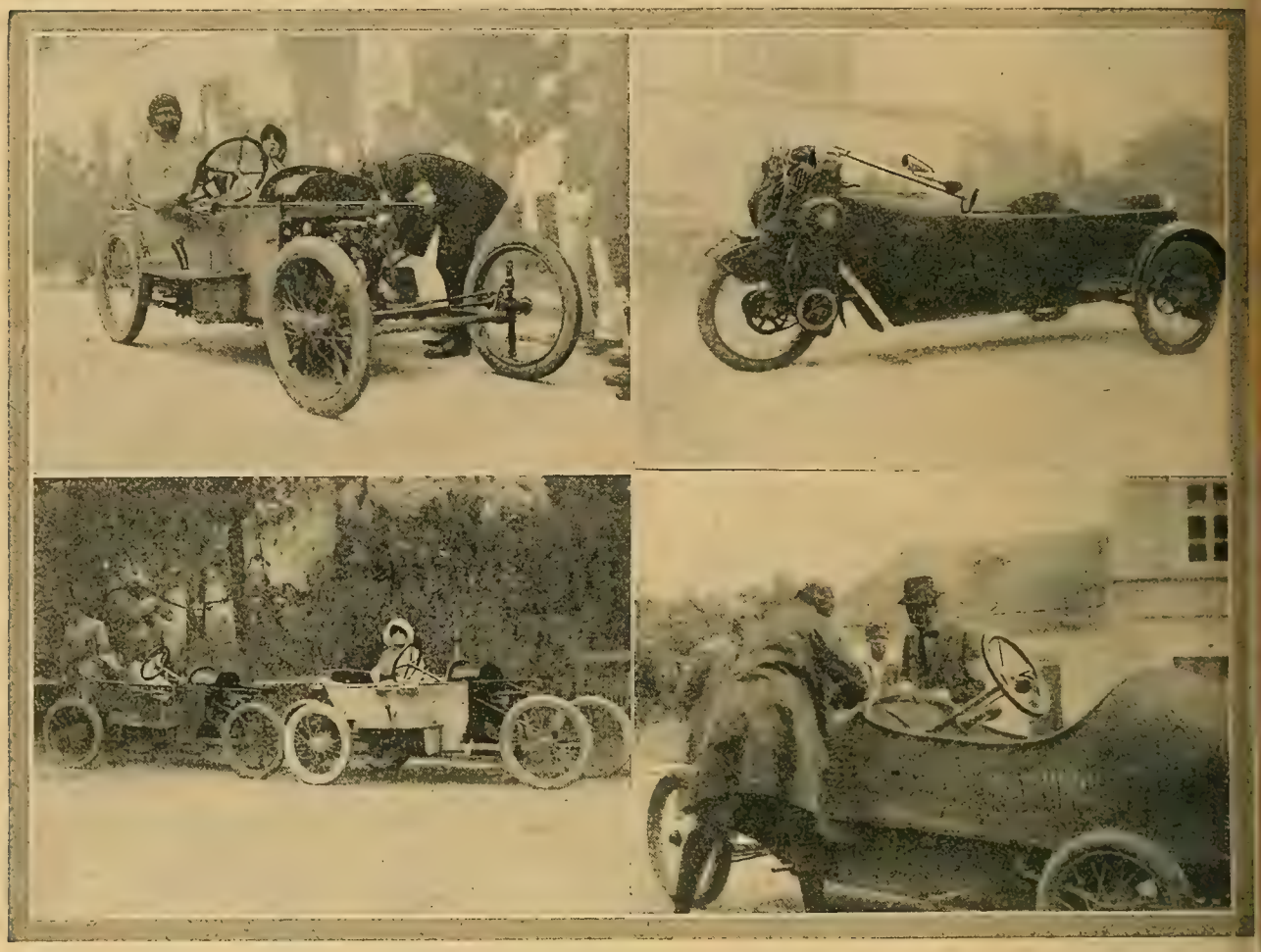
Next year's Isle of Man race is just the thing needed. Attempts have been made to organise a cycle car race in these Isles this year, but it was felt that the time was not ripe for such an event. By the end of next summer, however, there is every prospect that a good entry and a successful race may be arranged, for larger firms are now taking an interest in the miniature car, and next year will undoubtedly see a great increase in the ranks of cycle car owners. In the preliminary announcements of next year's race, no mention is made of sidecar combinations, but it is to be hoped that they will be admitted for the lessons of comparison already mentioned. After all, sidecars would be out of place in the popular motor cycle race in June, but it is only right that sidecars and cycle cars should race together in the autumn. The French Grand Prix proved that such an event can be made a success, and, if in France, why not in Great Britain?

An Undesirable Practice.

WHILE we should be the last in the world to say anything that may militate against the proper use of motor cycles or to countenance any move antagonistic to the enjoyment of the pastime, we feel it our duty to speak our mind freely against a practice which, although of comparatively recent growth, has become enormously popular within the last twelve months; we refer to carrier riding. A year or so ago this use of the carrier was in its infancy, but of late there has been an enormous tendency to substitute a living freight in place of the load for which the carrier was primarily designed. The danger lies in several directions. The strain on the rear tyre is tremendous, the carrier is usually loaded far beyond its proper margin of safety, and skidding, if a wobble occurs, is apt to be fraught with great risk to both rider and passenger; and as the passenger is all too frequently of the fair sex, the resulting smash, if anything goes wrong, is all the more unpleasant to contemplate. It is all very well to urge that the passengers are, as a rule, highly skilful in balancing; but everyone has to make a start, and it is in the first few rides that accidents are likely to occur. It is well-nigh impossible to correct a severe or even a slight skid unless the passenger is so perfectly in sympathy with the rider as practically to anticipate his movements. Already in some States of America the practice is forbidden, and the Americans are not the people to get in a panic over an odd fatality or two. A large number of accidents which have taken place this year can be attributed to the practice of passenger-carrying. No doubt, in the headstrong rashness of youth, many who indulge in this practice will put us down as alarmists, but we believe that the great bulk of serious riders will support us in our view that the practice is in the main undesirable, and few would shed tears at its abolition in this country.

Motor Cycles and Cycle Cars on Semmering Pass.

Observations at the Vienna Club's Annual Hill-climb.



SCENES AT AN AUSTRIAN CYCLE CAR HILL-CLIMB.

(1) Before the start. Sealing the engines in case of a protest being lodged against their rating.

(2) The Phanomobile in racing guise. It weighs five cwts. and has a four-cylinder 10 h.p. engine which is fan cooled and drives the single front wheel over which it is placed.

(3) Two of the competing Austro—N.S.U. cycle cars.

(4) Sealing the engine of the Globe prior to the race. The neat wicker body will be noticed.

THE Allgemeine Motorfahrer Verband of Vienna held its annual Semmering Hill-climb on the 14th inst., when under the eyes of thousands of spectators cycle cars for the first time appeared in this historic climb. Of sidecars there were none, as sidecarring nowadays does not enjoy much favour in Austria, owing to lack of modern variably-geared machines.

Our Austrian correspondent states that there was general regret that there were no English entries.

The best performance of the day was put up by Hellmuth Böhringer, on a Grand Prix Motosacoche.

The cycle cars, divided into a small and a big class, performed fairly well, although, of course, they were far slower than the motor cycles. The small car type cycle cars, although fitted with every modern refinement, did not score a victory, but this was not due to any shortcoming of this type of vehicle, but rather to bad tuning up of carburetters and instability when cornering fast in one or two cases. The Austro cycle cars, which were fitted with 6 h.p. air-cooled twin N.S.U. engines, behaved very well, and took the hairpins in good style. These little cars are chain driven throughout, and have four speeds, and their engines may be started from the driver's seat.

Not up to British Form.

Compared with British riders, the cornering work of both motor cycle trade riders and cycle car amateur drivers was very poor, some stopping their engines for quite a time on the hairpins. It is also interesting to note that only one of the air-cooled cycle car engines overheated on account of bad driving and fitting too large a jet, whereas all the other air-cooled engines worked splendidly in spite of severe gradients and constant climbing for ten miles.

On the straight bits tremendous speeds were shown by Motosacoche and N.S.U. 6 h.p. motor cycles, the rider of one of the latter, however, spoiling his chance by running over a dog not ten yards from the finish.

Motor Cycles and Cycle Cars on Semmering Pass.—

Of the cycle cars the Austros and one Globe were very stable, but the Phænomobil and the Wanderer, a tandem-seater of the small car type), were fast and driven at their speed limit, and whenever cornering were both nearly overturned.

The results were as follows:

MOTOR CYCLES.

Class I.—6 h.p., minimum weight 224 lbs.

	m.	s.
A. Hradelzky (2 N.S.U.)	10	44⅖

Walk-over.

Class II.—3-4½ h.p., minimum weight 168 lbs.

1. Hellmuth Böhringer (2 Motosacoche) ...	9	13⅖
2. F. Brosch (2 Moto-Rêve)	10	31
3. Hans Lager (4 F.N.)	10	30⅘

Class III.—2-3 h.p., minimum weight 112 lbs.

1. Karl Hradelzky (N.S.U.)	10	49⅘
2. Kellner (N.S.U.)	12	27⅗

Class IV.—2 h.p., minimum weight 80 lbs.

1. V. Preiner (Motosacoche)	15	19
2. Horak (Motosacoche)	15	21

CYCLE CARS.

Class I.—9 cwt. complete, up to 10 h.p.

1. Czerniel (4 Phænomobil)	12	39⅖
2. Rosenthal (4 Wanderer)	13	1
3. E. Bittner (4 Premier)	18	48⅘

Class II.—9 cwt., up to 7 h.p.

1. Count Kolowrat (Globe-Anzani)	13	17⅗
2. Edward Shlosser (Austro)	13	27
3. W Burchhart (Austro)	14	25⅖

International Definitions Disregarded.

As will be seen, the Austrian clubs have ideas of their own on cycle cars and motor cycle races, and manage their classes and limits quite regardless of the restrictions and agreements of the International Federation.

Another interesting item of this event was the general use of the single-geared machines among Austrian riders, who, it must be remembered, have to face the most severe gradients. Fully ninety-nine out of every hundred machines belonging to the hundreds of spectators lined up along the route or on the hairpins were possessed of but one gear.

Five Miles Sidecar Record Broken.

On the 17th September, at Brooklands, Kenneth Holden, riding a 3½ h.p. B.S.A. 85 × 88 mm. with sidecar and passenger, broke the five miles sidecar record, his time being 5m. 56s., equal to a speed of 50.56 m.p.h. The previous best time was accomplished by H. Riddell on a 3¾ h.p. Zenith-Green at a speed of 49.05 m.p.h. Holden's machine was shod with Continental tyres, and fitted with a B. and B. carburetter, and he also used a Pedley belt, Pratt's spirit, and Houghton oil.

Holden has also lately made determined efforts to annex the ten miles sidecar record, but has been unlucky, as he has been troubled with valve spring breakages, but he hopes to get over this trouble shortly.

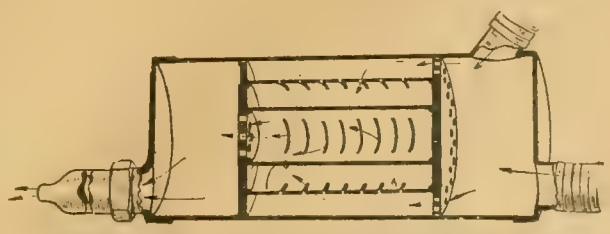
Simplicity v. Weight in Cycle Cars.

[T is a notable fact that the majority of the miniature cars have to undergo considerable weight paring to bring them within the cycle car definition. It is also noteworthy that the long-established firms of manufacturers such as the Wolseley, Singer, Humber, Alldays, Swift, etc., plump entirely for this type of machine. Undoubtedly the manufacturers find it practically impossible to build a light vehicle on standard car lines which shall yet possess the necessary strength and be capable of holding the road. I fancy that the difficulty of holding the road with a very light fast vehicle is as much responsible for the weight as is the necessity for strength, for with present-day high tensile steels strength without weight should be available even if a little more costly. Lately, in the course of conversation with the head of the test department of a large firm, I was told that a certain demonstration model held the road better than any model yet turned out, and this was attributed solely to a little extra weight in the way of ultra luxurious fittings. A trial proved this statement to be correct, but the weight of the cycle car, without passengers, was as near as possible half a ton. Also the designer very much doubted whether the chassis would come under the 6 cwt. definition.

Thus it would seem undesirable to reduce the weight if 40 m.p.h. is ever to be attained. If the car can reach 40 m.p.h., then sooner or later it will have to do so, in average hands, at any rate, for the man who can jog along at 25 m.p.h. indefinitely when 35 or 40 m.p.h. is possible is a *rara avis*. The light simple vehicle has the advantage of lower running costs, but if the designer cannot produce stability at every possible speed then the speed should be limited by engine power. For the vehicle which has a maximum speed of, say, 30 to 35 m.p.h. I do not think there is a great future; it may content the beginner, but not for long.

Thus we have our choice of a light simple vehicle which does not hold the road at high speeds, or a weightier model which will hold the road, although it will cost more for petrol, tyres, etc. There is the question of first cost, of course, but few of the simple type cost under £100, and many of the miniature cars are not more than £150. The luxurious models from £150 to £185 are rather a bigger step, but the difference between these and what we may call the intermediate class is merely a matter of increased comfort and luxury. In the end I think the heavier type, the miniature cars, will probably hold the greater part of the market, even if they do not already do so.

NORSEMAN.



A neat silencer fitted to the new model 5-6 h.p. Hazlewood. It is connected to the forks by flexible tubing, and though there is said to be absolutely no back pressure the issuing gases are rendered very quiet.

AUTO CYCLE UNION NOTES.

Annual Dinner during Show Week. A Cycle Car T.T. in the 1914 Programme.

Annual Dinner.

IT is proposed to make the annual dinner this year a very important function, and to ensure a good attendance it is proposed to hold the dinner during the Olympia Show week. The details of the organisation are to be carried out by the management committee, who, for this purpose, are to be given power to add to their number.

Forthcoming Events. A.C.U. Permits.

Permits have been granted to the following clubs to hold reliability trials and hill-climbs:

September 27th.—Herts M.C.C. One-day Trial.
October 4th.—Sutton Coldfield and Mid-Warwickshire A.C. Reliability Trial.
October 4th.—Bristol B. and M.C. Speed Trials.
October 11th.—Coventry and Warwickshire M.C. Hill-climb.
November 1st.—Streatham and District M.C.C. One Day Trial.

The latter trial will be an interesting one, consisting, as it will, of a speed trial, an acceleration test, a starting test, as well as a test for reliability.

A Cycle Car Reliability Trial.

Messrs. Brooker, Greenhill, and the Secretary of the A.C.U. have been appointed to draw up the regulations for the cycle car trial to be held on November 29th. The route followed will comprise Boar Hill, Dorking, the Hogs Back, Charterhouse Hill, and the hill near Hindhead, all of which were included in the spring one-day trial.

The A.C.U. 1914 Programme.

The following rough outline of the 1914 programme has been drawn up:

The Junior and Senior T.T. Races will be held over the mountain course probably late in May or early in June.

A cycle car T.T. race over the old triangular T.T. course in September.

In addition to the above there will be held two one-day trials, one in the spring and one in the autumn, the Six Days Reliability Trials and the A.C.U. Championship Race Meeting.

It has also been proposed that a trial, or trials, should be held for motor cycles having engines not exceeding 150 c.c., so as to encourage the development of the ultra-lightweight and the attachments for pedal cycles.

The next meeting of the Fédération Internationale des Clubs Motocyclistes will be held in Paris at the Automobile Club de France at 5.30 p.m. on October 25th, at which the International Competition for 1914, classification, and other points will be discussed.

The 1914 One Day Trials.

Of the two one-day trials to be held in 1914, one will probably be organised for motor bicycles and the other for sidecar combinations and cycle cars.

The Cycle Car T.T.

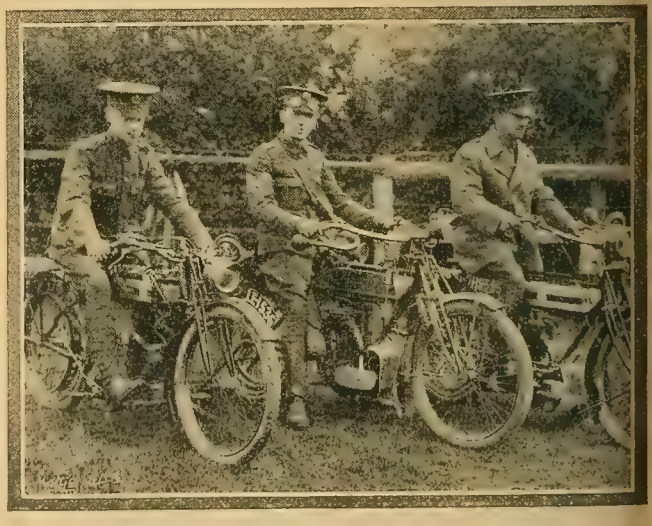
It is suggested that this proposed race should be held on the old and more easy motor bicycle T.T. course in the Isle of Man, from St. John's to Ballacraine, thence up Creg Willey's Hill to the acute corner at Kirkmichael and back to St. John's *viâ* the Devil's Elbow and Peel.

Three-wheeled Cycle Cars.

It may not be generally known that all international competitions must be run under the rules of the F.I.C.M., which classifies together all three-wheeled motor cycles. *Motocycles* as they are called in French as opposed to *motocyclettes* which we call motor bicycles. The F.I.C.M. therefore includes three-wheeled cycle cars in the *motocycle* class. Now the prominent makers of three-wheeled cycle cars do not object to running in competition with sidecar combinations, but they do strongly object to be excluded from the four-wheeled cycle car class. In fact, in the recent A.C.U. Six Days Trial results, there was a distinct tendency to overlook the performances of the three-wheelers, which were, so to speak, lost among the sidecar machines, while the four-wheelers were conspicuously placed in a class by themselves. To put the three-wheelers in a separate class would seem to be an easy matter until an attempt is made to define a sidecar combination. It may be said that the latter is a three-wheeled motor vehicle consisting of a motor bicycle fixed to a readily detachable frame bearing one road wheel and a body, but when it is remembered that certain combinations have been made undetachable the definition falls to the ground. However, the A.C.U. will have to hit upon a reasonable solution to put before the Fédération Internationale before the forthcoming meeting in Paris.

Membership.

The increase of members during the last two months has been most satisfactory. At the last meeting 727 touring members, five full town members, and forty-five full country members were elected. Two new clubs, the North Allerton M.C.C. and the West Hants. M.C.C., have become affiliated, and the total increase for the two months amounts to 808. The total membership of the Auto Cycle Union now approximates 14,000.



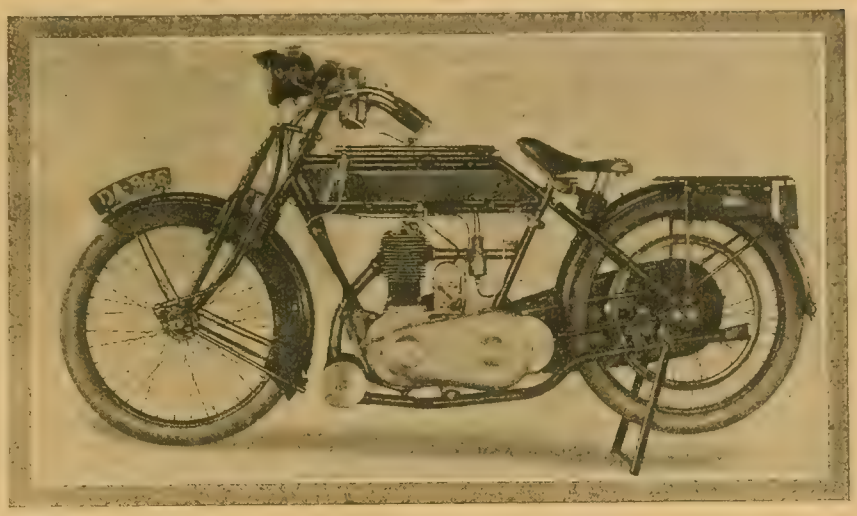
THE MOTOR CYCLE IN THE ARMY MANŒUVRES.
Motor Cyclist members of the Royal Engineers with the Aldershot comman

A 3½ h.p. 499 c.c. SUNBEAM.

FEATURES: 85 × 88 m.m. engine, three-speed gear-box, and oil bath chain cases.

THE 3½ h.p. 1914 pattern Sunbeam is, as our illustrations show, an enlarged replica of the now popular 2¾ h.p. model. The machine embodies all the desirable features which have helped to make a name for the little Sunbeam, including chain transmission enclosed in oil bath cases, but it has the additional advantage of a three-speed counter-shaft gear.

The new engine is of the popular measurements 85 × 88 mm., giving a capacity of 499 c.c. A striking feature of the cylinder is the large radiating fins to give effective cooling, which is assisted by the arrangement of an air passage round each valve pocket. The main shaft is mounted on Hoffmann roller bearings, two being placed side by side on the driving side and one on the timing gear side. The piston, which is drilled both for lightness and to assist lubrication, has a flat top, and has two rings in the orthodox position. The connecting rod is a steel stamping machined all over, the big end being fitted with a Sunbeam roller bearing, while the top end has a phosphor bronze bush. The gudgeon pin is a driving fit. The valves, which are of ideal shape with a gradual curve from the head to stem, are interchangeable, and measure 1⅜in. diameter over the head, which should spell efficiency. Valve troubles are practically unknown with Sunbeams, it may be interposed. The exhaust pipe is of 1½in. diameter, and the expansion chamber and extension pipe are of the same generous dimensions. As regards the timing gear, external cams are used, operating the spring adjustable tappets through valve rockers. There are but three wheels, all placed in line. By the simple expedient of recessing the tappets the escape of oil from the exhaust valve tappet (a common and vexatious trouble with many engines) has been entirely overcome. Indeed, the cleanliness of the Sunbeam engine is one of its most commendable features. At the rear of the cylinder and so protected from the elements the magneto is mounted on a platform cast integral with the crank case. It is driven by a train of three wheels, the large one in the centre being mounted on a double Hoffmann bearing.



A feature of the 1914 model 3½ h.p. Sunbeam is the sound method of entirely enclosing the transmission in oil bath chain cases, as the above illustration amply shows.

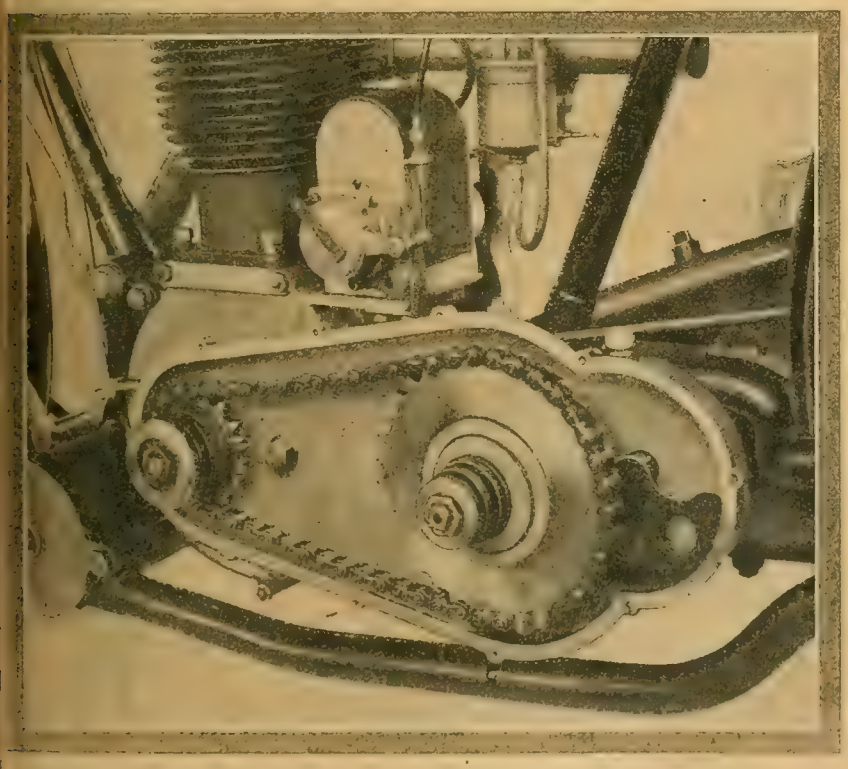
The gear box is a particularly neat job identical in design with the box adopted on the 6 h.p. twin sidecar combination, which we dealt with in our issue of June 5th, but slightly smaller. It is operated through a gate change lever affixed to the top tube, the changes being effected by sliding dog clutches.

A multiple plate clutch operated by a lever on the handle-bar is used, the plates measure 5in. diameter and are alternately of steel and phosphor bronze. There are five phosphor bronze plates and four of steel. It is the large bearing surface thus provided that accounts for the smooth operation of the clutch.

Staunch Design.

Nothing is left to chance in the design of Sunbeams, and where there is a doubt about any portion being up to the required strength, the designer has always erred on the heavy side. An instance of this is the size of the driving chains, which are ⅝in. pitch, ⅜in. wide, stronger really than the chain makers recommend. The result is that after the first test run which extended to 2,000 miles, only half an inch sag was noticeable on the engine chain.

Adjustment of the chains has, of course, been provided, for the rear chain can be tightened in three or four minutes. The cases are divided horizontally, and can be removed after with drawing a couple of screws.



Transmission from engine to counter-shaft on the 3½ h.p. Sunbeam with cover removed, showing the slipping sprocket on engine-shaft.

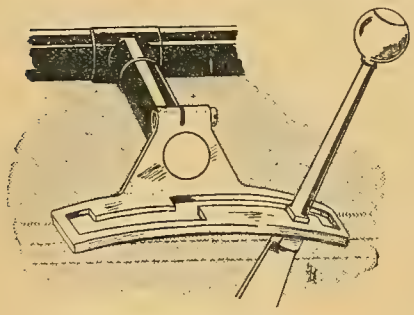
A 3½ h.p. 499 c.c. Sunbeam.—

The bearing for the kick starter shaft on the new 3½ h.p. model consists of an extension of the box instead of a separate unit as formerly.

Tyre repairs have been simplified by the provision of a rear axle in halves which means that a tube may be changed without removing the back wheel from the frame. A Best and Lloyd drip lubricator is used. Another desirable feature is the usually wide rear mudguard which, however, is removable together with the carrier by the withdrawal of three nuts.

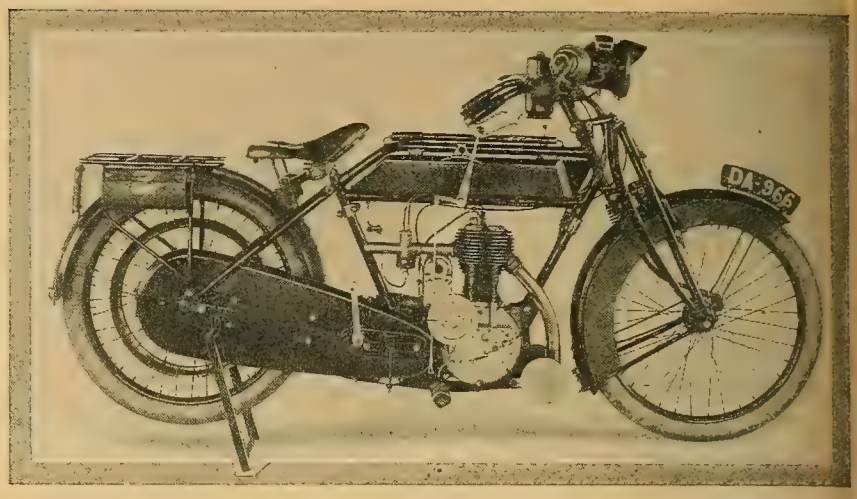
A Trial on the Road.

We have lately had the pleasure of sampling the running of one of these machines, the makers kindly offering us the loan of a bicycle or sidecar outfit. Our choice lay in the latter, the talented designer, Mr. J. E. Greenwood, accompanying us on the trip. A taste of the Wolverhampton traffic and network of tramlines served to bring out the complete controllability of this taking machine. With the excellent plate clutch provided, and by means of the handy gate change, one could crawl in and out of the traffic, and tick along behind tramcars with the greatest ease, the engine all the time turning over silently and at a



The neat gate change speed as adopted on the 3½ h.p. and 6 h.p. three-speed Sunbeams.

low speed ready to respond in a second to a touch of the throttle lever. The 3½ h.p. model is bound to appeal to that large section of readers who require a



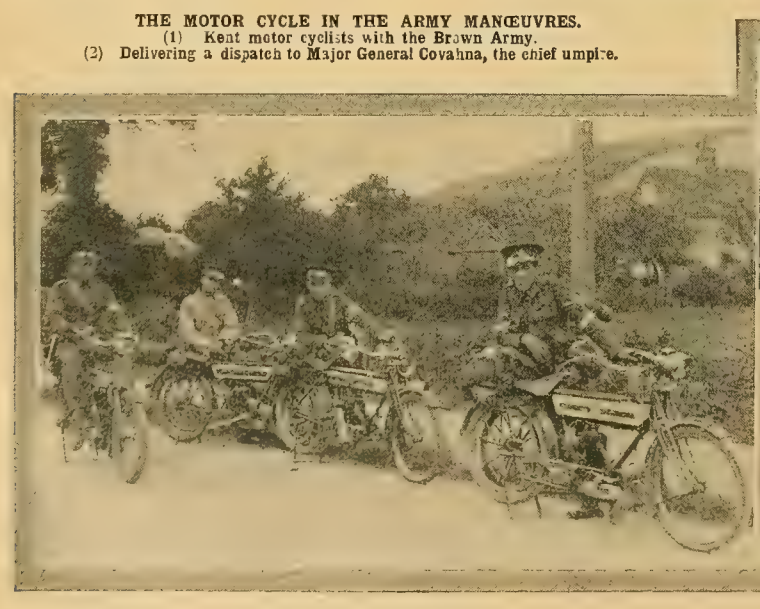
Valve side of the new 3½ h.p. single-cylinder Sunbeam.

machine capable of taking a sidecar on occasion, and yet is in itself not too heavy or unwieldy for solo use. It is fast on the level, a wonderful hill-climber, and, above all, the engine is splendidly balanced—a feature we have previously referred to in connection with the 2¾ h.p. mount. The particular machine that we tried had, as it so happens, been fitted with a new cylinder the day before we came on the scene, and the rings had not got properly run in, with the result that the engine pulled up suddenly on two occasions, but this only occurred when forcing the machine along to test what it really would do. It was no doubt the piston sticking, a quite common experience among testers. The remarkable part is that after pulling up, the engine will start straightaway again as if nothing had happened.

A High Speed Engine.

The engine is capable of turning over at an extremely high speed, 4,000 r.p.m. being quite usual for Sunbeam engines, but this high rate of revolutions is not obtained at the expense of slow running, for flexibility is a striking feature of these well-designed machines. A point we have noticed and have appreciated on both the single-cylinder Sunbeam is the absence of effort in the engine. One can bowl along at twenty miles an hour hardly without feeling the engine. The gear ratios appear to be splendidly proportioned, for a 4.9 ratio is used for the high, 8.5 for the middle, and 13.5 for the low gear. Not only is the exhaust of the 3½ h.p. as silent as any standard motor bicycle on the market—thanks to the extremely large silencer with its long extension pipe to the rear—but there is a notable absence of valve chatter. Indeed, we do not recollect having ridden a single-cylinder machine on which the valves function so quietly. With a petrol capacity of one and a half gallons and a quart of oil, it will be seen that the 3½ h.p. Sunbeam has been carefully considered throughout, and should prove an excellent mount, for solo or sidecar use.

THE MOTOR CYCLE IN THE ARMY MANŒUVRES.
(1) Kent motor cyclists with the Brown Army.
(2) Delivering a dispatch to Major General Covahna, the chief umpire.



Securing Spring Filler Caps.

A correspondent who endorses my complaint anent loose tank stoppers makes a helpful suggestion. The stoppers on his tank have a spring bayonet joint, and jump off when the shock of a bad road bump momentarily compresses the spring. He has packed the springs up with a small extra washer, and has prevented the stoppers flying off spontaneously, though they are still easily released by the fingers.

"Free Engines" that are not "Free."

I fancy that only a minority of motor cyclists have acquired the habit of coasting down gradients with the clutch out and the engine stationary, nor do I wish to encourage the practice, because a heavy motor bicycle, which is genuinely "freeling," cannot safely be stopped in a short distance with good brakes, and may be quite unstoppable on a really bad hill if the brakes are inferior; furthermore, many owners habitually overdrive their engines, and the occasional coasts with the exhaust valve up give the engine a chance to get its breath again. Nevertheless I desire to comment on the fact that very few motor cycles run really "free" with the clutch disengaged. I was rather disgusted to find that the ordinary push bicycle could "freel" clean away from both my first class 1913 mounts: each of them obviously suffered from gross friction when the clutch was nominally disengaged. One of these machines is fitted with a famous three-speed hub, in which the clutch is incorporated, while the other has a multiple disc clutch of the self-contained variety. Adjustments of the two clutches brought about a slight improvement, but neither of them could hold a pedal cycle for speed under such circumstances. The next thing was to overhaul the wheel bearings, and here again I was able to discover and remove a little friction: but the push bicycle remained my master. Inexperienced competition riders should make a note of these experiences. It is no use tuning up an engine to give a few extra "revs." if wheel bearing friction is sopping up the extra efficiency.

The Counter-shaft Gear Box.

A prominent shell in the battery of both sides of this controversy has to do with the wear of the short chain from the engine to the counter-shaft. As soon as the matter pops up, A asserts that his short chain has run 5,000 miles without being oiled, and B complains that he has to renew his short chain every other week or thereabouts. The solution of this contradiction appears, from my own experience, to be excessively simple. The wear depends very largely on whether the machine has a large thumping single-cylinder engine or a well-balanced twin-cylinder of small dimensions. I have recently owned two large single-cylinder machines with chain drive to the counter-shaft, and try as I would I never obtained a tenth part of the mileage from the front chain which the makers and the glowing testimony of a few users had led me to expect. In each case, the chain required very frequent adjustment and attention for the first month: after that period, the initial stretch seemed to have departed, and the chain ran fairly steadily, though it was already out of pitch and noisy. Before long, any fastidious owner would think it essential to fit a new one. With a miniature twin the case was entirely different. The front chain lasted a very passable distance indeed, particularly if it was either encased or regularly removed and lubricated. Of course, the efficiency of the shock absorbing device and the accuracy of its adjustments have an important bearing on the matter. But experiences of the behaviour of such chains under the stresses of a big single and a small twin are as far asunder as the poles.

The Running in of Engines.

Factory practice in the way of "running in" new engines must vary tremendously. My 1913 riding has largely been confined to two single-cylinder engines produced by two well-known factories of standing and repute. The first was delivered in a very stiff condition, and it was not until it had covered 2,000 miles that it really began to "rev." The other ran exceedingly well when it was first delivered, and its behaviour has neither improved nor deteriorated to any appreciable extent in a similar mileage. Judging from the experience of other riders of the same machines, my experiences are typical, and they result in a very dogmatic moral. Either the one factory assembles its engines with too small a clearance everywhere: or, alternatively, the other factory allows more clearance or gives every engine a long spell on the bench, until every part is thoroughly bedded in. I cannot help thinking that an engine which cannot be run in under 2,000 miles is a disgrace to its makers. Why should an unfortunate rider be condemned to ride for half a season before his engine is really in good training for hill-climbing and speed work? One of these engines accompanied a private rider to the Isle of Man for the T.T. It had a variable gear with a low ratio of 12 to 1, and it had covered 1,800 miles before he visited the island. Yet it invariably conked out on bottom gear before reaching the summit of Snaefell from either side, simply because all the moving parts were far too close a fit against each other. There would be some excuse if these engines wore noticeably better than any others, but as far as I can judge both engines require new bearings after an equal mileage.

The Golfing Motor Cyclist.

This week has brought me quite a novel enquiry. Do I know any accessory dealer who supplies a set of fittings for mounting a set of golf clubs upon a motor bicycle? I presume the enquirer hopes to hear of fittings similar in character to those used for mounting a rifle on a bicycle. Such an accessory has been marketed, but its sale was not pushed. Unfortunately caddie bags are not standardised as rifles are. Most motor cycling golfers take their clubs to the links by slinging the caddie bag across their shoulders.

Automatic Carburetters and Flexibility.

I can hardly agree with some of our correspondents that automatic carburetters are essential to the highest potential maximum of flexibility, and the analogy drawn from motor cars is probably misleading, seeing that most car engines have at least four cylinders, and their price limit permits a greater expenditure upon the carburetter. I admit that a bad driver will get more flexibility out of an automatic carburetter, and for that reason I think automatic carburetters are bound to come. But a good driver can probably obtain a slightly higher degree of flexibility from a first rate two-lever device at the present moment. At any rate, if I were competing in a flexibility trial, I would rather use one of two or three standard two-lever devices adjusted for the end in view than any automatic carburetter with which I have experimented up to date. In spite of this opinion, I hope to see automatic carburetters universally adopted on the ordinary tourist machine, because not one in a thousand can drive well enough to make the most of a two-lever device.

Two-step Drives and Sidecars.

Now that the sidecar has so triumphantly vindicated itself as a thoroughly practicable passenger machine, despite competition from cheap cars, it is interesting to notice how the budding 1914 types will improve the lot of the sidecarist. The growing popularity of twin-cylinder engines will reduce knocking and render gear changes less frequent; the two-step drive will minimise the number of roadside stops due to transmission troubles, especially in bad weather; the increase in the number of counter-shaft gears will render the back tyre, trebly accessible; and a slight but marked tendency towards the increase of engine power on variably geared tourist mounts, trending from 500 c.c. up towards 750 c.c., will provide the sidecarist with more engine power at a very slightly increased price. For all these reasons the sidecar should enjoy a quite abnormal boom in 1914.

ITALIAN MOTOR CYCLE CHAMPIONSHIP, THE CIRCUITO DI CREMONA.

(1) Carlo Maffeis (Moto-Reve), winner of the 500 c.c. class.

(2) Vailati (Rudge), who, it will be remembered, rode in the Senior T.T. Race last June, rounding a bend.

(3) A Douglas rider—Belfante—at the first bend after the start.

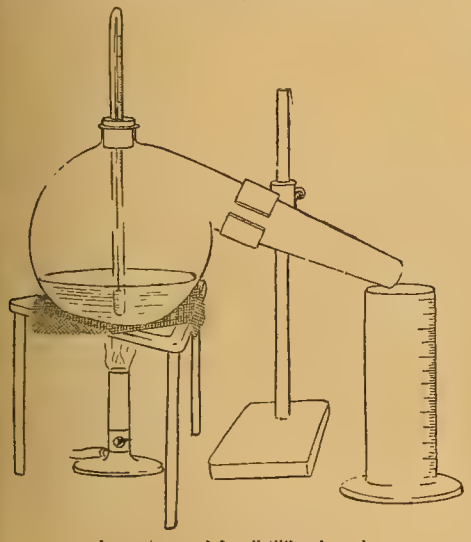
(4) The victorious Brothers Maffeis. Left Carlo, winner of 500 c.c. class, who rode a Moto-Reve. Right—Miro, winner of 350 c.c. class, who rode a (Douglas).

HOW TO TEST BENZOLE.

BENZOLE is increasing rapidly in popularity as a motor fuel, and hitherto its use has been limited to acting as a solvent for waxes, fats, gutta-percha, etc., and in the preparation of aniline dyes. For this purpose various grades have been put upon the market, which, although quite good enough for their early purpose, are not all quite satisfactory as a motor spirit. In these circumstances, then, it is desirable to have some simple method of testing the spirit to see if it can be used. A correspondent to *The Motor Cycle* asked me for details, and I propose here to describe a few experiments, some of which can easily be performed by any amateur chemist.

The Composition of Benzole.

In the first place, let us consider what benzole is. In the process of coal tar distillation a light oil passes over. This is collected either till the temperature of distillation has risen to a certain definite figure, varying in different works, or while tests periodically taken show that its gravity is less than that of water.



Apparatus used for distilling benzole.

This is the more general practice. The light oil is then washed to get rid of bases and acids, the former, consisting of pyridine and its homologues, by means of washing with sulphuric acid, and the latter, carbolic and cresylic acids, by washing with soda. These are recovered subsequently. The remaining liquid is fractionated and the various fractions collected. First of all comes benzole, then toluole, solvent naphtha, and a residue. Benzole is thus free from pyridine and carbolic acid, but the things it cannot easily be free from are volatile compounds which distil over with it. The chief of these are carbon bisulphide and thiophene. Carbon bisulphide being a heavy substance, a small quantity of it affects appreciably the specific gravity of benzole, and consequently as a large amount of it is bad for the purpose we are considering, a measurement of the specific gravity will give a strong indication of the merits of the benzole. 90% benzole is the best used, obviously by being more easily vaporised than 50% or 30% spirit. 90% benzole should have a gravity of .880-.883, 50% from .873-.875, and lower grades from .870-.872. These figures may come as a surprise to many, as they show that the lower the gravity the less volatile the spirit, whereas the opposite might be expected. These figures all refer to a temperature of 60°F. I take them with an ordinary hydrometer, reading from .850-.900, and then correct for the temperature of the liquid allowing .0005 for every degree Fahr. between the observed temperature and 60°F. If the reading is above 60°, then the correction must, of course, be added; if below 60° subtracted. The outside figures have been given, as 90% benzole varies in composition according to the way the tar is prepared; personally, my benzole is always .882 or .883 or between those figures.

The second experiment I usually do is a distillation test. This requires a little more apparatus, but is very easily done. 100 c.c. are measured out in a graduated cylinder and poured into an 8 oz. retort, a thermometer is fitted inside a cork, and the cork placed in the tubular opening at the top of the retort. The thermometer is placed so as to be in the liquid about ¼in. from the bottom. The liquid is then distilled by means of a bunsen burner or a spirit lamp so that it comes over in drops and not in a continuous stream. The temperature at which the first drop leaves the neck of the retort is noticed, also the amount at 84° C. and at 100° C. A good 90% benzole will start at 83°, about 4-5% at 84°, and not less than 90% at 100° C. The easiest way to measure the quantities at these temperatures is to let the spirit drip back into the 100 c.c. measure.

Sulphur in Benzole.

The only other thing in benzole that interests the motorist is the amount of sulphur, and, unfortunately, there is no quick, easy, and accurate way of testing this. The method usually adopted is to burn the benzole very slowly by mixing it with alcohol, or else by blowing air through some benzole held in cotton wool. The sulphur turns to sulphur dioxide, and arrangements are made for this to be done in a stream of ammonia gas, whereby ammonium sulphite is produced. This is passed up a tower, cooled, and collected; it is then oxidised with a few drops of hydrogen peroxide, and the sulphate precipitated as barium sulphate and weighed. This test when done has shown the benzole I use to contain under 100 grains of sulphur to the gallon, and as the Petrol Substitutes Committee consider anything under 300 grains to be satisfactory, I must conclude that my benzole is very good in this respect.

Apparati.

Perhaps a word as to the cost of the apparatus mentioned may be of interest. A hydrometer reading from .850-.900° costs 1s 6d., an 8 oz. retort 7d., a 100 c.c. graduated measure 1s. 4d., a Centigrade thermometer reading up to 110° 1s. 3d.-2s. (according to whether a paper or milk glass scale is used), a Fahrenheit thermometer reading to 100° or 150° 1s. 3d., a tripod stand to rest the retort on 4d., and a wire gauze 3d. A spirit lamp would come to 8d. or 9d. A cheap retort stand and a small clamp can be bought for 2s. The whole apparatus as outlined would not cost more than 10s.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Carburetter for Scotts.

Sir,—I am, like Mr. George Bax, a Scott rider, and am on the look out for a carburetter. Mr. Bax is in favour of the Lukin, and states that he has been able to do away with the half-compression valves. I should like Mr. Bax to tell me how he is able to start his engine under these circumstances. On my machine, a 1913 model, I could stand on the kick starter against compression, and it would be utterly impossible to start my machine unless I used the half-compression device. H. MACAULEY.

Sir,—With reference to Mr. Bax's letter, I think it would have been better if this gentleman, if he found any irregularity with the carburetter, to have written to me asking for some explanation, and it is more difficult to understand as all my carburetters are sent out on approval. Why, if it was not satisfactory, did he not return it in the time limit allowed? I cannot trace ever having supplied a carburetter to this gentleman, nor having received a letter from him. I have not the least fault to find with him for praising other people's goods, but, before making any public complaint, I think it was only due to me for such complaints to be made to me first, when I am sure the fault which he refers to in my carburetter could have been rectified.

As to the merits of my carburetters, as applied to the Scott, any owner can have one on approval and test it against any others he likes, and I shall be quite content to abide by the results. C. BINKS.

Military Motor Cyclists.

Sir,—May I be allowed space in your valuable columns to bring before the Motor Cyclist Reserve Committee a suggestion? I understand that the War Office request for motor cyclists for the Territorial Force has not so far been responded to in a satisfactory manner. Indeed, the headquarters to which I am attached should have an establishment of twelve motor cyclists, and up to the present I am the only one attached. Now, a condition is that for the whole period for which he is bound (which is one of four years) he will be required to "maintain a motor cycle." That, I take it, means that it must always be ready for mobilisation. The next condition is that, "to meet the expenses thus entailed," 8s. per day will be allowed when specially employed on military duty. Considering the high price of petrol, the heavy wear and tear incurred by such duty, and the higher rate of premiums required by the insurance companies for such work, I do not consider the allowance any too generous. In fact, it scarcely covers the cost of running the machine in manœuvres.

Now where is the inducement or compensation for maintaining the machine in good condition during the period of the four years? There is none. It might be argued that if a man has a machine he would for his own purposes so maintain it. If he be attached he must, but if not he is free to follow his own inclination or to act according to the condition of his purse.

Another suggestion is that the War Office pay a retaining fee, which I believe they do for large motor vehicles; in the case of motor cycles, say 20s. per annum. In addition to this the Army motor cyclist should be exempt from payment of the local taxation licence. The Territorial is free from payment of National Insurance contribution, but this is an advantage that will not apply to the majority of motor cyclists. I hope that some member of the Committee above referred to will see this letter, appreciate my points, and deal with them. G. M. COLBECK WELCH.

A Problem.

Sir,—I am rather puzzled with my machine, and think perhaps some of your readers could help me, and at the same time afford them an interesting problem to solve.

The machine is a 1913 model 3½ h.p. T.T. twin J.A.P. engine 70 × 64½ with overhead inlet valves. The trouble is that, although I can get 50 m.p.h. on the level for a short distance, it will not climb or pick up. The compression is good, cylinders clean, jet clear, plugs and lubrication perfect. I have tried a B.S.A. carburetter, also B. and B., and now have a Senspray, in which I have tried several jets; have also tested magneto timing and seen that the valve tappets have proper clearance. Several experts have tried the machine and made various adjustments but without effect.

[Our correspondent should have mentioned his gear ratio, which, we imagine, is too high.—ED.]

Hints will be much appreciated by TWIN JAP.

The Wear of Tyres.

Sir,—Having read "Ixion's" "Occasional Comments" in your issue of September 11th, I would ask your permission to give my experiences on some of the points mentioned.

Spare tube carrying. I do not agree with the statement that a spare tube must be carried by the "get there" type of rider. Perhaps "Ixion" would not put me into that class, but I am in the habit of using my machine for purposes in which punctual arrival at places considerable distances apart is essential; at times also it is necessary to hurry, and yet I have not carried a spare tube for three years. Previous to that I used to carry one, to find when the tube was urgently needed that it was either chafed through or perished. The only considerable delays, owing to tyres, I have had this year were on a loan machine unprovided with a special form of nail catcher always fitted to my own machines.

With regard to the 2¾in. tyre, I have not yet had sufficient experience of this size of cover to know if I am grateful to the makers. I fitted one to the driving wheel of my Triumph on August 1st, but its present life of 1,599 miles is not enough for comparison with tyres previously used. I think, however, that my luck with tyres must be better than "Ixion's." Of four heavy covers of one make, all used on the back wheel, three have given a mileage of 7,000, 8,000, and 6,176 respectively. The last one was particularly good. Fitted on November 17th last it punctured for the first time on March 21st, and was finally taken off on June 21st. Another cover, used on the driving wheel, completed 4,021 miles before being removed as too smooth for winter riding. The back tyre now in use on my other machine has done more than 4,200 miles. I ought to state that the above mileages are measured, not guessed. Freedom from tyre trouble is, I am sure, largely a question of the price paid. Economy in that direction is unwise. D. K. HALL.

Fair Treatment.

Sir,—Much has been said at various times about unfair treatment doled out by makers either by delay in despatching spare parts or refusing to accept liability on broken parts. As a rider of a 2¾ h.p. Royal Enfield, I relate my experience. My machine had been running remarkably well, when, by some reason which I cannot account for, the nut fastening the end of the gudgeon pin worked loose and so fouled the cylinder that it was beyond repair. I forwarded this, together with the piston, to the makers of the machine, and, to my astonishment, I was not only supplied with a new cylinder within three days, but was forwarded a new piston complete with rings and gudgeon pin and a new compression tap free of charge. Moreover, when fitting the

cylinder hurriedly. I discovered (too late unfortunately) that I had not bedded the same properly to the crank case, and, in tightening the nuts, cracked the new cylinder. I was obliged to approach the makers a second time, and in three days' time I received the second cylinder again free of charge. I might further add that I have no interest in the firm beyond being satisfied with the machine of their make and the treatment they have meted out to me. GEO. HARRISON.

Sir,—Funny, the diversity of experience on this subject; funny, also, that in a letter of praise the name of the firm should be quoted in full, while in the other sort it hides under "well-known make" or similar unsatisfying ambiguity. But the reasons are obvious.

My own experience is distinctly of the "other sort." Six months ago a friend and myself set up motor cycling, he preferring a lightweight and I a 3½. We were advised: "Get a—well a Pankhurst and a Lloydgeorge respectively, for they, if not the best, are at any rate the most popular; it will not be long before you require new parts, and whereas with a foreign or lesser-known machine you may suffer an annoying delay whilst they are procured, these makers keep these parts by the hundred, ready in stock for immediate delivery."

Sounded all right, so we acted upon it. Now for the proof of the pudding. At the start of my projected holiday tour, a month ago, my piston broke. I immediately took the machine to the nearest agent, instructing him to wire for a new piston and valves to the Lloydgeorge Company and let me get on.

These have only just arrived, on the last day of my holiday; and all fit so badly as to be useless. That is to say that after a month's maddening delay I am exactly as I started; very likely with a further month's wait, and the same result at the end of it.

On appealing to my friend for sympathy, he congratulated me on having the best of it, as he had to wait two months before the Pankhurst people condescended to execute his order for parts, similarly of standard make and quoted in their lists as stocked for immediate delivery.

This unbusinesslike slackness would not be tolerated in any other trade, and must do tremendous harm to motor cycling as a sport. Novices and enquirers have a wholesome terror of breakdowns, and with good reason, too, if a trouble that may come on at any moment is thus to deprive them of the use of their machine at the very time of the year they most want it. FED UP.

Sir,—I always read with interest the letters published under the heading "Fair Treatment." Personally, I have found that most firms of repute do their utmost to relieve motorists from embarrassing situations. The following, however, easily eclipses all, both for lightning despatch and generosity.

A few days ago, while riding a James sidecar combination, one of the timing wheels of this very excellent machine came adrift and caused much havoc. This happened in a tiny village (through which a professional tour was taking me), and which possessed nothing in the way of a satisfactory garage. The engine was taken down by lamp-light and repair on the spot found to be out of the question.

"THE FREAK HILL POLICY."

The above photograph shows "The Scar"—an exceptionally severe Yorkshire hill, between Augram reservoir and Middlesmore in Nidderdale—which had to be climbed during the Harrogate and District M.C.C.'s paperchase. E. Maynard (Triumph), the winner of the event, is seen negotiating the hairpin corner.

The ordinary delay experienced in repairs would have meant a serious loss to me, as my work took me into districts little served by railways. I therefore packed up the engine and put it on the first passenger train to Birmingham, at the same time despatching an urgent letter stating my position and the facts of my misfortune. Judge of the astonishment when I received a wire—"New engine despatched five-fifty Great Western passenger." Within a very short time we were at work, and I resumed my journey greatly rejoicing.

This is not an isolated case illustrative of the "push-ahead business-like" attributes of the James Co., and the true motorist will recognise their action as being a genuine desire to relieve the users of their machines from those unforeseen predicaments which are the lot and inheritance of all who participate in the glorious sport of motoring. I am utterly unknown to the James Co.

FREDK. PHILLIPS, B.Sc. (Lond.), F.C.P., F.C.S.

[We have devoted considerable space to this discussion, and the correspondence is now closed.—ED.]

Carburetters and Flexibility.

Sir,—Referring to "Autobore's" letter, I am afraid I cannot agree. I contend that the conditions of my test must be carried out without any alteration to the carburetter whatever, and to have to alter the size of the air port and the size of the jet whilst riding the machine is, to my mind, inadmissible. The machine that I would offer for test is, like your correspondent's, a T.T. fixed gear machine, and tests 2 and 4 which he says are impracticable on his machine would be practicable on my test machines, which would be fitted with Precision or Fafnir engines. C. BINKS.

Hub and Counter-shaft Gears.

Sir,—As a novice to the pastime, this being my first season, I much appreciate the opening of your columns to the discussion on three-speed hub gears, one of which is fitted to my 3½ h.p. single-cylinder Premier machine, which takes a sidecar practically all over Surrey.

The first season of riding as well as the correspondence in your paper on the subject has shown that the personal factor has considerable influence on whether hub gears are the best or of no use at all. Is it not conceivable that some of those who have had trouble with this mechanism are not treating it in the right way and would be better for a few lessons in driving and the care of the machine?

Personally, I never cease to wonder at the extraordinary way in which such a small engine and such light gears stand the racket of the work they are put to even under the best conditions of driving. LF 126.

Sir,—The letter in your issue of September 4th from Mr. E. C. Paskell seems to me to call loudly for correction.

If all hub gears are perfect, as he would make us believe, why did every morning's practice in the T.T. race this year see some number of machines hung up with gear trouble? There are very many people who do not look on the hub gear as thoroughly reliable, and most people also believe that the extra weight in the rear wheel does reduce speed and render steering more difficult.

It is just possible that a very skilled mechanic with all adjustments slack to begin with could take out the back wheel of the machine fitted with a hub gear and replace it within five minutes of the time taken with a more accessible wheel; but as a rule when a rear wheel is disturbed it is with the idea of changing a tyre, or something of the kind, and the dummy belt rim greatly complicates the matter.

Mr. Paskell has only to see machines which really have easily detachable wheels hung up with punctures to find that the owner prefers to drop out the wheel if the job is not difficult and complicated.

By the way, the designers of some machines appear to have got over the necessity of brake dodging in removing a rear wheel quite well without adopting counter-shaft brakes. RIFLEMAN.

Sir,—I am very pleased to see that in the 4th September issue the Armstrong Gear Company have at last come out of their shell and are replying to the various critics of the three-speed hub gears by facts and figures. I ride a New Hudson with one of these gears. I will not say I have had no trouble with it because I have had to send it back to the works once, but that was after about 2,000 miles. Then I suppose it was "familiarity breeds contempt," as, owing to it running so perfectly I ignored the makers' instructions regarding oiling and adjusting. The Armstrong Gear Company kindly repaired this for me free of charge, and on it I have since done about 2,000 miles, and up to the present it has given entire satisfaction. With me the gear gets plenty of work; it is not on the machine for ornament, and more often than not there are three up, and I never trouble about raising the exhaust lifter or throttling down when changing. Usual disclaimer. LF 93.

Sir,—I have been much interested in the correspondence *re* hub *versus* counter-shaft gears. One point which most of your correspondents ignore is the great simplicity of counter-shaft gears as compared with hub gears. Practically all counter-shaft gears are so simple, and the parts are so large and strong, that even a novice can venture to dismantle them if trouble is experienced on the road. This is very far from being the case with three-speed hub gears, which are extremely complicated in their internal parts.

That the makers take the same view is evident, since I recently wrote the makers of what is perhaps the best known three-speed gear on the market, asking if they could let me have any literature explaining the internal construction. The reply was that if I thought there was anything wrong I had better send the gear up to the factory. I wrote again, stating that I did not propose to interfere with the gear unless in the case of absolute necessity, but wished to understand it in case of trouble on the road. This second letter was entirely ignored, so I suppose the inference is that the gears are so complicated that even the makers cannot explain them verbally! Also I suppose it is hopeless to attempt any adjustment outside the factory.

I certainly think the counter-shaft gear scores heavily in respect of simplicity, and shall, I think, try one on my next machine.

I have, fortunately, not experienced any trouble with my three-speed hub up to the present except an occasional failure to change down on hills, but I certainly look forward with considerable uneasiness to the possibility of gear trouble on the road, although I can sign myself

ENGINEER.

Forced Feed or Splash Lubrication.

Sir,—The various makers of motor cycle engines do not seem to be in a hurry to give this matter their serious attention, and most of them apparently appear to be content to allow things to remain as they are, and are quite indifferent about the matter. It is quite certain that automatic lubrication of all types of engines must come about to ensure efficient and reliable working.

As regards the point raised in your issue of 11th September about the oil being supplied in proportion to the load on the engine, the problem is not one which offers any great difficulty. Surely, this is a simple matter, which the engine builders could most easily overcome. Take for instance the Bosch system. The lubricator is designed to be driven in the same manner as the magneto, but requiring much less power, and the oil which flows to the lubricator from the tank above is forced by the pumps through the small tubes or feeds, each in turn as the pump shaft revolves. These tubes are led direct to the cylinders and other parts of the engine, and the supply of oil to each can be adjusted independently by simply turning the screw either one way or the other, as a smaller or larger quantity is required. It would be quite easy to arrange a bypass connecting two of these tubes, thus obtaining at any moment a double supply of oil, if necesary, when wanted, or *vice versa*. The great point of the Bosch system is that the oil is being forced under great pressure, and the action is absolutely positive, which is of vital importance.

Recent correspondence proves that many riders are obtaining everything but satisfaction from their existing arrangements, and anxiously await the application of more up-to-date mechanical methods, as are applied in practice where larger engines are dealt with.

CHAS. GORICK.

(1) A view on the Col de Fray Miquel, showing the Roc motor cycle ridden by C. E. Squire through the Pyrenees.

(2) The summit of the Col de Puymorens obscured in clouds. The notice board on the left gives the altitude and warns motorists to slow down as a dangerous turn is close at hand.

Sir,—*The Motor Cycle* of September 11th contained three independent references to the subject of lubrication. Some people would have us believe that the ordinary systems of lubrication employed in motor cycle engines are satisfactory, and that "improvements" bring disadvantages and add complications.

No doubt this opinion is largely justified, firstly because it is a truism that very few improvements can be effected without involving complication, and secondly, because many automatic lubrication systems are actually more unreliable and unsatisfactory than the ordinary hand pump.

Whether ordinary "splash" lubrication can be said to be satisfactory is primarily a matter of opinion depending upon the ideals of the rider. If he is satisfied with between five and ten thousand miles service, and is not particular as to *how* his engine runs provided it takes him along at the pace he wants, then splash lubrication will satisfy him. That a very large number of riders look for something better than this is shown by the continual reference to the subject of lubrication and the interest which it excites. Thus, in *The Motor Cycle* of September 11th, there is a leaderette dealing with the subject, an article by "Red Wheels," and a reference by "Ixion" to "Acute recurrent bigenditis."

I should like to endorse the opinions expressed by "Ixion." I think that the other two writers miss a few rather important points. They appear to take it for granted that mechanical lubrication must possess the fault either of varying the feed in proportion to the engine speed or of maintaining a constant feed to the crank case. Under these conditions the engine is over-lubricated when running fast on a light load, or when running slowly or after descending hills.

Now a system of true forced lubrication, in which oil is fed direct to the bearings whilst the flywheels and big end are clear of the oil in the sump, does not possess these faults. If, as is usual, the pump is arranged to deliver more oil than the bearings are able to pass, the surplus going through a spring-loaded relief valve, it is a very easy matter to regulate the supply of oil by varying the pressure on the relief valve spring. If this spring and valve are arranged in an accessible position there is no difficulty whatever in connecting the control gear to the throttle lever and so making the oil feed strictly proportional to the work done. This arrangement has been employed in Delaunay-Belleville cars, among others. It has been proved beyond doubt that for maximum efficiency it is necessary that clean oil be forced between all rubbing surfaces, and that a plain bearing under these conditions is the sweetest running and longest wearing bearing it is possible to obtain.

For the requirements of the high speed petrol engine may be added the following:

1. The oil filter should be easily accessible, and its cleaning should involve no loss of oil.

2. The oil pressure should be able to be regulated without the aid of tools.

3. The maximum quantity of oil should be fed to the bearings consistent with getting correct cylinder lubrication.

It is on these principles, among others, that the modern ultra-efficient motor car engine design has been built up. How would Sunbeams, Vauxhalls, *et hoc genus omne*, fare with splash lubrication and crank chambers containing only an "oil fog"? The slight extra expense due to forced feed lubrication is amply repaid in increased service.

If the above points were thoroughly grasped we should hear very much less discussion on the question of bearings and their lubrication. A.M.I.C.E.

A Motor Cycle Tour in the Pyrenees.

Sir,—I noticed a paragraph on page 1202 in your "Sparklets" columns of *The Motor Cycle* that I think refers to myself. The highest pass I went over was the Col de Fray-Miquel, 8,022 feet. This road leads across the frontier into Andorra as far as Soldeu. It has not been opened long, and, judging by the appearance, cannot have been traversed by anything on wheels more than a few times, and I think never before by a motor cycle. I had a fine trip, and do not think anyone could do more in the time. I went over most of the passes between the Mediterranean and Lourdes, and would be happy at any time to give any of your readers any information I can. I took many photographs, but only have the enclosed prints by me at the moment. C. E. SQUIRE.

Determining Top Gear Ratios for Cycle Cars.

Sir,—The article by "Engineer" in *The Motor Cycle* of 18th September, on "The Influence of Correctly Proportioned Gear Ratios for Cycle Cars," comes opportunely, and should do much to silence the originators of the "freak" gear movement. This article, written by a technical man, is to be commended to makers of sidecar motor cycles for careful attention.

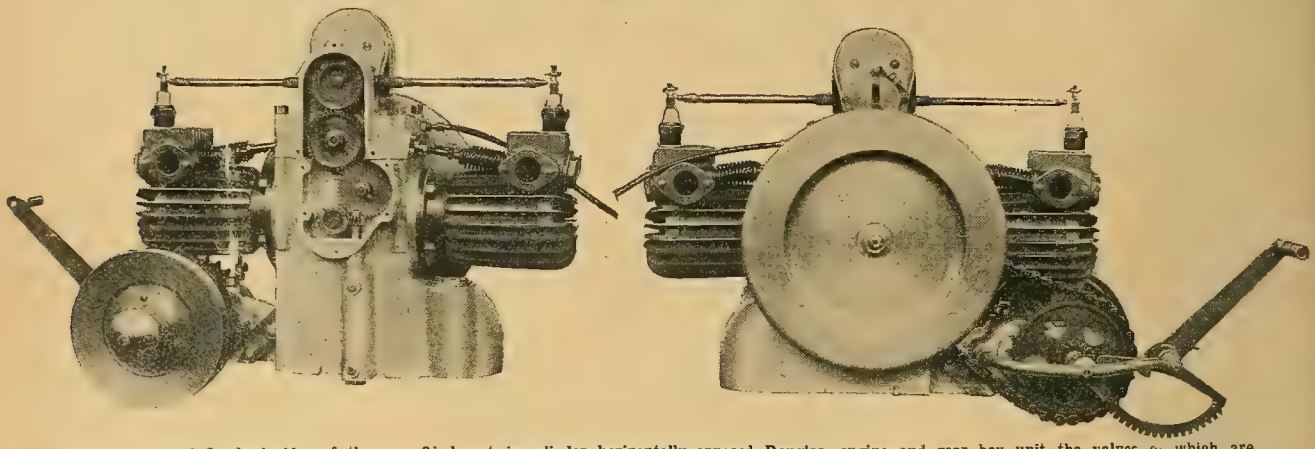
One point, in my opinion, is incorrectly treated, namely, the selection of the top gear ratio. I maintain that the correct gear is not a matter of compromise or choice, but a fixed quantity, depending on the maximum output and the corresponding speed of the engine which is destined to propel the machine.

The correct top gear is arrived at as follows: Calculate the speed at which the engine, when developing its maximum power, can drive the car on the level. The r.p.m. of the driving wheels divided by the engine speed at which maximum output is developed (figures obtained from bench tests of the engine) gives the reciprocal of the top gear ratio to be used.

In regard to the climbing qualities of a machine on top gear, this, as "Engineer" points out, is entirely dependent on the ratio of engine power to total weight of the vehicle, but hill-climbing should not influence the designer in selecting the top gear ratio. H. M. STICH.

A 3½ h.p. 494 c.c. DOUGLAS.

Equal Bore-Stroke Ratio. Pump Lubrication. Engine and Gear Box Unit.

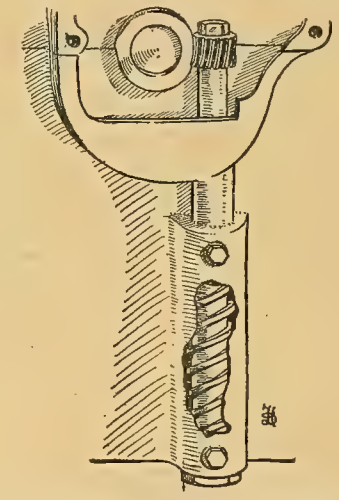


Timing gear and flywheel sides of the new 3½ h.p. twin-cylinder horizontally opposed Douglas, engine and gear box unit, the valves of which are placed over the top of the cylinders.
(1) Showing the oil pump driving mechanism from main-shaft and large driving pulley. (2) The kick-starter mechanism and chain drive from engine to gear box.

IT is always a pleasure to examine a new type of machine, and when the machine is the product of so well-known a firm as Douglas Bros. interest is greatly increased; consequently we were glad when it fell to our lot to inspect the new 500 c.c. machine which this firm will place on the market for the 1914 season. As might be expected, the salient features of Douglas design are retained, though many modifications and improvements have been incorporated. When Mr. Douglas explained to us that he was very proud of the new design we were prepared to see something good, and from a subsequent inspection we consider that his pride is likely to be justified by future sales and performances.

Some Striking Features.

The first point to strike us was the large oil sump below the crank case, which holds approximately seven pints, or enough to free the rider from any lubrication worries for about 1,000 miles, and forms a platform on which the engine unit rests, and is held in the frame by two long bolts, which, through the medium of neat clamps, exert a wedging action on special cast lugs (see sketch). It is only necessary to slack the two nuts and to remove the petrol union and belt to take the whole engine, gear box, kick starter, exhaust box, etc., from the frame; in fact, we saw the feat performed in about two minutes. At the back of the sump is a sloping platform, to which the



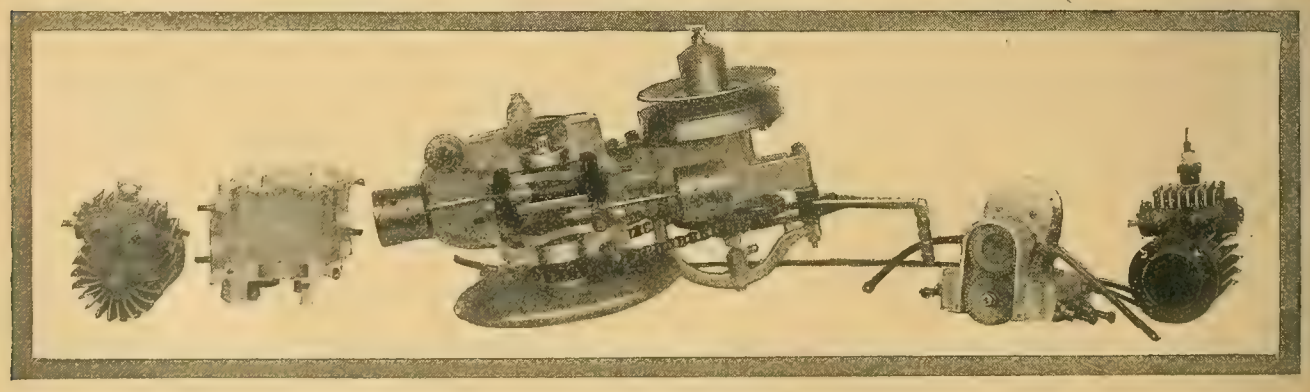
Worm driven Douglas oil pump showing the screw type lifter fitted.

gear box is attached in a somewhat similar manner to the engine fixing. This forms a very simple chain adjustment, for, by slacking the holding bolts, the gear box can be slid up or down the platform without any possibility of deranging the sprocket alignment.

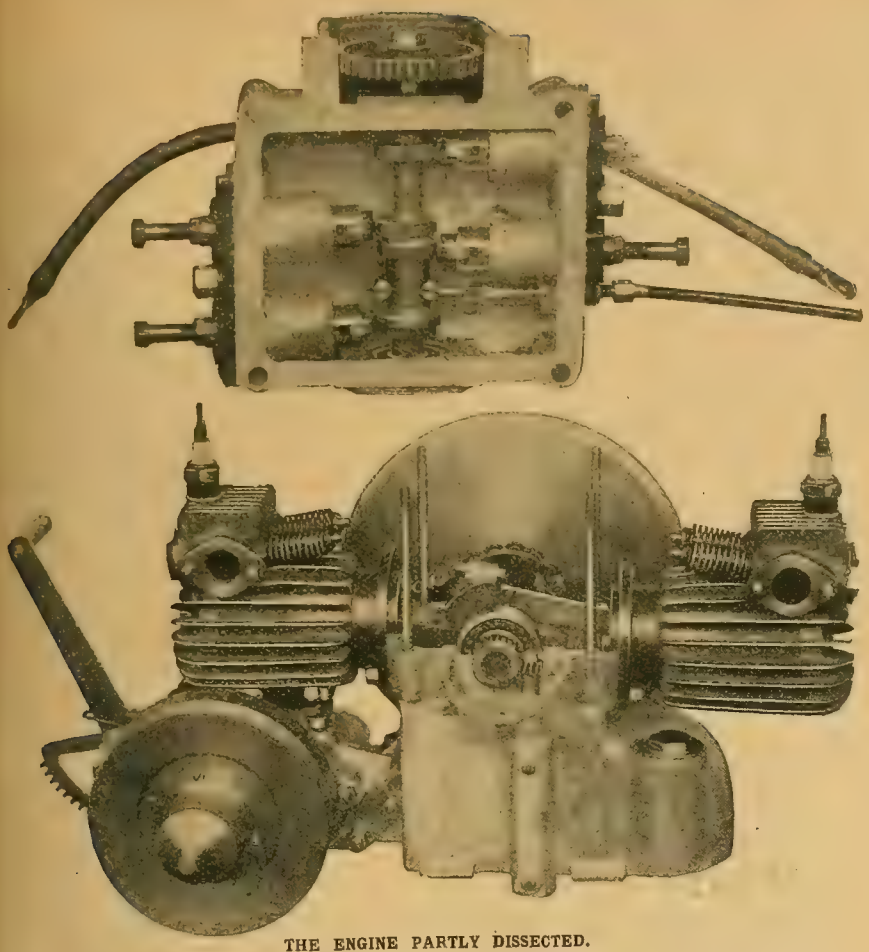
The Lubrication System.

From the sump before mentioned oil is raised by means of a screw pump driven at one-third engine speed by a worm gear on the end of the crankshaft. On reaching the crank chamber the oil is led into troughs below the cranks, the surplus oil returning to the sump through two large filters placed one at each end of the crank chamber. The crank chamber proper is split horizontally, and contains the usual Douglas type balanced crankshaft, to which are attached connecting rods with split big end bearings. On top of this chamber is mounted a third casting, which contains the solid camshaft and carries the magneto. The camshaft and four cams are machined from one piece and mounted on ball bearings, the cams operating the valves through large rollers and adjustable tappets, the design reminding one of modern car practice rather than the usual motor cycle rocker gear. On the camshaft, and capable of being rotated round it is an arrangement of double cams, which form the exhaust lifter.

The cylinders have a bore and stroke of 68 mm., and are, of course, hori-



The new 494 c.c. twin Douglas engine in parts.

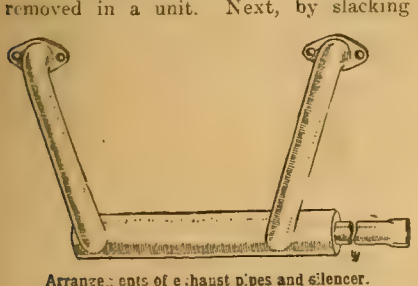


THE ENGINE PARTLY DISSECTED.
The enlarged view at the top is of the underside of the camshaft case and illustrates the design of the tappets and exhaust lifter.

zontally opposed, but in this new model the valve pockets are placed on the top of the cylinders instead of at the sides, the ports being so constructed as to prevent a broken valve head from falling into the cylinder head. The valves are slightly inclined downwards to the head, and the ports are cast with longitudinal ribs. An 11in. diameter outside flywheel is fitted to the one-piece crankshaft.

The engine is a masterpiece of accessibility, for, besides the fact that the unit may be withdrawn so easily, the following points are worth notice. All four valves can be easily removed while the engine is in position, so also may both cylinders. The magneto is held by two nuts and its gear wheel.

By removing four nuts the whole of the cam gear and magneto may be removed in a unit. Next, by slacking two nuts on each cylinder, the top half of the crankshaft chamber can be removed, leaving the cylinders still in position. The oil level may be inspected by removing the filler cap, which is so placed that it is impossible to fill the sump too full.



Arrangements of exhaust pipes and silencer.

The Driving System.

A ¼ inch × ⅝ inch Hans Renold chain connects the engine and gear box, the latter being similar to the well-known 2¾ h.p. type, though strengthened up somewhat and fixed in the manner already described. The clutch is faced with Ferodo, and the diameter has been increased to seven inches, the same size as the belt pulley. The kick starter is as usual.

Both inlet and exhaust pipes are neatly carried out, the carburetter lying just behind the magneto, and the two exhaust pipes lead tangentially into a larger pipe set longitudinally, the exit being by a tail pipe. It is well to mention that the new features are all patented. The frame, which carries the power unit, though of pleasing appearance, has no very unusual features, except for the forked down tube, which enables the valves to be easily removed, and the special sidecar lugs, one of which is fitted below the bottom bracket. Neat footboards are fitted to the touring model, which, with the wide smooth mudguards, should prove effective protection from muddy roads. The spring forks are of the usual Douglas pattern, though, of course, considerably strengthened. Carrier, stands, and tool bags are on well tried lines.

The tank, which contains petrol only, is on the lines of those fitted to the T.T. 2¾ models. A T.T. model will be sold which will be without clutch and footboards. Although the price is not definitely settled, it will be approximately the same as other well-known 3½ machines. 26in. × 2⅜in. tyres are standardised. We particularly wish to impress on our readers that the machine has undergone many many miles of strenuous road

Neat high tension wire on 3½ h.p. Douglas. The tubular casing is kept in tension by an internal spring.

tests and has proved perfectly satisfactory, and we hear that it is even more efficient for its size than the popular 2¾ h.p. model.

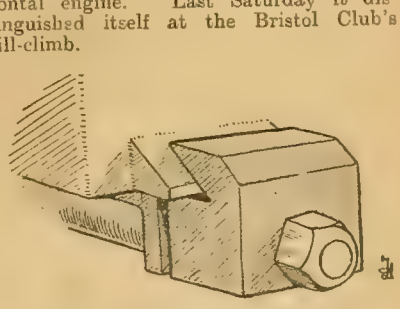
A Douglas Sidecar.

Messrs. Douglas Bros. have evidently recognised that this new production will be largely used for sidecar purposes, for they have designed a special sidecar to suit the machine, which has several interesting features. The side members are constructed in the shape of a bow and string, and the body is attached by three full elliptical springs, one at the front and one at each side; these should render riding particularly easy. The chassis is attached to the frame at four points to ensure rigidity. The usual stay from the saddle pillar to the rear of the chassis is augmented by a similar stay from the head to the front, and, in addition, a cross tube is fixed to the footboard support and another to a point below the bottom bracket. The coachbuilt body has a comfortable riding position and a smart appearance.

Douglas Machines for the Colonies.

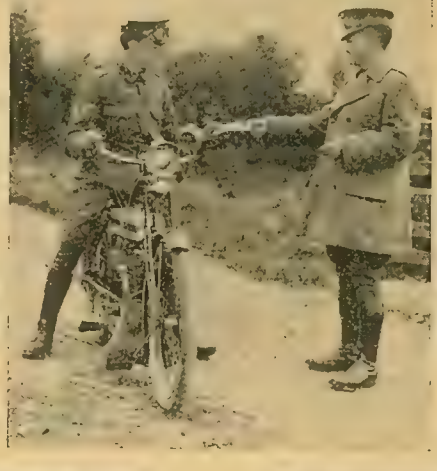
Before we left the works Mr. Douglas pointed out a large consignment of machines for the Colonies and the Continent, and informed us that he has already entered into contracts for 6,000 machines for next year.

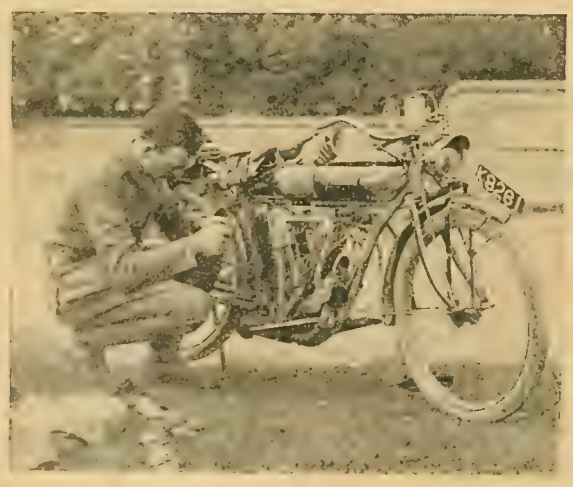
Of course, the well-known 2¾ h.p. model will be retained, but the alterations for 1914 will not be on a large scale. Whilst at the works we also saw a very smart cycle car fitted with a taking streamline body and the 8 h.p. water-cooled horizontal engine. Last Saturday it distinguished itself at the Bristol Club's hill-climb.



Method employed for fixing engine in frame. Two of these fixings are used.

The MOTOR CYCLE IN THE MILITARY MANOEUVRES





(1) Headquarters at the King's Arms, Stokenchurch. A Rudge rider in the foreground. (2) The old and the new method of despatch carrying. (3) A Royal Engineer delivering a message. His machine is a 3½ h.p. Triumph. (4) A Lancashire Royal Engineer stops to change a plug. (5) A Bradbury rider arriving at headquarters, Stokenchurch, with a despatch.

The Motor Cycle in the Army Manoeuvres.

MIDLAND motor cyclists turned out in hundreds at the week-end to inspect the different camps in connection with the army manœuvres. This is only natural, seeing the important part motor cyclist scouts and despatch riders are playing in the manœuvres. The Delta airship, which is quartered near Dunchurch, drew large crowds, and the score or so of aeroplanes ranged up in orderly fashion in a field near Crick, commanded much attention.

Motor cycles of every make, and some of doubtful age, are participating in the manœuvres. At one time any old accumulator ignited crock was permissible so long as it came under the appellation "motor cycle," but the authorities are a little more strict this year, and magneto ignition is essential.

We believe that more motor cyclists would have been pressed into service if offers had been received. There are plenty who would have volunteered their services, if information on the question of enrolment had been easier to obtain. Occasonally the notice given of vacancies occurring in the ranks was rather short.

Several smart P. and M.'s are permanently attached to the Royal Flying Corps. The motor cyclists seemed to be thoroughly enjoying their work, conveying despatches with all speed as enthusiastically as if their lives depended upon it.

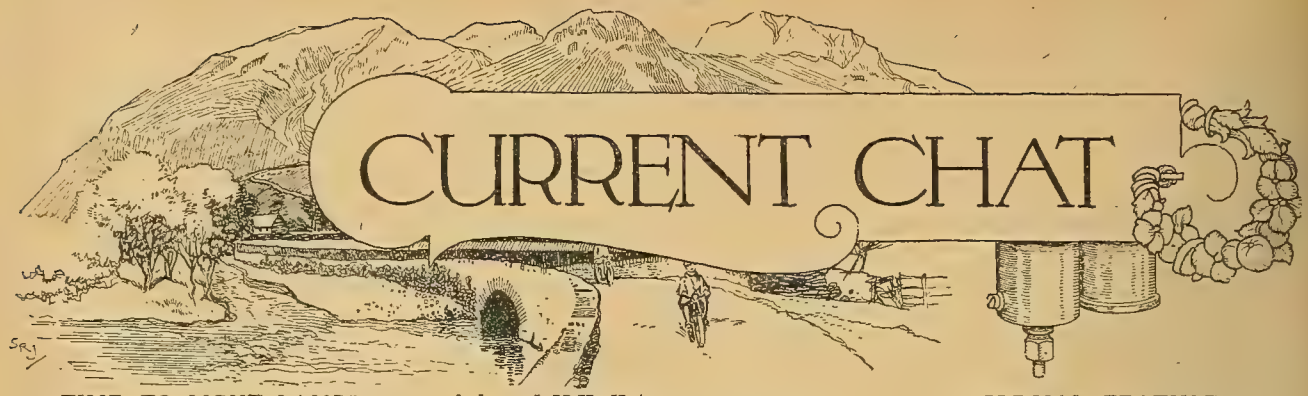
A well-known motor cyclist, who is connected with the Special Reserve of Motor Cyclists, writes us that he considers that a number of riders seem to have some difficulty in deciding whether they should join the Special Reserve or the Territorial Force of Motor Cyclists, so some particulars of the chief differences may be of service :

Royal Engineers : Special Reserve. Rank : Corporal or sergeant. Location of unit to which attached : All in South of England or Ireland. Age of enlistment : Eighteen to thirty. Term : Four years. Pay when on duty, including motor cycle allowance : Sergeant 11s. 6d. per day, corporal 10s. 9d. per day, with separation allowance for married men. Free rations and uniform. Bounty : £1 annually on completion of training after first year, and £3 per year, provided motor cycle is kept in serviceable condition. Travelling allowance : 1½d. per mile between home and destination by shortest route, not to exceed third-class rail for self and motor.

Motor cyclists—Territorial Force. Rank : Corporal or lance-corporal. Location of unit to which attached : In nearly every town of any size. Age of enlistment : Seventeen to thirty-five. Term : Four years. Pay when on duty, including motor cycle allowance : Corporals 10s. to 10s. 6d. per day, lance-corporal 9s. to 9s. 2d. per day, with separation allowance for married men. Free rations and uniform. Travelling allowance to camp : Amount of railway fare for self and cycle by shortest route.

Thus a Special Reservist corporal spending fifteen days in camp fifty miles from his home will draw, roughly, £12 12s. 9d. for his year's service, while a Territorial lance-corporal will draw a minimum of £7 7s. 4d., and be kept free in both cases. Those enlisting now can get their recruit drills worked off during the winter and be qualified to take their place in the field when the manœuvres start next year.

(1) Taking a well earned rest by the roadside. (2) Douglas and Bradbury riders taking cover in the bracken. (3) A mechanical travelling workshop in connection with the Royal Flying 3rd Squadron in a field at Wolvercote near Oxford. The machines are P. and M.'s. (4) A Scotch officer attached to the Brown Army leaving Stokenchurch. (5) Two of the Cambridge U.O.T.C. awaiting orders at Boulters End.



TIME TO LIGHT LAMPS.

September	25	...	6.52
,,	27	...	6.47
,,	29	...	6.42
October	1	...	6.38

Olympia Motor Cycle Show Exhibits.

At the Olympia Show, from November 24th to 29th, seventy-three firms will exhibit motor cycles and sidecars and twenty-four cycle cars. In addition ninety-five firms dealing in motor cycle accessories have booked space.

The Team Race at Brooklands.

It appears that in the One Hour Senior Team Race at Brooklands, on the 13th September, in which the Enfield team scored such a fine win, H. V. Colver was second with 54 miles 590 yards to his credit, and D. Iron third with 45 miles 275 yards.

The Cremona Circuit Record.

S. A. Rowlandson protests to us that our Italian correspondent is in error in stating that Carlo Maffeis broke the record for the Cremona circuit as reported in our issue of 18th September in the recent Italian Championship Meeting, and in support of his claim to still holding the record points out that he averaged 55¼ m.p.h. over this circuit against Maffeis's average of 53 m.p.h.

Cheap Tyres, Dear Petrol.

On September 18th the price of rubber in Mincing Lane fell to the low level record of 2s. per pound. While doubtless the shareholders in the rubber companies will not rejoice thereat, motor cyclists will welcome the news, for a continuance of these low prices for the raw material is bound eventually to reduce the price of tyres. But petrol is still a fly in the ointment, and there appears little prospect of that useful but not absolutely necessary commodity "slumping" at all in price just yet.

The Upside-down Airman at Brooklands.

We are informed by Major Lindsay Lloyd that arrangements have been made between the B.A.R.C. and M. Pegond for him to give demonstrations at Brooklands on the 25th, 26th, and 27th September between 3.30 p.m. and 6 o'clock, weather permitting. This demonstration will include flying in an inverted position. This feat is the deliberate carrying out of an idea of M. Blériot's in which he wished to demonstrate the stability and control of his machine in practically any position into which it may be forced.

A.A. and M.U. Notes.

Motor Cyclists and Level Crossings.—A number of complaints have been received of late of the difficulty experienced at level crossings, the gatekeepers contending that the small swing gates at the side should be used in preference to the carriage gates. The Association have taken up the matter with the various railway companies concerned, and already the General Manager of the G.W.R. has given instructions for the gates at all level crossings on the line to be opened for motor cyclists whenever occasion arises.

The Danger of no Reflex Light.

Once more, as the evenings draw in, the necessity of not only proper lighting for motor cycles, but also for other users of the road, is borne upon riders. The necessity of carrying reflex rear lights by cyclists is also a pressing question, and if they but realised the danger they are in on a dark night without such warning device, we think every cyclist would have his machine equipped with these cheap and useful fitments. Quite recently the opening run of the Camberley M.C.C. was postponed by the sad death of one of the members. He was riding the evening before when he suddenly had to swerve to avoid a cyclist without a reflex light—and he was thrown heavily with fatal results.

SPECIAL FEATURES:

FOUR 1914 MODELS.
HELVELLYN CLIMBED.
MOTOR CYCLISTS IN THE MANŒUVRES.

Trade Announcement.

Mr. W. J. Green, who has been associated with the Premier Cycle Co., Ltd., Coventry, for the past ten years as secretary, advises us that he has resigned his position with the company, and desires all personal communications to be addressed to 75, Coventry Street, Coventry.

Novelty in a Midland Trial.

To render the open reliability trial of the Sutton Coldfield Club, fixed for October 4th, more interesting, novel schemes are in hand. The committee are endeavouring to get all the winners of the past T.T. races to compete, the idea being to show that the speedman can also keep his mount down to a 20 m.p.h. schedule when desired. After the trial it is intended to invite all the winners to a dinner, also influential men and the press. An endeavour is being made to arrange the start and finish of the trial from the middle of Birmingham. The club officials have got a highly suitable spot, where all sorts of refreshments can be obtained, and it is within fifty yards of New Street.

Group of competitors at the finish of the Birmingham M.C.C. Trial to Carlisle and back. Left to right—H. Berwick (3½ h.p. Hampton), A. Milner (2¾ h.p. Levis), S. Tharp (3½ h.p. Triumph), D. M. Brown (3½ h.p. Rover), and G. Nott (5-6 h.p. Clyno sidecar).

1914 Models.

This week we describe and illustrate four 1914 pattern motor cycles, viz., the new 3½ h.p. horizontal Douglas, the 2½ h.p. F.N., 3½ h.p. Sunbeam, and the new Comet-Green.

Helvellyn Climbed by Motor Cycle.

Two of the Six Days Trials riders evidently enjoy mountain climbing on motor cycles. Following upon Skiddaw, their latest achievement is the ascent of Helvellyn last week-end. An exclusive description of the feat appears in this issue.

A Singer Experiment.

A Singer motor bicycle with horizontal engine has been seen on Midland roads undergoing tests for some weeks past, but, on enquiry, the company inform us that it will not be marketed this year at any rate. We are assured that the machine has proved very speedy.

Up Six Days Trials Test Hills.

A reliability run was held at the week-end, open to those members of the Westmorland M.C.C. who had not won a first, second, or special prize during the year. The run was a non-stop between-checks, a secret check being arranged in the event of a tie. Results: 1, E. Milton (8 Zenith); 2, H. Cleary (3½ Zenith); 3, J. Clement (3½ New Hudson). The run for the Triumph Challenge Cup, held on the 31st of August, and which ended in five competitors tying for first place, was also run at the beginning of the week. A very stiff course was chosen for the purpose, and included about six of the hills which were used in the A.C.U. Trials. Results: 1, G. A. Gregson (6 Bat), 10s. error; 2, P. L. Bryant (3½ Triumph), 2m. error; 3, W. Hutchinson (6 Zenith), 3m. error.

FUTURE EVENTS.

Sept.	27.—	Liverpool A.C.C. Open Reliability Trial.
Oct.	4.—	Sutton Coldfield & Mid-Warwickshire A.C. Open Trial.
,,	4.—	B.A.R.C. Brooklands Meeting.
,,	4.—	Bristol M.C.C. Open Speed Trials.
,,	11.—	Coventry & Warwickshire M.C. Annual Open Hill-climb.
,,	11.—	B.M.C.R.C. Meeting and A.C.U. Championships.
,,	29.—	A.C.U. Open One Day Trial for Cycle Cars.
Nov.	24 to 29.—	Motor Cycle & Cycle Car Show at Olympia.

Stoupe Brow Climbed.

A telegram received on Monday from Dan Bradbury, of Sheffield, states: "Yesterday I made first unassisted climb by motor cycle of Stoupe Brow, Robin Hood's Bay, on big 4 Norton."

An Officially Observed Test.

Last evening, at 9 p.m., Rex Mundy was due to start from the R.A.C. garage on an 8 h.p. water-cooled Williamson sidecar in an attempt to drive to Edinburgh without stopping the engine. He is being observed by an A.C.U. official.

Pilot Jet Carburetters.

Next week we shall describe and illustrate a new design pilot jet carburetter which we have tested on the road to give a consumption of 157.4 m.p.g. on a 3½ h.p. machine. Incidentally, it is interesting to observe the growing popularity of the pilot jet device, especially in view of our recent articles in favour of such fittings.

A typical view on the way up Helveilyn showing the rough path strewn with boulders. Thirlmere is seen winding northwards far below. (See next page).

Ben Nevis Climbed on a Sidecar.

During last week-end D. B. H. of Glasgow, climbed Ben Nevis, Britain's highest mountain, with his 6 h.p. A.J.S. and sidecar.

A Two-stroke Clyno.

The Clyno Co. have a two-stroke single-cylinder lightweight undergoing test, and it is now quite a common sight to see it hauling a sidecar in the Wolverhampton district. We hear from the trials secretary of the Oxford Club that it may make its first appearance at Alms Hill, Henley, next Saturday at the inter-club hill-climb of the Middlesex M.C.C., the North-West London M.C.C., and the Oxford M.C.C.

Motor Cyclists in the Manœuvres.

Our contributor "Mercury," who is attached as a motor cyclist to the Chief Umpire's staff during the manœuvres, tells us that he has had varied experiences in camp. One night men and machines were drenched with rain, but on a fine day it was delightful work. The services of quite a number of well-known motor cyclists have been utilised by the War Office, and among them, it is interesting to note, is F. W. Applebee, senr., who although too old to join the regular service, evidently feels his services appreciated by the authorities, for this is the fifth successive year he has been attached.

In Birmingham.

At the start of the Birmingham Club's open twenty-four hours' reliability trial on Friday we noticed George Brough, who had ridden over from Nottingham on his new horizontal-engined Brough. He readily demonstrated to us the ease with which it started by sitting in the saddle and hobbying it along with the feet. It will accelerate in wonderful fashion.

We also encountered P. J. Evans, who is running one of the prettiest little cycle cars one could set eyes on, viz., the four-cylinder water-cooled Calthorpe. The lines of the bonnet tapering from the neat honeycomb radiator to the dashboard give it a very clean appearance. It runs as well as it looks, judging from a short trip we had in company with Mr. Evans.

The Gaillon Hill-climb. British Support.

As announced in our issue of the 18th inst., the classic Gaillon hill-climb will take place on October 5th. As several riders have expressed their desire to compete, *The Motor Cycle* is willing to organise a party to take part in or witness the event, leaving London on Friday evening, October 3rd, for Southampton, provided at least twenty riders send in their names. Those who intend joining the party should communicate at once with the Editor, who will immediately tell them the details of the programme. It is suggested that the party should cross by Southampton and Havre and cover the journey by road. If this idea is followed out the trip could be managed on the most economical lines and in the most comfortable manner. Up to the present Messrs. C. S. Burney, R. L. Keller, B. C. Barton, and W. H. Bashall have given in their names. Entries, which cost 10 fr. for motor bicycles, sidecar combinations, and cycle cars, should be addressed direct to *L'Auto*, 10, Rue du Faubourg, Montmartre, Paris.

UP HELVELLYN BY MOTOR CYCLE.

By GEORGE D. ABRAHAM.

Author of "Motor Ways in Lakeland," "The Complete Mountaineer," "Mountain Adventures at Home and Abroad," etc.

IN the North motor mountaineering has become a craze. Skiddaw, our third highest English mountain, was thought to be the culminating point of many minor climbs, but now Helvellyn has attracted attention. With its 3,118 feet of height it only comes second to Scawfell Pike in loftiness. Helvellyn may be considered the highest bit of England accessible to anything on wheels at present, for Scawfell Pike is altogether out of the running in this respect. Its topmost reaches, pathless and piled with rocks and boulders varying in size from a pea to an elephant, are not likely to have their echoes stirred by the "music of the motor." Helvellyn has more or less of a track all the way to the summit, and as the most central and most climbed mountain in Lakeland, its presence overlooking the main trunk road has seemed like a perpetual challenge to some of the motor mountaineers. Wythburn, with its famous little church, and still more famous hostelry, was the obvious starting place. The actual distance to the summit was only 2½ miles, but the question was, would the tyred wheels grip the steps of slippery grass and sliding stones?

A Perilous Stretch.

Such were one's thoughts as we sped onwards into the mountain gateway, with heathery heights aglow overhead, and under wheel the magnificent road which the Manchester folk have given us as ample recompense for any harm done to Thirlmere in the turning of it into a "drinking trough." As we drew nearer to Wythburn the steepness of the lower half of the climb was strikingly evident. A thin line trailed upwards through brackened steeps and zigzagged finally up the rocky front of the outlying buttress of Birkside. This latter would be the most perilous portion of the ascent, but on the tableland above the most troublesome route-finding problem would be encountered

All was peaceful at Wythburn when we arrived. The heroes of the occasion were late as usual, thus we

A HALT FOR REPAIRS. The 4½ h.p. Quadrant receives expert "medical" attention to the hole in the crank case.

wandered slowly up the slopes. The great clouds which hid the summit lifted gradually and our spirits rose with them, despite the fact that their recently deposited moisture had made the grassy track decidedly slippery.

Motors in the Mountains.

Nearly a thousand feet above the little white inn a splendid viewpoint was found, and soon the healthy bark of the mountaineering motors filled the narrow valley beneath. One by one cars and cycles came to a halt far below, and pedestrians spread themselves stragglingly up the lower slopes. A tiny dark speck crawled along the main road, and then turned up towards us into the region of grey rock and bracken. It seemed a strange invasion. How hardly could Scott have imagined the scene when long ago he wrote:

"I climbed the dark brow of the mighty Helvellyn,
Lakes and mountains beneath me gleamed misty and wide,
All was still, save by fits, when the eagle was yelling,
And starting around me the echoes replied."

Then ere long the well-known voice of an old friend was wafted up to us. Little, on his 3½ h.p. Premier, was agrip with the gradient. He threaded the lower rocks skilfully and came up splendidly, with Raymond Drinkall on his 4½ Quadrant close behind. But both were eventually in difficulties. Driving wheels spun helplessly on the slippery grass slope of 1 in 2¾. These were troublous times, and those of us who knew the terrors of Helvellyn's upper bulwarks thus early began to think of failure. However, the plan of tying ropes around the driving wheels was adopted. Thus aided, the first difficulty

A STRUGGLE UP THE GRASSY BULGE. W. B. Little on the 3½ h.p. Premier in a critical position. Thirlmere is seen in the valley 1,000 feet below.

R. Drinkall tackling a typical boulder-jumping section. It was a similar spot on which the crank case of his 4½ h.p. Quadrant was holed.

was overcome, and the two riders were struggling for balance on the rock-strewn incline in order to strike a fair way through the narrow gateway.

A steep bulge of slippery grass now caused some delay. All hope of a non-stop run was finally shattered. Friendly assistance was not refused, even by Little, who had parted company with his machine and rolled several yards down the mountain side into a mass of bracken, a softer welcome than that afforded by hard rocks close at hand. Drinkall was first away here, and now high overhead he threaded the lofty zigzags skilfully, an altogether thrilling and splendid sight to us below. His companion was soon also speeding out of the "Slough of Despond" up to the "Happy Heights of Hope." Those of us on foot raced upwards, cutting off the zigzags. Around a sudden corner a crowd was gathered. Every face wore an ominous look, and the Quadrant lay on its side amongst the boulders.

A Novel Repair.

Only Drinkall seemed able to smile, and this was remarkable, for his crank case was punctured and no repair outfit was available. It seemed that in leaping one of the turfy steps the crank case had most unluckily alighted on a solid bit of rock and come off second best. A hole as big as half-a-crown proved to be the result, and a temporary repair with sticking plaster and string was the outcome of much ingenuity. Then onwards and upwards the pair of enthusiasts struggled once more, far up the terrific zigzags to the crest of Birkside. Little's mount showed a dangerous tendency to tackle the almost vertical confronting bit of mountain at every sharp turn. At one point only the presence of the writer prevented machine and rider falling backwards, for the front wheel was pointing heavenwards and spinning merrily in mid-air. At last the narrow gully filled with loose stones was entered. Few footrests survived the passage through the rocky jaws. With a roar and a rush the Premier emerged from this dangerous spot, and Little soon disappeared out of sight summitwards. Next came the news that he was waiting higher up in a bog, and wondering who would volunteer the descent to Wythburn for a forgotten belt punch. The Dunlop belts had stood magnificently on both machines, but here a shortening became advisable. A twenty minutes halt was necessary whilst, with hairpins, files, and penknives, a hole was made in the tough belting.

Helvellyn Conquered.

Little seemed surprised at the success of our efforts, and showed his gratitude by mounting the machine and riding away direct to the summit, almost a mile away. We followed leisurely, and finally arrived with cameras and congratulations to enliven the wait of the first motor cyclist to reach Helvellyn's crest. Drinkall was half an hour behind, but even this was an altogether unique performance, for the temporary repair of the crank case had broken away, and each charge of oil simply lubricated Helvellyn instead of the engine. Yet machine and man had come through scathless. Why that engine refused to seize must remain a mystery. There was much enthusiasm amongst the spectators on the summit.

The view from this height of 3,000 feet was magnificent, but one is afraid it received scant appreciation. A thin air seemed to blow unretarded through many a hungry mortal, for everybody's lunch had been left at Wythburn. The climb had taken two and a half hours, as prophesied by Moffet. This keen sportsman, who rendered such yeoman service during the Six Days Trials, was always the optimist of the party.

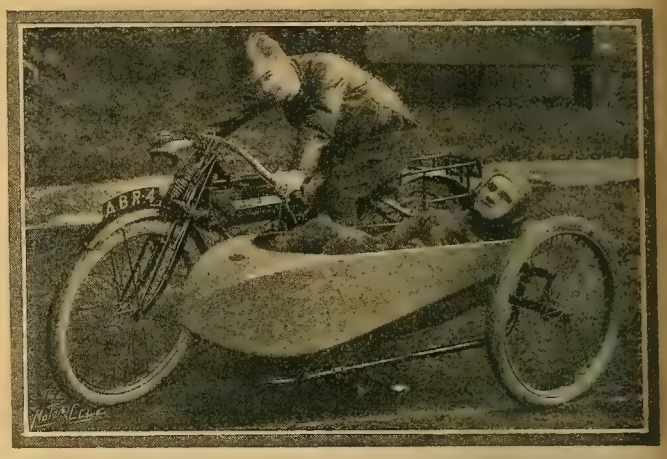
On the highest actual point of Helvellyn, 3,118 feet high. Messrs. W. B. Little (3½ h.p. Premier) and Raymond Drinkall (4½ h.p. Quadrant) the first motor cyclists to scale the peak.

Up Helvellyn by Motor Cycle.—

However, we were glad to turn valleywards. There was just time to notice purple mountains of a thousand forms crouching all round, and silver lakes gleaming in their sun-bathed hollows, ere the huge bulk of Striding Edge cut off the easterly prospect. That glimpse of the blue waters of Red Tarn, a thousand feet below, was a pleasant memory as we raced down the heathy uplands, seldom far away from the brake-weary motor mountaineers. The descent was achieved without mishap.

A considerable crowd awaited the arrival of the cavalcade, and one outspoken daleswoman caused some amusement. She said to Little, in his own Cumbrian dialect, "Ay! man, thou desarves summat for gaan oop theer!" "Well, mother, what's the prize?" up spoke the elated climber. "Ah'll give thee six months in a mad-house!" came the curt reply, and everybody laughed boisterously. Mad though it seemed to some, the new sport of motor mountaineering has tremendous fascinations, and, though grim old Helvellyn will seldom be overcome, some of the lesser heights will doubtless receive organised attention. Club meets amongst the mountains will most probably be the outcome.

Finally, a word of praise must be given to the machines. Some of us thought that none but a 3½ Premier could tackle such rough-and-tumble work successfully, but the performance of the Quadrant was wonderful. Like the Premier, the gears were standard; in each case 12 to 1 was the lowest ratio. The Stelastic tyres behaved faultlessly, and the same may be said of the Armstrong gear. Altogether it was a remarkable day, and an experience that neither spectators nor motor mountaineers are likely to forget.



The 3½ h.p. B.S.A. sidecar on which Kenneth Holden captured the five miles record at Brooklands last week. His time was 5 min. 58 secs. (see page 1237).

SATURDAY'S TRIAL IN NORTH WALES.

Official Numbers and Order of Starting.

ON Saturday next the Liverpool Auto Cycle Club will hold its open one day trial, which is under Manufacturers' Union support. The start is from Queen's Ferry Bridge, at 8.0 a.m., and the course is in North Wales, including Bwlch-y-Groes.

Some extra special awards are announced, including Stelastic tyre and tubes and a Lyso belt.

More helpers are wanted to check the riders. Readers should write Mr. Philpott at once, stating what time they can be at any part of the course.

The following is the order of starting:

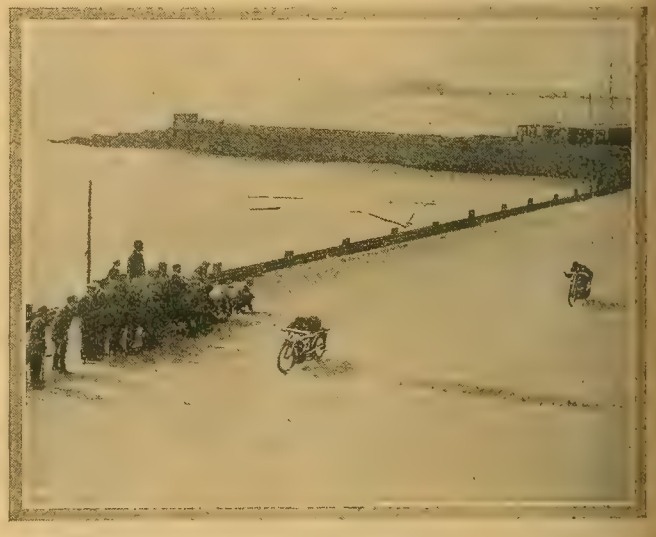
1. E. F. Baxter (6 Rex)
2. W. Heaton (2¾ A.J.S.)
3. M. Ode (3½ Rover single gear)
4. C. Wilson (3½ Quadrant)
5. Quentin Smith (3½ Triumph)
6. G. Wray (5-6 Clyno sc.)
7. F. G. Edmund (3½ Humber)
8. J. Browne (2¾ Douglas)
9. E. W. Cheshire (3½ Triumph)
10. C. T. Newsome (3½ Rover single gear)
11. W. H. Carson (Excelsior sc.)
12. S. Tharp (3½ Triumph)
13. A. J. Dixon (3½ Singer)
14. W. J. Henderson (Rudge)
15. O. Wade (6 A.J.S. sc.)
16. L. V. Barton (6 Rex)
17. J. H. Sedgewick (5 Rudge)
18. L. Guy (Scott)
19. R. W. S. Court (6 A.J.S. sc.)
20. F. Dover (3½ Premier)
21. R. F. James (6 Rex)
22. S. C. Perryman (3½ Quadrant)
23. J. Baker (5¾ Scott)
24. D. Bradbury (4 Norton sc.)
25. J. B. Spreston (2¾ Sunbeam)
26. H. G. Bell (5 F.N.)
27. J. Cocker (3½ Singer)
28. T. C. de la Hay (6 Sunbeam sc.)
29. A. C. Fenn (3½ B.S.A.)
30. N. A. Ayres (2¾ Sun-Villiers)
31. J. A. Dudley (2½ Hobart
32. Hugh Gibson (6 Bradbury sc.)
33. H. Marston (Rudge)
34. V. E. Horsman (3½ Singer)
35. A. J. Jenkins (3½ New Hudson)
36. F. Smith (Clyno sc.)
37. L. Pack (2¾ Douglas)
38. R. G. Mundy (3½ Triumph)
39. S. Sawer (3½ Premier)
40. D. H. Noble (3½ Rover)
41. A. C. Scott (7 Premier sc.)
42. C. E. Nokes (3½ Sunbeam)
43. S. Doward (3½ Bradbury)
44. T. E. Greene (Rudge single gear)
45. G. Featherstonehaugh (3½ Rover)
46. C. S. Burney (3½ Blackburn)
47. R. Pearson (Clyno sc.)
48. J. Haslam (3½ Rover sc.)
49. Mrs. Baxter (6 Rex)
50. S. T. Tessier (6 Bat)
51. J. H. Greene, jun. (3½ New Hudson)
52. L. F. Harvey (Clyno sc.)
53. N. H. Brown (7 Indian)
54. S. Tubb (3½ Humber)
55. H. Silver (4½ Quadrant)
56. P. Proud (3½ New Hudson)
57. W. Croes (6 A.J.S. sc.)
58. H. Newey (2½ Levis)
59. J. H. Fox (3½ Edmund)
60. A. G. Cocks (2½ Connaught)
61. C. B. Wilson (6 Bat)
62. W. H. Kelly (8 Rex-Jap sc.)
63. H. R. Davies (2¾ Diamond)
64. R. Catey (3½ B.S.A.)
65. J. J. Day (3½ Bradbury)
66. V. Busby (3½ Sunbeam)
67. T. Silver (7 Quadrant sc.)
68. A. Helber (2¾ Diamond)
69. A. W. Brittain (——)
70. W. V. Ford (2¾ Diamond)
71. H. W. Coopland (7 Indian sc.)
72. J. Dolman (2¾ Douglas)
73. W. Jones (2¾ A.J.S.)
74. J. S. Watson (2¾ Sunbeam)
75. G. A. Gregson (5-6 Bat)
76. H. C. Marston (3½ Triumph sc.)
77. F. W. Sixsmith (3¾ Scott)
78. R. P. Ravenhill (3½ Rover)
79. W. H. Longton (3½ Alldays)
80. L. A. Bees (4 L.M.C.)
81. M. C. Breese (3½ B.S.A.)
82. C. Freeman (Clyno sc.)
83. G. Hughes (2¾ Douglas)
84. L. Mogridge (2¾ Mead)
85. J. B. G. Vale (3½ Rover)
86. M. Glasgow (3½ Triumph single gear)
87. P. Fairhurst (5-6 A.J.S. sc.)
88. Miss Baxter (2½ Connaught)
89. S. Hughes (2½ Levis single gear)
90. W. F. Waddington (Campion)
91. S. Wright (Humberette)
92. H. F. S. Morgan (8 Morgan)
93. A. C. Whitney (Humberette)

Manufacturers' Nominated Teams.

No. of teams.			
1 Rex	1	16	49
2. Quadrant	22	55	67
3. Rover	10	40	45
4. Clyno	36	47	82
5. Scott	18	23	77
6. Humber	7	54	91
7. New Hudson	35	51	56
8. Singer	13	27	34
9. B.S.A.	29	64	81
10. Rudge	14	17	33
12. Douglas	8	37	72
11. Bat	50	61	75
13. A.J.S.	2	15	73
14 Sunbeam	25	28	42
15. Diamond	63	68	70
16. Premier	20	39	41
17. Triumph	9	12	76
18. Bradbury	32	43	65

Club Teams.

Letter reference.			
A. Dublin and District	8	44	72
B. Mersey	34	53	71
C. Coventry and Warwickshire	10	11	91
D. Sutton Coldfield	36	66	80
E. Birmingham M.C.C.	22	60	77
F. Sheffield and Hallamshire	20	24	39
G. Wigan	23	37	77
H. Liverpool A.C.C.	32	38	75
I. Westmorland (Team not yet fixed)			
J. Malvern and District	3	78	85
K. Wolverhampton	28	42	47
L. Cumberland (Team not yet fixed)			



V. Wilberforce (3½ h.p. Norton) leading T. G. Meeton (3½ h.p. Rudge) over the finishing line at Brighton last Saturday.

Birmingham-Carlisle-Birmingham.

Severe 400 Miles Twenty-four Hour Trial of the Birmingham M.C.C.

Flashlight scene in the Birchfield garage at the start of the Birmingham M.C.C. twenty-four hours' trial to Carlisle and back.

THERE were fifty-nine competitors in this trial, which started on Friday evening, at ten o'clock, from the garage of Messrs. Sarsons and Duke, Birchfield, and, as showing the severity of the test, only thirty-six completed the course by 10.30 o'clock on Saturday evening. The retirements were mostly due to the rain, which came down almost incessantly during the night journey northward. The competitors had gone to considerable trouble and expense in preparing their machines for the trip, chiefly in the matter of lamps. Practically all carried a pair of head lights; one or two of the sidecars had as many as four, and tiny electric lamps, controlled by switches, threw lights on the speedometer and route card. W. H Egginton's Enfield had an extra car head light on the sidecar and three generators. Cocks (Connaught and Duke (Rover), among others, used dissolved acetylene and seemed free from lamp worries as a consequence. There were only two cycle cars, S. Wright's Humberette and Armstrong's belt-driven four-wheeler, which latter was not seen after Carlisle. There was a considerable crowd at the start to wish the competitors good luck on their long ride, but no sooner had all been got under way than rain commenced, and fell continuously, sometimes slowly, sometimes in sheets, until Kendal.

Effects of the Rain.

Naturally, there was a good deal of incident under such severe conditions, punctures being frequent, whilst many complained of belt slip. The course was splendidly marked by strips of white paper laid by Mr. Oliver Lucas from his Daimler car. A.A. scouts, too, rendered excellent service in showing the way, one in particular—at Tarporley—drawing many expressions of praise. Longton, who was accompanied in his sidecar by "Corah" Clarke, broke the frame of his T.T. Alldays at Beeston Castle at 2.0 a.m., and it took some time to rouse the local hotel and get comfortably quartered. S. C. Perryman (Quadrant) caused much amusement by stopping under a railway bridge and removing his boot and sock to wring out the wet. It might here be remarked that there are oilskins and oilskins, as some of the competitors discovered. The driving rain went through some as if they were but mackintoshes. Breakfast was all ready waiting at Warrington, to which the rain-soaked riders did full justice, but a good many were late here, including Wright, who had to repair a puncture in his Humberette, and was then left with forty minutes to cover twenty miles, but still was only two minutes late.

The Lancashire cobble setts were not relished on such a night, and many solo riders had spills. Nott (Clyno) got his tyre into a tramline and skidded alarmingly, fortunately without doing any damage. Riley (Enfield sc.) broke the cable of his carburetter throttle, and tied his handkerchief in place; in this manner he completed 250 miles. Liefeldt (Rudge) was troubled with pre-ignition, and finally took his engine down at Preston to discover the reason. His companion, Bollack (Singer), who had sealed his tool bags before the start, struck a bad patch between 4 and 5 a.m., for he had to repair his back tyre on two occasions, though his machine never misfired throughout. Occasional banks of fog did not improve the conditions.

Single Gear and Low Power.

It is strange that among the few single-geared machines in the trial one of them should have the smallest engine. It was a two-stroke 2¾ h.p. Levis belonging to A. Milner, who rode most regularly throughout. He told us that his engine simply romped up Shap.

At Carlisle, where forty-eight arrived, the competitors had many experiences to relate. Mundy had to retire here, not due to any trouble with his Williamson, but to a painful arm (the result of an old fracture), which he had to carry in a sling.

The return journey was destined to prove really enjoyable, for the weather conditions greatly improved. We noticed

Another group of competitors. Owing to continuous rain the trial proved a very severe one.

that a number of riders were using the Badcock by-pass on a number of different makes of carburetters, and all spoke very highly of the device for traffic use. Bedford had one on his smart-looking Hazlewood, and Cocks one on his little Connaught, which now has many hundreds of miles of trials work to its credit. Great keenness was displayed in arriving at the time checks dead to the second—the competitors used their own sealed watches for this purpose—and the inclusion of a team prize added much interest to the trial. Near home Bollack had the misfortunte to break the engine chain of his twin James and damage the gear—a precisely similar trouble befell him in the Six Days Trials; Graham Dixon, on a similar mount, got through with only a puncture. Young (King Dick) charged a bank.

An Incident and its Lesson.

An incident which might have proved more serious occurred to H. Berwick, who was riding a Hampton. A mile or two from the finish his lamp went low, so he adopted the quite common expedient of blowing into the generator. Suddenly the whole thing burst and shot out flames, which badly scorched his eyebrows. He just got in to time by the aid of his spare generator. The tired riders checked in at Birchfield with wonderful precision considering the distance they had traversed. The mud-bespattered condition of their machines conveyed to the crowd some idea of what had been encountered

Among new machines which showed up well were two Diamonds, one ridden by H. R. Davies, the old Sunbeam exponent. A 4 h.p. twin Ivy-Precision, ridden by T. E. Farmer, should also come out well in the awards, for practically no trouble was experienced. Walker's Monarch, Stevens's James, and Johnson's Alldays were three single-cylinder sidecar outfits which completed the 407 miles run in good time. Two Ariels, ridden by Littledale and Newey, gave no trouble throughout, and it is a pity there was no third representative to make up a team, for Ariel teams have lately learned the winning way. So great was the casualty list that the Triumph and Rover teams appeared to be the only ones complete at 10.30 on Saturday evening. The complete results are not available for this issue, but we give below a list of survivors:

List of Survivors.

SIDECARS AND CYCLE CARS.

W. H. Egginton (6 Enfield sc.)
E. Walker (4¼ Monarch sc.)
T. Stevens (3½ James sc.)
G. Nott (5 5 Clyno sc.)
M. L. Riley (6 Enfield sc.)
A. H. Johnson (3½ Alldays sc.)
S. Wright (8 Humberette)

MOTOR BICYCLES.

H. Ball (Triumph)
F. J. Chidley (Triumph)
T. E. Farmer (4 Ivy-Precision)
A. G. Cocks (2½ Connaught)
S. A. Rowlandson (Rudge Multi)
R. W. Duke (Rover)
A. G. D. Clease (Rudge)
A. N. Barrett (5-6 Rudge)
E. H. Littledale (Ariel)
T. A. Biggs (Rudge Multi)
D. M. Brown (Rover)
H. Berwick (Hampton)
H. G. Dixon (3½ James)
S. C. Perryman (Quadrant)
L. L. Sealey (B.S.A.)
J. D. Drysdale (5-6 Hazlewood)
W. H. Bedford (5-6 Hazlewood)
J. Huntingdon (Triumph)
H. Hopkins (3½ King Dick)
S. Tharp (3½ Triumph)
L. B. Newey (Ariel)
L. A. Bollack (3½ Singer)
H. R. Davies (2¾ Diamond)
A. Holber (2¾ Diamond)
A. Milner (2¾ Levis)
E. Gutgemann (2½ Veloce)
G. H. Ratcliffe (3½ Rover)
A. W. Sarsons (Sun-Villiers)
S. G. Barnett (3½ Regina)

PERTH CLUB'S OPEN HILL-CLIMB.

An open hill-climb was held at Wicks o' Baigley, near Bridge of Earn, on Wednesday, last week. Several well-known Scottish riders took part. Results:

CLASS E.—Open, on time.

		Time.
1.	R. J. Braid (8 Martin-Jap)	37.2s.
2.	A. J. Carlow (6 Zenith)	40.0s.
3.	A. J. C. Lindsay (3½ Rover)	41.6s.

CLASS G.—Experts barred, on time.

1.	J. W. Adamson (3½ Triumph)	43.4s.
2.	J. G. Beveridge (3½ Rudge)	44.2s.
3.	J. Deas (3½ Rover)	46.0s.

CLASS B.—Open, on formula.

		Time.	Fig. of merit.
1.	A. J. C. Lindsay (3½ Rover) ...	41.6s.	280
2.	J. W. Adamson (3½ Triumph) ...	42.6s.	267
3.	J. Deas (3½ Rover)	44.6s.	257

CLASS F.—Experts barred, on formula.

		Time.	Fig. of merit.
1.	J. G. Beveridge (3½ Rudge) ...	44s.	257
2.	J. W. Adamson (3½ Triumph) ...	43.2s.	255
3.	J. Deas (3½ Rover)	46s.	246

SPEED TRIALS AT BRIGHTON.

Huge Crowds witness the Streatham M.C.C. Open Event.

SATURDAY morning broke in a most inauspicious manner in London It had rained all night and was still raining at 8 a.m. But later the weather showed signs of improving, though the sky was overcast, and the roads for some miles out of the metropolis were in a very treacherous condition. As we progressed further south things became a good deal better, and at Brighton itself the sun was shining and the sea shimmering brightly.

The entry for this event was a record, no fewer than 214 appearing in the programme. It was an ambitious undertaking, but the Streatham club is going ahead and wisely seeking to improve the lines on which it has been usual to run competitions in the past. These are the first speed trials run on the Madeira Drive, Brighton, since the R.A.C. racing week in 1905, when the late M. Cissac and Harry Rignold made world's records on their Peugeots. Mr. J. W. Orde, who is president of the Streatham M.C.C., was present and acted as one of the stewards.

In the morning the machines were examined by Messrs. Loughborough and Pratt, the judges, and one or two were disqualified for not complying with touring conditions. One of these was placed out of the competition for having a special type of exhaust valve, another for having rigid forks, and two cycle cars for not turning up at the examination. The course was about a kilometre long and in beautiful condition. The races were run from west to east, and a strong wind blew in favour of the competitors. Unfortunately, no times were taken, the men being given a flying start as they ran off in heats, keeping in line with Mr. Tessier's Rover, the official car, and starting when Mr. Ebblewhite dropped the flag. The competitors returned to the starting point after each heat by the Marine Parade.

Unfortunately, the organisation fell just short of being excellent. In the first place the classes should have been divided into heats in the programme. Proper metal number plates should have been used, and the men timed.

CLASS I. (for touring machines up to 350 c.c.) was the first item in the programme. There were only four experts, Aslen (Green-Precision), an Enfield, Cocker (Singer), and Busby (Sunbeam). Of these Busby (Sunbeam) won easily.

The general class was run off in two heats, and in the final Fordham (Douglas) easily beat Storace (N.S.U.).

START OF THE CYCLE CAR EVENT.

R. Oliver (8 h.p. Morgan). L. Martin (10 h.p. Singer). C. F. Halsall (10 h.p. Wilton). The starter (12 h.p. Rover).

General scene at the start of the speed trials at Brighton Vernon Busby (2¾ h.p. Sunbeam) is seen waiting for the word to go.

CLASS II. (standard touring machines up to 500 c.c.)—The expert section was run off in two heats, and in the final Cocker (Singer) beat Crawley (Triumph). The general section also was run off in two heats, and in the final Wilberforce (Norton) beat Meeton (Rudge).

CLASS III. (standard touring machines up to 750 c.c.)—In the expert section of the two winners of the previous heats who raced in the final, Ware (Zenith) beat Barnes (Zenith). In the general section Ware again came in a winner, beating Meeton (Rudge) and Barrs (Triumph).

CLASS IV. (standard touring machines up to 1,000 c.c.)—In the expert section Zeniths again were well to the fore, as Griffith came in an easy winner. Sumner (Zenith) was well to the front when his belt came off near the finish. In the general section Zeniths again scored, as Chapman, riding an 8 h.p., beat Trurler on a machine of the same make.

The Passenger Classes.

CLASS V. (touring sidecar machines up to 500 c.c.)—Among the experts Newsome (Rover sc.) won in excellent form, beating Pullin (Rudge sc.) and Matthews (Rudge sc.) In the general section, Sumner (Zenith sc.) beat Holroyd (Motosacoche sc.), whose machine appeared over geared.

CLASS VI. (touring sidecar machines up to 750 c.c.)—Experts, Ware (Zenith sc.) beat Barnes (Zenith sc.) and Newsome (Rover sc.) General section, Ware (Zenith) again won.

CLASS VII. (touring sidecar machines up to 1,000 c.c.)—Griffith (Zenith sc.) had a walk-over in the expert section. In the general section Chapman (Zenith sc.) won.

CLASS VIII. (touring cycle cars up to 1,100 c.c.)—Martin (Singer) led easily at the finish, but as he was disqualified for not having turned up for the examination, Oliver (Morgan) was counted as the winner. In the general section South, driving a water-cooled Morgan, had a walk-over.

CLASS XI. (any machine up to 350 c.c.)—In the expert section Le Grand (Singer) was first. Jacobs (Singer) was second, and Elwell (Douglas) was third. In the general section there were five heats, and in the final Elwell (Douglas) was the winner, Busby (Sunbeam) was second, and Heinzel (N.S.U.) third.

CLASS XII. (any machine up to 500 c.c.)—There were three heats in the expert section. In the final Pullin (Rudge) was first, Collier (Matchless), was second, but the third man's number was undecipherable. In one heat Buchanan's (New Imperial) carburetter came adrift, a misfortune which also happened to De la Hay in one of the preceding classes. In the general class there were also five heats. In the final O'Donovan (Norton) came in first, Keller (Triumph) was second, and Wilberforce (Norton) was third.

CLASS XIII. (any machine up to 750 c.c.).—There were two heats, and the final resulted as follows: Tessier (Bat) first, Cocker (Singer) second, and Crawley (Triumph) third. The general class was run off in two heats, the final resulting as follows: E. B. Ware (Zenith) first, O'Donovan (Norton) second, and Charlesworth (Zenith) third.

CLASS XIV. (any machine up to 1,000 c.c.)—The expert section was run off in two heats, of which Baragwanath (Matchless) won the first, and Griffith (Zenith) had a walk over in the second. In the final C. R. Collier (Matchless) was first, Griffith (Zenith) was second, and Baragwanath (Matchless) was third. In the general class the result was Remington (Matchless) first.

CLASS XV. (any sidecar machine up to 500) was won easily by Newsome (Rover sc.), expert.

CLASS XVI. (any sidecar machine up to 750 c.c.) was won by Ware (Zenith sc.), expert. Newsome (Rover sc.) ran second and Tessier (Bat) third.

CLASS XVII. (any sidecar machine up to 1,000 c.c.)—In this class generals and experts competed together. Of the former Griffith (Zenith sc.) was first, and of the latter Chapman (Zenith) was the winner.

Class XVIII. (any cycle car up to 1,100 c.c.)—In the expert class McMinnies, on his racing Morgan, romped in an easy winner, while South (Morgan) equally well distinguished himself in the general section. Viscount Exmouth, who ran a G.N., entered by mistake among the racing vehicles.

CLASS XIX. (any three-wheeled cycle car up to 1,000 c.c.—Here again McMinnies (Morgan) won easily.

CLASS XX. (any passenger machine up to 1,100 c.c.)—In this event sidecar combinations and cycle cars raced together and among the latter were two Morgans and a Calthorpe but Griffith (Zenith sc.) won the expert class, and Luce (Zenith sc.) won the general.

Inter-club Team Race.

The final event was an inter-club team race, which was run off in three heats, consisting of one man from each team. The result was as follows:

1. STREATHAM M.C.C. (6 marks).

Bateson (Douglas)	Tessier (Bat)
Pullin (Rudge)	Barnes (Zenith sc.)

2. *RICHMOND AND MID-SURREY M.C.C. (9 marks).

Buckeridge (Douglas)	Aston (Dot)
Carryer (Imperial)	Griffith (Zenith sc.)

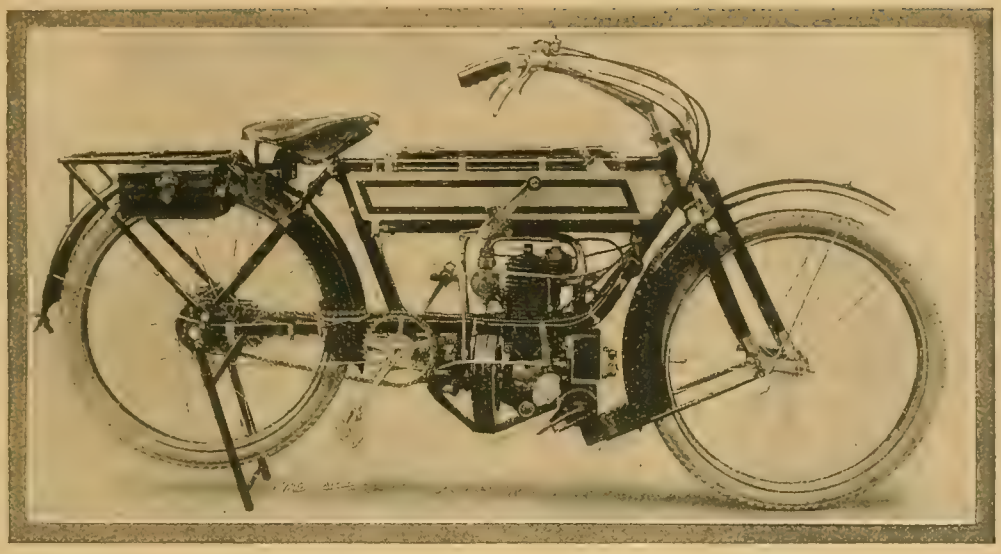
2. *PUBLIC SCHOOLS M.C.C. (9 marks).

Wilberforce (Douglas)	Getting (Bat)
Keller (Triumph)	Luce (Bat sc.)

*Tied for second place.

The 1914 MODEL 2½ h.p. F.N.

IMPROVEMENTS IN DETAIL ONLY.



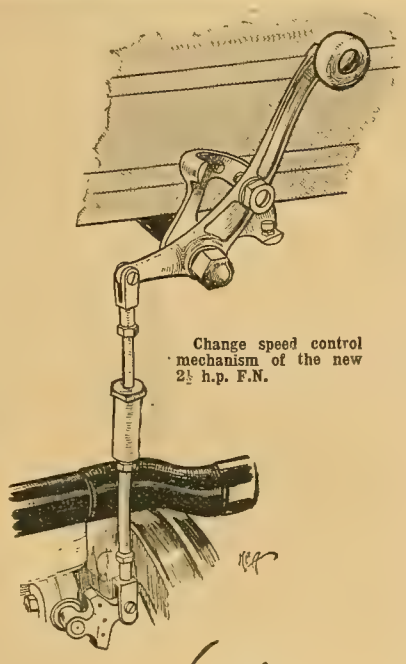
AT the time when the 2½ h.p. F.N. was introduced to the British public, it was a machine years before its time as regards design. is not surprising, therefore, to have record that the alterations found neces- y for 1914 are in detail only. How- er alterations in detail for the better, d the addition of refinements, will be ne the less welcomed.

An Oil-tight Engine.

In the case of the engine, the internal tions have been somewhat strengthened thout increasing the weight, and steps ve been taken to render it practically possible for any oil to leak from the gine or gear box. The valve caps have edges serrated, and there is a lock- device between them engaging with h, so that it is now impossible for the lve caps to come unscrewed.

The carburetter will remain practically same as in 1913, but an air valve s been fitted, the details of which are wn in the accompanying illustration. is valve consists of a ring, the inner face of which is ground out to fit a on the main body of the carburetter. e operation of moving the lever serves unscrew the sleeve gradually, so that variable amount of air is admitted rough holes in the seating into the pourising chamber.

An interesting detail on the machine, hich, however, is not a novelty is the pricating pump. Instead of being fitted with the ordinary type of leather washer it has two stepped piston rings in the plunger.



Change speed control mechanism of the new 2½ h.p. F.N.

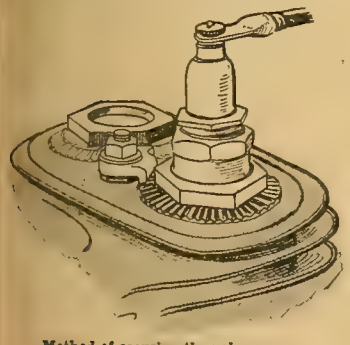
Gear Box and Change Speed Mechanism.

The gear box is now fitted with long phosphor bronze bushes, and the pinions have been strengthened. The change-speed lever has been altered for the better, and is now mounted on a pillar brazed on to the lower of the two parallel tubes of the frame. It is similar to that fitted to the 5 h.p. four-cylinder model, and a spring joint has been incorporated therewith, so that the gears may be engaged without shock and without straining the moving parts of the gear control. The inter-connected clutch lever has been abolished and an independent clutch control has been fitted to the handle-bar.

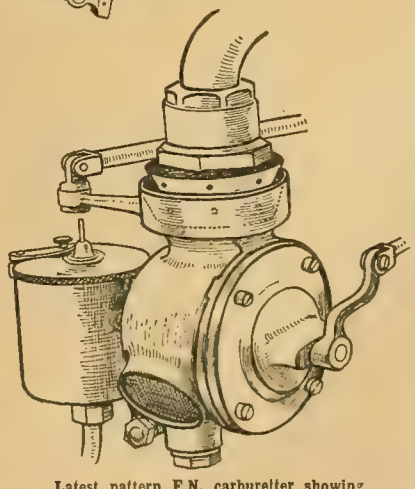
The handle-bar lamp bracket has been strengthened. New and slightly improved control levers to the carburetter and magneto have been fitted, while the seat pillar has also been altered for the better.

In addition to the above, Clincher beaded tyres are now fitted to all models. As an example to show how details are mention that as the exhaust pipe comes considered in designing the F.N., we may rather near the near side foot-rest, a small guard has been attached to protect the rider's boot.

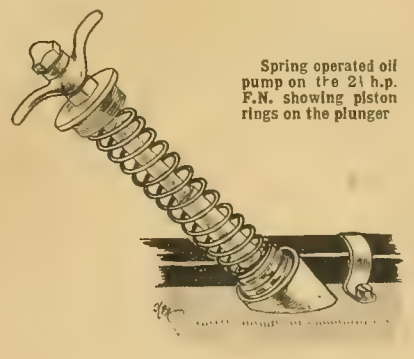
There are few machines with so much ingenuity in design and forethought in construction as the F.N.



Method of securing the valve caps on the 2½ h.p. F.N.



Latest pattern F.N. carburetter showing air valve.



Spring operated oil pump on the 2½ h.p. F.N. showing piston rings on the plunger

Club News

Harrogate and District M.C.C.

The series of three non-stop runs for the Pannal Trophy, kindly presented by Mr. W. Hill, and run on handicap, was brought to a close on 13th September. The two previous runs had accounted for a number of entrants, so that only five started for the last one, with the result as follows :

1, W. E. Grange (3½ Bradbury sc.), lost no marks, + 6 on handicap; 2, C. F. Smith (5-6 A.J.S. sc.), lost no marks, + 3 on handicap; 3, J. Brooke (5-6 A.J.S. sc.), late at one check, + 1 on handicap; 4, F. Strafford (3½ Triumph single gear), failed on hill, — 2 on handicap; 5, W. Hill (3¾ Scott sc.), failed to finish to time limit through punctures.

Bristol M.C.C.

The Bristol club held their members' hill-climb on Saturday last at Blagdon, and it must be written down as a complete success from start to finish. The hill chosen was about seven-eighths of a mile long, perfectly straight, and with a gradient of about 1 in 12 average. The surface was superb, and very fast times were made.

Among the interesting items was the re-entry into competition work of W. W. Douglas, who drove the new Douglas cycle car, while one member, a private owner, brought down no less than four machines.

The results were as follows :

Class I. (350 c.c.).—Milton, jun. Douglas), beat Milton, senr. (Douglas); W. W. Douglas (Douglas) walked over S. Pate (2¾ Humber); H. Wasley (Douglas) beat J. King (Douglas).

Second Round : Milton, junr. (Douglas) beat Fry (Douglas).

Final Round : Milton, junr. (2¾ Douglas) beat W. W. Douglas (2¾ Douglas).

Class II. (500 c.c.).—Final Round : J. B. Keller (3½ Rudge) beat H. Clement (3½ Triumph).

Class III. (Unlimited).—Final Round : H. Clement (3½ Triumph) beat W. J. Shaw (6 A.J.S.).

Class IV. was for 500 c.c. machines and sidecars. There were not sufficient entries and this class was abandoned.

Class V. (Sidecars, Unlimited).—Final Round : G. H. Fry (8 Zenith sc.) beat H. Hutchinson (6 Trump-Jap sc.).

Class VI. (Cycle cars).—First Round : W. W. Douglas (Douglas cycle car) beat J. Cates (Morgan); W. J. Cox (Morgan) beat Potter (Morgan).

Final Round : W. W. Douglas (Douglas) beat W. J. Cox (Morgan).

This was the first public appearance of the new Douglas cycle car in competition, and great interest was shown in its performance. It was fitted with a streamline body.

Class VII. (Novices, 500 c.c.).—G. H. Fry entered both a 3½ Rudge and a 3½ Singer and got them both in the final, so was a double winner.

Walthamstow M.C.

The Henbury Cup competition was held on 21st September over a fifty-mile course, which had to be covered non-stop at twenty miles per hour; watches and speedometers being barred. Result :

1, F. Cudden (3½ Kerry-Abingdon sc.), time error 26s.; silver cup and gold medal; 2, J. H. Kerr (6 N.S.U. sc.), 1m. 5s., gold medal; 3, J. Percival (8 Chater sc.), 1m. 13s. gold medal; 4, R. S. Lisles (5½ R.S.L. cycle car), 1m. 44s., gold medal.

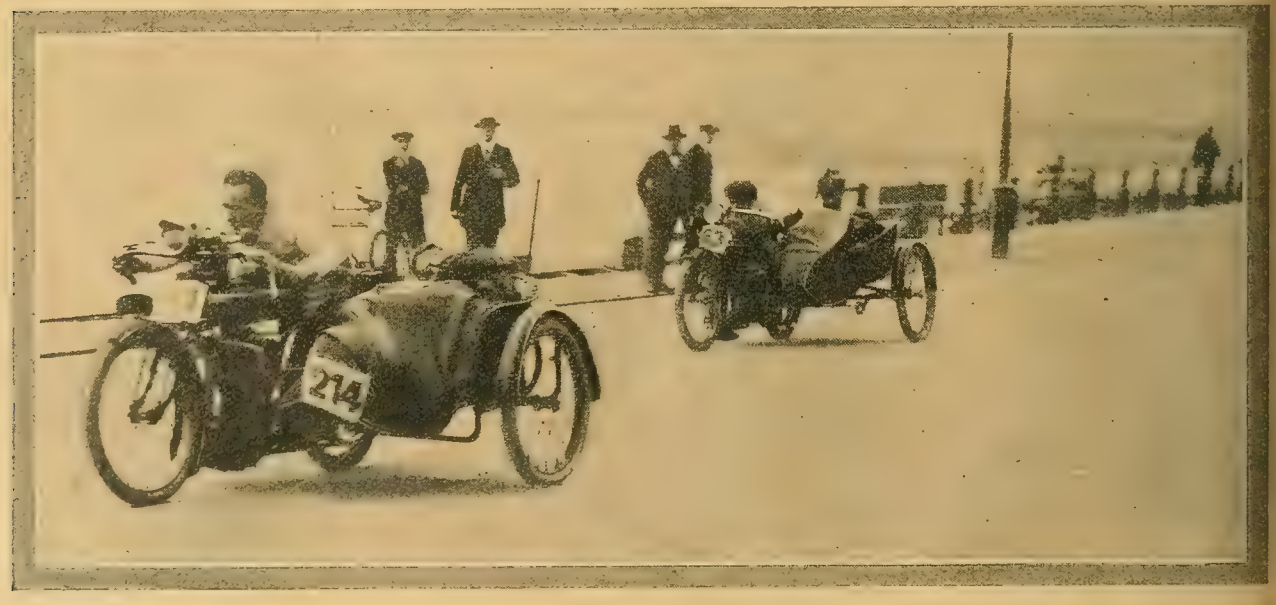
Cheltenham M.C.C.

The third of the series of trials for the Williams Challenge Bowl will be run off on Saturday, September 27th. Mr. F. W. Corbett has kindly offered a prize for the best performance by an amateur. Silver spoons will be given to all who gain full marks. Competitors meet at the Belle Vue Hotel at 1.30, and the first man is due off at two o'clock. The first half of the trial will contain three non-stop sections : (1) from Winchcombe to the Sutton Coldfield hairpin, (2) from Withington to the five cross roads, (3) from Cowley to Birdlip. Competitors must arrive within ten minutes of schedule at Birdlip. The second half of the trial must be taken non-stop throughout, and to gain full marks competitors must finish within one minute of correct time at the Belle Vue Hotel, Cheltenham.

THE MOTOR CYCLE DIARY.

Sept. 27th to 28th.—Walthamstow Motor Club Run to Clacton.

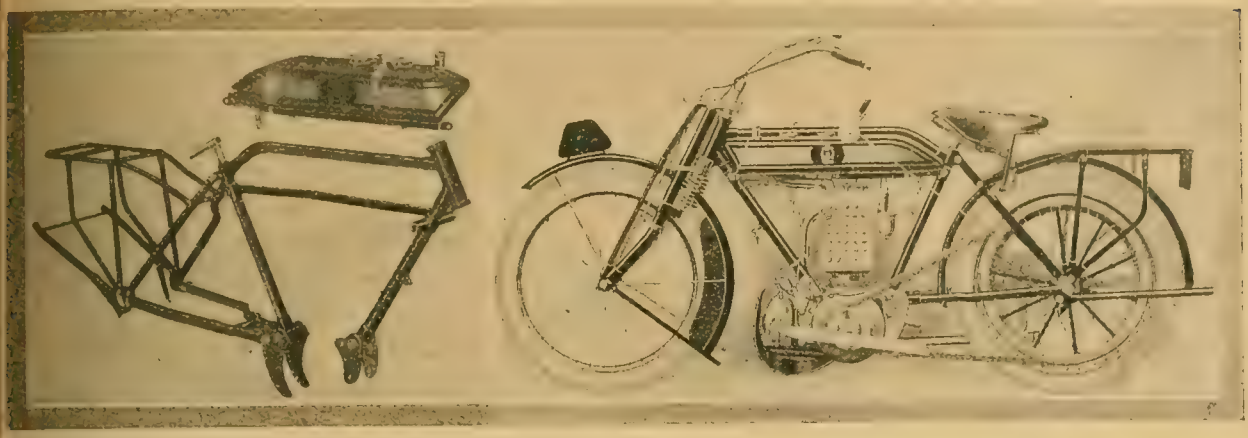
Sept. 27th.—Inter-club Hill-climb between the Oxford M.C.C. and the Middlesex M.C.C. at Alms Hill, Henley, at three o'clock.



AT BRIGHTON. A close race between A. V. Sumner (3½ h.p. Zenith-Green) and J. S. Holroyd (3½ h.p. Motosacoche).

The New Comet for 1914.

A Special Low Frame to Accommodate the Green Water-cooled Engine.



The special frame showing the duplicated tank rails.

1914 mode three-speed New Comet-Green.

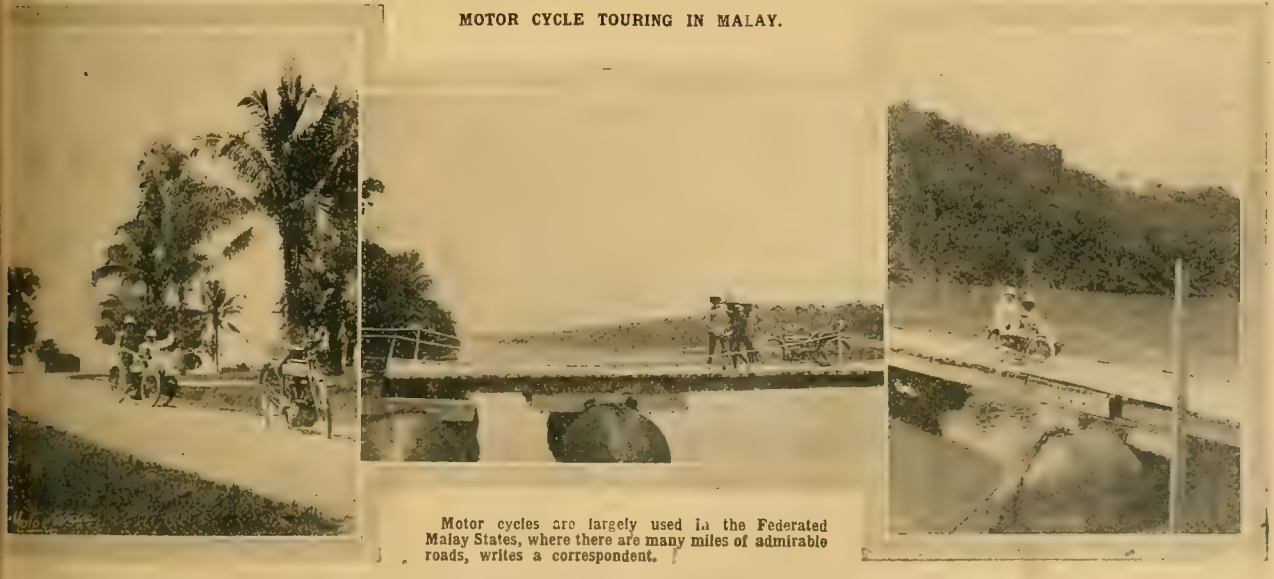
MR. A. H. HADEN, of the New Comet Motor Cycle Works, Princip Street, Birmingham, has taken over the Regal-Green motor cycle business, and will in future manufacture these machines fitted with the Green engine, special frame, and tank. We reproduce an illustration of the 1914 model, the principal feature of which is the special frame constructed to take the Green engine without increasing the height of the saddle from the ground or decreasing the clearance between the base of the crank chamber and the ground. The bottom rail is duplicated, and constructed of square tubing cranked at each end, and secured to the lugs on the seat tube and down tube by special pins and nuts. To detach the tank, all that is necessary is to undo the nuts, when the tank and one side of the tube on which it rests can be removed bodily. This leaves a clear open space for removal of the cylinder.

Three-speed Gear Improvements.

The latest model of the New Comet three-speed gear has an improved control for the change speed, by means of a lever on the right-hand side of the machine working in a long quadrant, which is attached to the bottom rail. The quadrant is notched for the three speeds and neutral position, and the operation is on car lines. The clutch control pedal is now pushed forward to release the clutch, instead of sideways as formerly, and the clutchshaft is supported on an outside bearing, which also takes up the thrust of the cone. On the new pattern, the internal portion of the clutch cannot touch the back plate of the external part, as a stop is provided to prevent the pedal being pushed forward too far.

In addition to complete New Comet machines, Mr. Haden makes a large number of frames to special designs for the trade and other requirements.

MOTOR CYCLE TOURING IN MALAY.



Motor cycles are largely used in the Federated Malay States, where there are many miles of admirable roads, writes a correspondent.

Our photographs show—1. A scene in the grounds of the Rajah of Perak's Palace. 2 and 3. The Pontoon Bridge at Enggor. All the machines are Triumphs.

Question & Replies

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply.

Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Watford to Kendal.

Will you kindly send me the best route from Watford to Kendal *viâ* Preston, avoiding tram tracks and large towns?—S.S.D.

We cannot give you a route from Watford to Kendal avoiding tramlines if you go *viâ* Preston. The following is the best we can do: Watford, Berkhampsted, Aylesbury, Bicester, Banbury, Stratford-on-Avon, Alcester, Bromsgrove, Kidderminster, Bridgnorth, Wellington, Whitchurch, Tarporley, and Warrington. If you turn left and follow the road signposted by the R.A.C. *viâ* Rainhill, Prescot, Rainford, Ormskirk, and Rufford to Preston, you will avoid most of the tramlines. After Preston continue through Garstang and Lancaster to Kendal.

The Question of H.P. Rating.

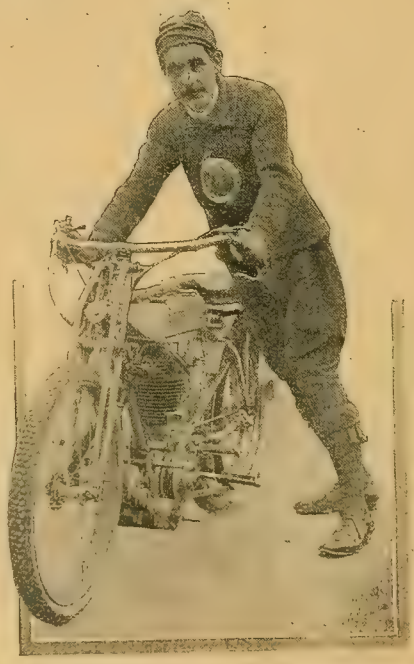
Will you kindly tell me the why and the wherefore of R.A.C. rating of motor powers? To the uninitiated it is puzzling when comparisons have to be made with American cars which are specified as so many b.h.p. What I wish to know is, why does not the R.A.C. rating agree with the brake tests? A full explanation would be appreciated.—C.C. (South Africa).

The R.A.C. rating was adopted some years ago in order to supply a rough and ready method of comparing various engines then on the market. All formulæ are distinctly complicated, and the desire for simplicity led to the stroke of the engine being neglected. In consequence thereof the formula does not give any idea of the real horse-power developed by an engine with a long stroke. American cars are not generally classified as so many brake horse-power, and the brake horse-power is always larger than that obtainable from an engine when it is placed in the chassis, owing to transmission and other losses, which will be obvious. The R.A.C. rating was evolved in order to show the power of the car, and is therefore not comparable with the brake horse-power given. It was the opinion of the Committee that the long stroke engine would run at such a speed that the formula would give an approximately even result. At the present time the speed of revolution of the long stroke engine is very much higher than was the case with the old short stroke, and accordingly the formula is of little service. If it is necessary to compare one engine with another, the best thing to do is to find the cubic capacity of each engine, which will give a reasonable idea of the power to be obtained.

Case Hardening.

I have turned a new cone for the ball bearings of my sidecar wheel, and should be much obliged if you can tell me how to case harden the same. I find that making the cone red hot and cooling in linseed oil does not harden it sufficiently.—J.A.T.

Case hardening is rather a difficult matter and requires a lot of practice. The art is in heating the metal to the required colour, and only after a lot of practice can this be done. It should then be immersed in one of the recommended hardening compounds, which you should be able to get from one of the big factors. Hardening, however, is best carried out by experts in this particular class of work.



W. E. Waddington, the active president of the North Derbyshire Motor Cycle Club. He rides a 3½ h.p. Campion-Precision, and enjoys competition work.

Endorsement of Licence.

I have recently been fined for refusing to stop when requested by a police officer on point duty. Both I and my wife gave evidence that we did not know we were asked to stop. I had no other witness, it being a month after the occurrence when I got the summons. They asked for my licence, and on getting same back I find they have endorsed it. Can they do this, and if so how long will this stay on my licence?—J.D.

If you were convicted for the offence alleged against you the authorities have a perfect right to endorse your licence, which may be done in the case of every offence against the Motor Car Act connected with the driving of a motor car, except the first and second occasion upon which you may be convicted for exceeding the speed limit. The endorsement is a permanent matter, and is carried forward from one licence to another.

The Position of Number Plates.

You will probably be aware of the present epidemic of summonses for driving with rear number plate obscured by the clothing of the passenger on pillion seat. It occurred to me that this trouble might be avoided, in the case of sidecar outfits, by transferring the number plate to the luggage carrier of the sidecar, where it would be equally conspicuous. Questioned as to the legality of such a transference, two police constables expressed the opinion that it would be quite in order, but the local taxation officer says "No," on the argument that the plate must be fixed to the registered part of the machine, which is the cycle only; while a solicitor friend considers that even if it be technically irregular to have the plate on the sidecar, no court would convict so long as the number plate is plainly visible. Perhaps you will kindly have a word with your legal expert and publish a considered opinion, which, I am sure, would interest a large number of sidecarists.—J. MacI.

We have submitted your letter of the 29th ult. to our legal adviser, who replies as follows: "The plates should be kept in the same position as agreed on when application is made for the registration of the motor cycle. In filling up the form, paragraph 7 requires the applicant to give particulars as to the position where it is proposed to place the plates. I think that, strictly speaking, the plate should be fixed on the registered part of the machine If, however, in

registering the motor cycle, it was put in that it was intended to fix the plate sometimes at the back of the motor cycle and sometimes at the back of the luggage carrier, and this was passed at the time, there would be something in favour of your correspondent's contention; but even then the regulation distinctly provides that the plate must be put on the back of the motor car (which, of course, includes motor cycles), unless the plate has duplicate facings, as specially provided for motor cycles. It would certainly be a little risky for your correspondent to put the plate at the back of the sidecar, but, as his solicitor friend points out, so long as a number plate is plainly visible at the rear, I can hardly imagine the justices convicting for what would be a technical offence."

Taking a Machine to Ceylon.

I should be glad if you would reply to the following queries: Cost of transit of a motor cycle from England to Colombo. Duty charged on used machine. General advice regarding best type of machine to take out there.—A.J.P.

The cost of transport from London to Colombo would be £2 3s. 9d., and the duty would be 5½% *ad valorem*. Any well-known make of machine would suit you for use out there, but it should be capable of climbing any hill, as the roads, though fairly good, are exceedingly hilly. There are a large number of motor cyclists in Ceylon.

A Week's Tour.

(1.) Will you please state the best route from South Shields, Durham, to Exmouth, Devon? (2.) How to return through Wales, touching Conway, Windermere, then to Carlisle, and from Carlisle to South Shields? (3.) About how long should it take a 3½ h.p. three-speed Triumph with sidecar to do this run? (4.) What is the approximate distance?—H.P.

(1.) Your best route would be as follows: South Shields, Chester-le-Street, Durham, Darlington, Northallerton, Boroughbridge, Wetherby, Aberford, Ferrybridge, Doncaster, Worksop, Mansfield, Nottingham, Loughborough, Leicester, Coventry, Kenilworth, Warwick, Stratford-on-Avon, Winchcombe, Cheltenham, Painswick, Stroud, Bath, Radstock, Wells, Glastonbury, Durston, Taunton, Cullompton, skirting Exeter, Topsham, to Exmouth. (2.) For the return journey from Exmouth, follow the route we have given as far as Bath, then go through Mangotsfield and Filton to Pilning, by train to Severn Tunnel Junction, then through Chepstow, up the Wye Valley to Monmouth, Hereford, Leominster, Ludlow, Montgomery, Oswestry, Chirk, Llangollen, Corwen, Bettws-y-Coed, Llanrwst, Conway, then round the coast through Colwyn Bay, Rhyl, Holywell, Chester, then make your way north through Warrington, Wigan, Preston, Garstang, Lancaster, Kendal, to Windermere, Troutbeck, Kirkstone Pass, Ullswater, Penrith, Carlisle, Alston, Hexham, Newcastle, South Shields. (3.) We have not the slightest idea how long you wish to spend on this journey, but we should say it would be a good week's tour. (4.) The distance will be approximately 750 miles.

Mysterious Loss of Power.

I have a 2¾ h.p. 1911 three-speed New-Hudson motor cycle, which I bought second-hand early in the year. Up to quite recently it has run splendidly. The last few days I have been away on holidays, and the machine has seemed to lose all power. Hills that it would quite easily take recently on top gear I have a great difficulty in making it even crawl up on my lowest gear. I have taken off the cylinder and cleaned all carbon deposit from it, and also the piston top, but find no improvement whatever. The compression is good, and the carburetter jet quite clean. When riding the other evening I noticed that when the throttle had been opened full for a short time the engine misfired several times, and gradually ceased firing altogether until I altered to low gear, when it immediately fired again quite regularly. This happens when trying to climb a hill on top gear. The timing has not been altered in any way so far as I can tell. The engine gets plenty of Price's oil, and I have recently fitted a new Sphinx sparking plug. The engine is a 2¾ h.p. J.A.P., fitted with automatic inlet valve. Do you think the trouble is caused by the automatic inlet valve, or do you think the engine requires rebushing? There is a little play in the pulley bearing. Would this account for such rapid loss of power? I should be greatly obliged if you could help me in any way.—J.A.H.

It is quite possible that the loss of power may be due to a weak exhaust valve spring; in fact, the symptoms mentioned in your letter lead us to suppose that this is the case. A very weak exhaust valve spring will cause misfiring in very much the same way as faulty ignition. Also look to your automatic inlet valve and see that the spring is in good order. The fact that the engine may require rebushing would not account for the loss of power. If it requires rebushing this can be perceived by a knocking sound in the bearings. We think you will find that new valve springs of correct strength will cure your troubles.

READER'S REPLY.

Engine Stops when Hot.

The replies in *The Motor Cycle* of September 11th from your correspondents LF 2563 and Mr. A. Elliott exactly endorse my own experience with a 1913 Douglas. As soon as I opened the throttle to any extent the engine would "dry up" after a few hundred yards, but since substituting two single point Bosch plugs the trouble has entirely disappeared.—OI 385.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"W.C.H." (Stockport).—G.W.K. or other friction gear after twelve months' wear.

"H.E.S." (Brockley).—3½ Premier with two-speed counter-shaft or three-speed hub gear, for sidecar work. Power, reliability, etc.

"E.T." (Harwich).—Electric head lights as compared with acetylene outfits. Reliability, life of bulb, and hours of light given. Also cycle Klaxon, operation and efficiency.

POSITIONS OF PASSENGERS IN HILL-CLIMBS.

G. G. Barnard (Singer sidecar) just past the first bend of Pen-y-Ball, the venue of the recent Mersey M.C. Open hill-climb. Nowadays passengers adopt such queer attitudes that it is difficult to tell which is the driver's and which is the passenger's head.

A Successful Record.

Recent wins on Midland tyres and belts include a gold medal at the Stockport and District M.C.C.'s Open Hill-climb, first place in the two miles scratch race at the Portmarnock Meeting, and the silver trophy in the Dublin and District M.C.C. White Cup Trial.

The Wooler Two-stroke.

The Wooler Engineering Company, the manufacturers of the Wooler two-stroke motor cycle, have taken offices at 453, Strand, London, W.C. Mr. John Wooler, the inventor of this machine, has, we understand, now severed his connection with the Wilkinson T.M.C. Company, Limited.

The Motosacoche in London.

Messrs. Sydney Westall, Limited, 143-145, Great Portland Street, W., have taken up the sole London selling agency for Motosacoche motor cycles. They will carry a full stock of spare parts, exhibit samples of each model, keep demonstration machines, and act generally as a branch depot to Motosacoche, Limited. Messrs. Motosacoche, Limited, are in the future concentrating their business at their spacious works at Willesden.

The Endrick Two-speed Gear.

A simple two-speed gear applicable to standard machines is likely to be well received by the public. Such a gear is now marketed by the Endrick Engineering Co., Warwick Road, Olton. The gear is remarkably simple, and should be as frictionless as possible, for there are no gear wheels employed in its construction. Two chains transmit the power to the counter-shaft, a slipping device being fitted to absorb and jerk on top gear. The final drive may be either by belt or chain. The driven sprockets may be locked to the counter-shaft at will by means of a toe and heel pedal which operates expanding clutches through the medium of a quick thread screw and a single arrangement of wedge bars. The feature of these clutches is the large area of contact which is obtainable owing to their special construction. One model of the gear will be marketed in such a form that by removing the pedalling gear from Triumph machines they may be fitted at once with the Endrick gear. The gear appears well made, and we hear that some large concerns are experimenting with it.

A Douglas in Kensington Museum.

Messrs. Douglas Bros., Kingswood, Bristol, have just supplied one of their 2¾ h.p. Douglas motors, complete with carburetter and magneto, the whole unit being mounted on a stand, to the South Kensington Science Museum, S.W.

Philipson Pulleys in Speed Events.

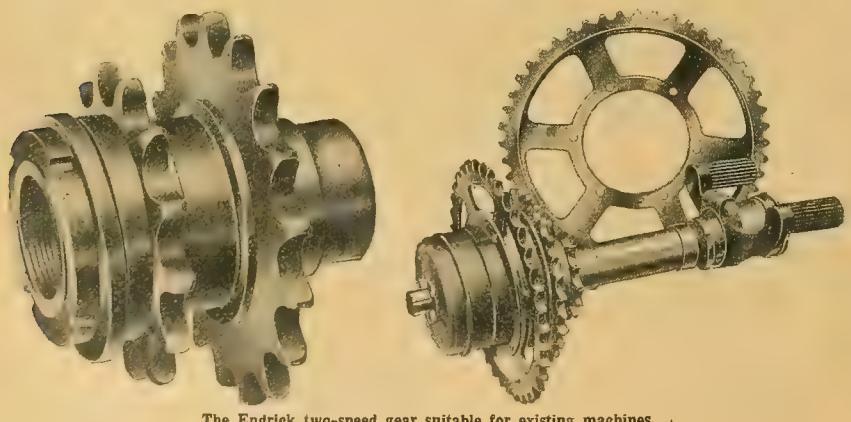
In the Scottish motor cycle championships at St. Andrews, the first three riders in the 500 c.c. race used Philipson governor pulleys. The Triumph riders, S. Crawley and E. W. Cheshire, tried their machines with and without the pulleys, eventually deciding to adopt the governor device. A. J. C. Lindsay, who was second, also used the same make of pulley on his Rover.

The Paraband Seamless Horn Bulb.

A seamless horn bulb has been submitted to us for examination by the Paraband Tyre and Rubber Co., 26, Page Street, Westminster, S.W. The advantage claimed by the makers is that this bulb, being seamless, cannot split. The rubber seems to be of excellent quality. A taper split ring and screw-on collar provide a universal joint. No solution is required to fit the bulb, and this joint makes it airtight. The bulb is made in six sizes.

A New Waterproof Material.

A sample of new waterproof, which is being imported, has been submitted to us. This material is suitable for being made up into a waterproof cover for a motor cycle. The advantages claimed for this material are (1) that it is indefinitely waterproof, (2) that it does not crack, (3) it is exceptionally light, and (4) it is easily carried on the machine, or in a sidecar door pocket. We would add a further advantage; this material might serve as a suitable covering for the sidecar passenger in addition to the usual apron. It is sold by Mr. A. Dudley, 2, Bond Street, Birmingham.



The Endrick two-speed gear suitable for existing machines.

Motor Traders' Dinner.

The eighth annual banquet of the Cycle and Motor Trades Benevolent Fund will be held at the Connaught Room, Great Queen Street, W.C., on October 9th, at 7 p.m., when Mr. S. F. Edge will preside.

Coventry Track Record.

On the occasion of the Rover Sports, Coventry, on 13th September, we understand that the track record for five miles was lowered by G. W. Baker, riding a 3½ h.p. Veloce by 1m. 20s., the previous best time being 8m. 49s.

Racing in Belgium.

At the recent Spa automobile race meeting, Belgium, the Coupe de la Meuse for motor cycles was secured by G. F. Liefeldt, of Coventry, on a 3½ h.p. Rudge Multi, fitted with Continental tyres. He made the fastest time, and was also first on formula. It may be noted in passing that the great event of this race meeting, the Coupe de la Meuse for motor cars, was also won on tyres of this make.

Heavy Covers for Rear Wheels.

In the recent Six Days Trial the A.J.S. sidecar, driven by A. J. Stevens, had an Avon 650 × 65 combination cover fitted to the driving wheel. Mr. Stevens has written to the Avon India Rubber Co. saying that this year was the first Six Days Trial in which he has been able to run on one driving tyre throughout. He had not the slightest trouble, and its non-skid qualities enabled him to climb the severe gradients without any suspicion of slip.

Tyre Successes.

The following recent successes have been attained on Dunlop tyres: W. H. Longton, when he won the P. J. Evans rose bowl and gold medal in the Birmingham M.C.C. trial; A. J. Dixon, on the occasion when he gained a gold medal and the plaque d'honneur given by the City of Liège for the best performance by a foreigner in the Liège-Paris-Liège Trial and the prize presented by the Moto-Club Liègeois; and Vernon Busby, who gained gold medals in the Scottish and English Six Days Trials.

A Real Weatherproof Leg Cover.

No waterproof garments sold to motor cyclists have been more successful than the Hutchinson waders, sold by the Hutchinson Tyre Co., 70, Basinghall Street, E.C. These keep the trousers and boots absolutely dry and clean, and are quite impervious to the most drenching rain; in fact, they may be washed by wading in a stream. They are a development of the ordinary wader used by fishermen, and since they have been adapted to the use of motor cyclists they have been considerably improved from the original pattern. The proofing material is now of a much better quality, and both the uppers and the boot itself have been strengthened

Catalogues Received.

We have received a catalogue of Godiva sidecars from the Godiva Sidecar Company, Limited, Spon Street Works, Coventry. This catalogue contains full particulars, and has some excellent coloured plates of their various models.

The HOUSE OF MOTORING

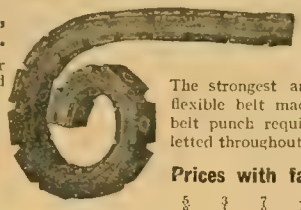
with the most complete stock of machines, accessories, and clothing for the Motor Cyclist.

The House of Motoring, with the most complete stock of machines accessories, and clothing for the Motor Cyclist.

SERVICE BELTING. Briton's Best.

Always grips, NEVER SLIPS.

The ideal belt for wet weather and sidecar work.



The strongest and most flexible belt made. No belt punch required eyeletted throughout.

Prices with fastener.

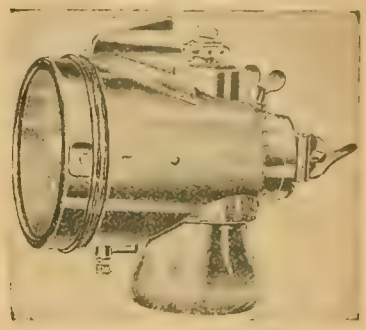
⅝	¾	⅞	1	1⅛
1/9	2/-	2/3	2/6	2/9
—	—	—	3/3	3/6

Trade supplied.

SIDECAR LAMPS.

Service Special Self-contained.

Well made and gives good light. Simple and effective.



Price, N.P. finish **10 6**
" Black " **12/6**

Service Sidecar Lamp Set, for fitting to top of mudguard. Fitted with aluminium reflector, perforated, giving red rear light

Price, **13/6.** Suitable generator, **5/-**

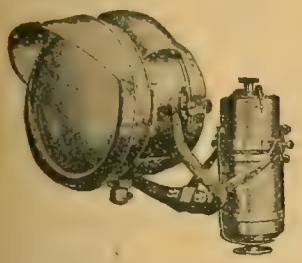
LAMPS.

Now is the time you need a powerful light, we carry the largest and most complete stock of all makes and types.

Special agents for

F R.S.

The most powerful lamp made.



800 ft. Standard Set .. .. **47 6.**
800 ft. Beam Seat .. .. **58 6.**
1000 ft. Beam Seat .. .. **68 6.**
1200 ft. Beam Seat .. .. **78 6.**
Lightweight Seat .. .. **37 6.**

P. & H. Lamp Sets complete **27/-** extra strong.
P. & H. Big Lamp Sets Mangin lens **36 6**
Miller Large Large Lamp Set, to fit on handle-bar, 5in. Mangin lens .. **45/-**
Ditto but with 4in. Mangin lens .. **37/6**
Service new pattern Torpedo Lamp Set, separate generator and tubing. Price **14 6** set.

SERVICE B.C.B. CARBURETTER.

Floatless, Automatic, single lever control.

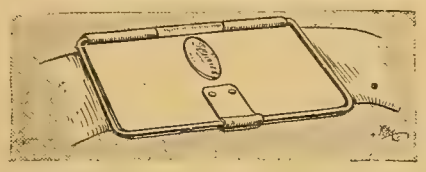
Price **30 -.**

Write for full particulars.

SERVICE PATCH PRESSER.

A most useful and handy necessity.

Effectively fixes patch to tube quickly. Keeps the hands clean, and is easily carried in pockets or toolbag. Best make, nickel plated.



Price, **2/-**

Write for clearance list, full of bargains.

The SERVICE Co., Ld.,
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HIGH HOLBORN,
—LONDON, W.C.—
'Phone: 260 *Central.*
Wires: "*Admittedly, London*"

When You Insure
BEWARE!

Many Motor Cycle Policies offered by Companies, and even recommended by people who ought to know better, merely cover damage caused by collision or impact, and only cover lamps, tyres and accessories under certain circumstances.

No other Policy gives the same complete protection as is afforded by the Policy issued by the

LONDON & MIDLAND INSURANCE Co. Ltd. ⟨Estab. 1859⟩

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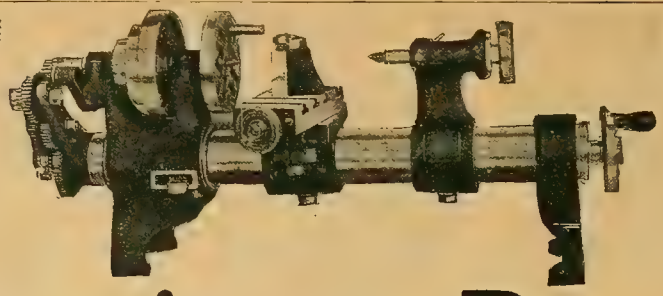
In comparison with the benefits offered our Premiums are very moderate. In insurance, as in other matters, the best is the cheapest. The penny wise are pound foolish.

Don't wait until an accident has happened to find out what your Policy leaves ***you*** to pay.

Write to-day for particulars of a real

"All Risks" Motor Cycle Policy



There's no Reason

why your mount should not always be on the top of its tune if you possess a lathe. A lathe in your garage provides the means for careful and systematic tuning, the quick and economical effecting of repairs, the carrying out of alterations, the preparing for the trials—in few words, provides the means for successful motoring.

Let us send you a list describing in detail the 4in. centre lathe illustrated here. It is a well-made, well-designed tool, screw-cutting, boring, and milling—just the tool for the motor cyclist's workshop, and at the right price too.

Write:—

DRUMMOND BROS., LIMITED,

R.L.H. Reed Hill — Guildford — Surrey.

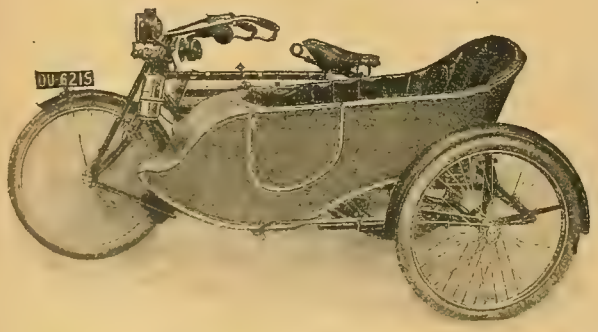
If you require a

Sidecar for Autumn use

buy a

BRAMBLE

Suitable for all weather conditions.



THE BRAMBLE MANUFACTURING Co., Ltd.,

Charterhouse Mills, London Road, Coventry.

LONDON REPRESENTATIVES:

ROBERTSONS, 157, Gt. Portland Street, London, W.

CATALOGUE ON APPLICATION.

"The Motor Cycle Journal of Canada," for April, 1913, says:—

COVENTRY CHAINS

"A large number of the racing machines in the States are fitted with **COVENTRY** chains. One rider, Ray Peck, used this chain on his mount all last summer and

DID NOT SUFFER A SINGLE BREAK

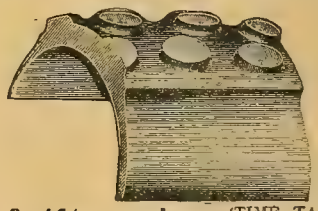
in any of his many races.

"THE COVENTRY" CHAIN CO., LTD., COVENTRY, England.

RETREADING

MOTOR CYCLE COVERS

(ALL MAKES. ALL SIZES.)



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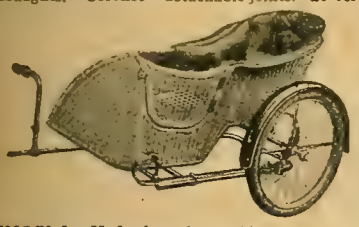
CORONET SIDE CARS

are scientifically designed and built. Every particle sparkles with quality—every detail is as perfect as human skill and knowledge can make it. Equipped as we are with the finest machinery and tools, we are able to produce these cars at truly competitive prices.

MODEL 9.—Underslung frame, body fitted with side door, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£7 7s.**



MODEL 8.—Underslung frame, high-class reed cane body, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£8 17s. 6d.**

MODEL 7.—Underslung frame, coach-built body, tool-box under front, also under seat. A real high-class sidecar. **£10 15s.**

SENT CARRIAGE PAID.
TRADE SUPPLIED.

TEE BEE SEAT-PILLAR
(for lowering seat).
Price 5/-.

This attachment is particularly suitable for improving the riding position of machines which are too high. It will be noticed that clearance is left for the peak of the saddle, which allows the saddle to be placed well forward.

BOOTH'S MOTORIES,
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MOTOR BICYCLES FOR SALE.

LIVERPOOL, Birkenhead, and Manchester.

COLMORE Depots, 31, Renshaw St., Liverpool, and 261, Deansgate, Manchester.—New and 2nd-hand at the leading depots for the north, Colmore Depots; agents for Douglas, Scott, Matchless, Bat, Clyno, Premier, Chater-Lea, New Hudson, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, 31, Renshaw St., Liverpool, and 261, Deansgate, Manchester. [X6046

£10.—3½h.p. Rex, mag., a bargain.—J. Tebbutt, Moss Brook, Farnworth, Widnes. [X598

5h.p. G.B., Nala 2-speed and F.E., mag., also forecar.—103, Hen-haw St., Oldham. [2020

1913 Free Engine Triumph, not done 50 miles; £47.—Hodgson, Kirby Moorside. [2054

3h.p. Motor Cycle, B. and B., etc., motor suit; £11, offers.—118, Bolton Rd., Bury. [1963

£23.—3½h.p. Ivy-Precision; great bargain.—Horton, 113, Wellington Rd., Leeds. [X922

SCOTT, 3½h.p., good condition; £23, or nearest offer.—10, Queen's Rd., Harrogate. [X924

1912¾ N.S.U., 2-speed twin, 3h.p., guaranteed; £27.—Gray, 11, Glencoe St., Hull. [X849

INDIAN, 4h.p., late 1911, cane sidecar, spares, newly overhauled; £36.—Lease, Baildon. [X808

3-SPEED Rover, last year's; cost £60; reasonable offer.—Riley, Crescent, Bridlington. [2050

NEW 1913 Douglas, £39; new Bradbury, £40, slightly shop-soiled.—Cross, agent, Rotherham. [X805

1911 Douglas, 2 speeds, complete, £28; single speed Douglas, £25.—Cross, jeweller, Rotherham. [X806

2¼h.p. 1910 Enfield Lightweight, Whittle belt, good tyres, lamp; £20.—Museum, Warrington. [X671

LATE 1911 Douglas, and spares, good condition; £23.—F. Alderton, Fern Lea, Barnoldswick, Colne. [X883

T.T. Triumph, 1912, £32, or exchange for T.T. Douglas.—Taylor, 3, Parkwood Rd., Longwood, Huddersfield. [X637

5h.p. Twin Kerry, perfect order; £12, or exchange lower power, mag.—Watson, 143, Gowthorpe, Selby, Yorks. [X800

TRIUMPH, 3½h.p., free engine, pile of accessories; £27/10.—Danks, Bewsey St., Warrington. [2105

1913 Douglas, models O, P, and R; delivery from stock; end of season prices.—Cordingley, Haslingden. Tel.: 2Y. [2140

1913 Matchless, 6h.p., 2 speeds, F.E., brand new; to clear £62/10; no exchange; all other models for immediate delivery.—Cordingley, Haslingden. Tel.: 2Y. [2143

1913 Scott, just arrived, brand new; clear for £60.—Cordingley, Haslingden. Tel.: 2Y. [2144

1913 Singer, 3½h.p., 3 speeds, F.E., brand new; list £58/15, £48/10.—Cordingley, Haslingden. Tel.: 2Y. [2146

BRADBURY, 3½h.p., T.T., 1911 model, splendid order; £27/10.—Cordingley, Haslingden. Tel.: 2Y. [2147

SCOTT, new October, 1912, in really fine order; £55, or very close offer.—Cordingley, Haslingden. Tel.: 2Y. [2148

1913 Singer, 3½h.p., T.T. model, a real flyer; £37/10.—Cordingley, Haslingden. Tel.: 2Y. [2149

2¾h.p. Torpedo, complete with speedometer, lamp and horn, 1912 model; a bargain, £26.—Cordingley, Haslingden. Tel.: 2Y. [2150

HUMBER, 3½h.p., 2-speed, free engine, handle starting, sidecar complete; a bargain, £25.—Cordingley, Haslingden. Tel.: 2Y. [2151

TRIUMPH, 3½h.p., 1908 standard, Mabon clutch, footboards, good machine; £20.—Cordingley, Haslingden. Tel.: 2Y. [2152

TRIUMPH, 3½h.p., lamp, horn, tools, etc., in good condition; accept £18.—Cordingley, Haslingden. Tel.: 2Y. [2153

PREMIER, 3½h.p., 1910 model, complete with lamp, generator, horn, tools, etc.; £25.—Cordingley, Haslingden. Tel.: 2Y. [2154

HOBART, 1912, 2¾h.p., fixed engine model, only done 1,600 miles, speedometer, lamp, etc., absolutely as brand new; clear for £25.—Cordingley, Haslingden. Tel.: 2Y. [2155

1912 Rudge, 3½h.p., free engine model, complete, and just like new, bought this year; £35.—Cordingley, Haslingden. Tel.: 2Y. [2156

1911 3½h.p. Humber, 2-speed, F.E., and sidecar; clear, £27/10.—Cordingley, Haslingden. Tel.: 2Y. [2157

1912 Enfield, 2¾h.p., 2-speed, N'all saddle, long exhaust, horn, just overhauled; £30.—Rev. H. Kershaw, Fulwood, Preston. [X668

PRECISION, torpedo, 1912, 3½h.p., free engine, lamp, tools, etc., good condition; £30.—Boshier, 16, St. James Row, Sheffield. [X697

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THE CHANCE
of securing a brand new
£52 10s. machine for £35 10s. will soon be
GONE FOR EVER
as we have nearly sold out.

We offer a Brand New 1913 Machine at a reduction of £17 off list price, or we will accept **£9 down and 12 Monthly Payments of £2 5s.**

Read the following specification, and secure one of the biggest bargains ever offered.

NEW 1913 3¾ h.p. A.S.L.-PRECISION.

Fitted with 3¾ h.p. Precision engine, Bosch weatherproof magneto, Best and Lloyd drip feed lubricator, Hutchinson rubber-studded tyres, handle-bar control, and complete with stand, carrier, number-plates, toolbag, and spare spring. Limited number only. If you are a cash buyer we will

ALLOW A DISCOUNT.

We will take your present machine in exchange if required. We will supply 2-speed gear and free engine for **£6** extra. Don't miss this bargain.

OFFERS WANTED FOR THE FOLLOWING:

New 1913 3-speed 3½ h.p. **HUMBER.**
8 h.p. **BAT-J.A.P.,** P. and M. 2-speed **£35 10**
3½ h.p. **REX,** 1909 model, magneto..... **£15 10**
4 h.p. Twin **N.S.U.** on Rex frame, magneto **£13 10**
3½ h.p. **PREMIER,** 1911½, B.S.A. 2-speed **£32 10**
3¼ h.p. **HUMBER,** 1913, 3-speed model, done about 200 miles, complete with sidecar..... **£46 0**
8 h.p. **G.W.K.,** 1912 model, not much used **£98 0**
2 h.p. **HUMBER** Lightweight, 1912 ..... **£25 0**
3¾ h.p. **A.S.L.,** brand new, 1913 model **£35 10**
3¼ h.p. **PREMIER,** 1913 model, 3 speeds, only run 500 miles **£46 10**
6 h.p. **BAT,** 1913, chain drive, like new **£58 10**
3½ h.p. **N.S.U.,** free engine, splendid order **£19 10**
3¼ h.p. **QUADRANT,** 1908, magneto **£15 10**
TWIN HUMBER, 1912 Lightweight, free engine .. **£29 10**
2 h.p. **MOTOSACOCHE,** 1910, magneto **£13 10**
3½ h.p. **REX,** 1910 model **£17 10**
SCOTT, 1909, 2 speeds, nice condition **£19 10**
MORGAN Runabout, 1912, screen, hood, side tool boxes, new 3in. tyre **£67 0**
6 h.p. **TWIN REX,** magneto, H.B. control **£12 10**
3½ h.p. **QUADRANT,** magneto, spring forks..... **£11 10**
3½ h.p. **REX** **£4 15**
6 h.p. **REX** Sidette, 1913 model; cost £80 ..... **£49 10**
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4 h.p. **ROC,** free engine, magneto..... **£14 10**

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New N.S.U. 2-speed Gears, adjustable pulleys, for Bradburys, Rudges, Singers, 1910 and 1912 Triumphs. Cheap to clear.
XL'All Pan Seat Saddle **25 0**
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3¼ h.p. Quadrant Engine, pulley, silencer..... **£2 17 6**
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Good Trembler Coil..... **6 0**
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Triumph Free Engine, built into wheel..... **£2 10 0**
Nearly new Binks Carburetter **£1 5 5**
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New Wicker Sidecar Body, side door **£1 9 6**
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Good Rigid Sidecar **£3 7 6**
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N.S.U. forecar, cane body, less tyres **14 6**
Triumph Pattern Handle-bars, 1in. stems **4 6**
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New 1913 Armstrong Mark VI. 3-speed Gears. Delivery from stock. Trade supplied.
Nearly-new Mark VI. 3-speed Gear **£5 15 0**
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New Mirror Lens Lamp and Generator **13 9**

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MOTOR MART
1913 NOT 1912.

6 H.P. REX DE LUXE,
complete with Portland £13 13 0 Sidecar, lamp, horn, registration, etc., ready to be ridden away and FULLY GUARANTEED,
£70 - 0 - 0
or, payable £17 10 0 deposit, and twelve monthly payments of 87/6.
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Write for Terms and Discounts.
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NEW 1913 MODELS
FOR DELIVERY FROM STOCK.

TRIUMPH, 3½ h.p., 3-speed, "C"	£59	15
ZENITH, 6 h.p. model, kick start	£78	15
REX, 3½ h.p. model, 2-speed	£49	0
B.S.A., 3½ h.p., 2-speed, chain drive	£60	0
PREMIER, 3½ h.p., 2-speed gear	£56	0
REX, 6 h.p. model, 2-speed	£54	0

TRADE SUPPLIED.
EXCHANGES ARRANGED.

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ALL GUARANTEED.
Full Specification on Request.

1913	**GREEN-PRECISION,** 3½ h.p., water-cooled, 3 speeds, chain drive, as new	£45
1912	**ZENITH,** 6 h.p., Canoelet Sidecar	£50
1912	**MATCHLESS,** 8 h.p., free engine	£49
1912	**MATCHLESS,** 6 h.p., T.T. model	£40
1912	**REX,** 6 h.p. Portland Sidecar	£47
1912	**BRADBURY,** 3½ h.p., 2-speed, Sidecar	£40
1912	**BRADBURY,** 3½ h.p., Montgomery Sc.	£41
1912	**PIERCE,** 5 h.p., 4-cylinder, 2 speeds	£45
1912	**DOUGLAS,** 2¾ h.p., 2 speeds, kick start	£42
1911	**F.N.,** 2½ h.p., 2 speeds, shaft drive	£25
1910	**V.S.,** 5-6 h.p., 2 speeds, spring forks	£26
1910	**DOUGLAS,** 2¾ h.p., twin, magneto	£25
1910	**ENFIELD,** 2½ h.p., twin-cylinder	£20
1909	**HUMBER,** 3½ h.p., 2 speeds, Sidecar	£24
1909	**HUMBER,** 3½ h.p., 2 speeds	£20
1909	**REX,** 6 h.p., 2 speeds, handle start	£26
6 h.p.	**N.S.U.,** magneto, 2 speeds	£24
2¾ h.p.	**DOUGLAS,** magneto, nice lightweight	£18
4½ h.p.	**F.N.,** four cyl., magneto	£16
2 h.p.	**MOTOSACOCHE,** magneto machine	£11
5 h.p.	**ALCYON,** spring forks, very fast	£13
2½ h.p.	**KERRY,** magneto ignition	£12
1¾ h.p.	**N.S.U.,** magneto, nice lightweight	£9
5 h.p.	**F.N.** Cycle Car, 2 speeds, 4 wheels	£40
5 h.p.	**REX,** twin, wants repairs	£9

HUMBER CAR, 15 h.p., 3 speeds and reverse, mag. eto, gate change, five-seater, hood, screen Stepney, speedometer, lamps, horn, etc., excellent order. Exchange motor cycle or combination ..... Price £52
Deferred Payments, 5% extra.
EXCHANGES ARRANGED.

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136, Great Portland Street, LONDON, W.
'Grams: Abdicate, Wesdo, London. 'Phone: 552 Mayfair

MOTOR BICYCLES FOR SALE.

1911 2¼h.p. E.N., 2-speed, free, shaft drive, plate clutch, like new; offers over £25.—Rooke, Railway Terrace, Penistone. [X827

DOUGLAS, 1911, 2-speed, clutch, good condition, complete with spares; £32.—Goodchild, 3, Park View, Beeston Hill, Leeds. [X691

TRIUMPH, 3½h.p., really first-class condition; £30; sidecar combination wanted.—Dalby, Theatre Royal, Scarborough. [X263

1913 Scott, absolutely as new, done 500 miles, property of doctor; £52, complete.—Box 4,163, *The Motor Cycle* Offices, Coventry. [X804

RUDGE Multi, 1913½, 3½h.p., complete with all accessories, equal in every respect to new; £45.—Armstrong, Clerk Green St., Batley. [X799

SCOTT (Green), 1913, ridden few miles only, perfect condition, all accessories; £57, or nearest offer.—Barlow, 16, Irton Rd., Southport. [2003

JAMES, T.T., 3½h.p., every possible accessory, new condition, mileage 1,700; £34; push bike part.—6, Peterborough Rd, Wavertree, Liverpool [X629

NEW Hudson, 2¾h.p., 1911¾, 3-speed, free engine, lamp, horn, Garner, 2 belts, nearly new tyres; £25.—Ashworth, 12, Byrom St., Todmorden. [2121

1¾h.p. Singer, perfect condition; £15, or £10 and sewing machine exchange; approval against cash: 1911 machine.—Goodband, Majestic, Harrogate. [X729

SPECIAL Norton, steel piston, winner of many competitions, overhauled July, Phillipson pulley, and accessories; offers.—Lumb, 203, Gibbet St., Halifax. [X259

SHOP-SOILED Unused 6h.p. A.J.S. Combination; makers' price £92/10, our price £82/10 cash; guaranteed.—The Motor Mart Co., Old Lancaster Rd., Morecambe. [0338

1910 3¼ Free Engine Triumph, new Dunlop, new tube on back, Michelin front, new Whittle belt, lamp, horn, generator, tools, spares; £27.—Rosedene, Chorley New Rd., Bolton. [1962

1912 Enfield, 2¾h.p., 2-speed, free engine, perfect condition; cost 50 gns., sell £33; only reason for selling, owner wants heavyweight and sidecar.—Geo. Threlfall, Shaw Mills, Leeds. [1981

CAMPION-J.A.P., 1912, 6h.p., chain drive, Jardine 2-speed gear and free engine, just overhauled, re-enamelled all black, Kempshall back tyre; nearest offer £50.—Acland, Hall Car House, Sheffield. [X658

2½h.p. F.N., 1913 model, 2 speeds, shaft drive, new condition, plenty of spares; £36, or take gent's Sunbeam, Lea-Francis, or Raleigh pedal bike part exchange.—W. Beaumont, Bird's Royd, Brighouse. [X855

DOUGLAS (August, 1911), clutch, 2-speed, engine overhauled by Douglas Bros., in July, new back tyre, lamp, horn, all spares and accessories; £28; seen by appointment.—E. Bleakly, George Hotel, Tyldesley. [X596

TO Scott Agents, and to agents in districts where not represented.—We can deliver Scott machines from stock on good trade terms. Write for our wholesale list at once, enclosing trade card.—Hitchens, Ltd., Morecambe. [0333

5-6h.p. Bat-Jap, Whitsuntide, T.T. tourist model, new 2½in. tyres and belt, automatic lubrication, lamp, horn, tools, etc., not done 2,000 miles, complete; cost over £70, accept £45 for immediate sale; owner left England.—Scorrer, 141, Coltman St., Hull. [X9912

7h.p. 1912 Indian, twin-cyl., 2 speeds, Xl'all saddle, F.R.S. head light, just overhauled, perfect order, demonstration given, tyres excellent, spare tubes, magnificent hill-climber; must sell, cost £82, accept £45 cash or nearest offer. Montgomery sidecar, luxurious type, cost £17, sell £9 extra.—Bramley, 19, Wentworth St., Huddersfield. [X858

SALE of 1913 shop-soiled Zeniths, never been on road.—3½h.p., kick starter, listed £63, our price £52; 6h.p., kick starter, listed £78/15, our price £65; 6h.p., standard, listed £71/8, our price £59. There is one each only left, therefore get on the jump quick. No deferred or swaps entertained at these prices.—Hitchens, Ltd., Morecambe. [0334

NORTHERN Depot, Ltd., Everything Motorish, Leece St., Liverpool.—Rex-Jap solo and sidecar combinations in stock, also Milliford Herald, Corvette, and Premier sidecars; exchange depot for D.A. cylinders; 2¾h.p. Douglas lightweight, £23; 1912 2-speed Bat-Jap, splendid condition, £37; 1h.p. auxiliary sets for pedal cycles; largest exhibition of accessories in the North at popular prices; N.D.L. oilskin motor cycle suits, with leather belt, 30/6, sold elsewhere at 45/-. Call and examine our stock, no obligation to purchase. [X857

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Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

4h.p., fast, Bosch; worth £20, take £10.—Slater, Woods Lane, Derby. [X910

1913 Free Engine B.S.A., slightly used; £42.—Orton, 35, Friar Gate, Derby. [X906

ARNO, 2¾h.p., new last June, perfect condition, all accessories and spares; £25, or exchange, with cash, for higher power.—Bunn, Churchill St., Smethwick. [X904

SOMETHING TO CROW ABOUT
Watawata Belt
Booth's Patent.
A FEW MORE EXPERIENCES OF DELIGHTED USERS—
1,281 miles without tightening, and not a single stop on the road for transmission troubles.
2,000 miles, much of it with sidecar, and no shortening—it never slips.
The only belt that has worked on my pulleys without twisting.
Having run it 1,441 miles I cannot see that there is any appreciable wear.
The belt has been quite a revelation.
THE MOST EFFICIENT MOTOR CYCLE BELT BECAUSE THE MOST SCIENTIFICALLY CONSTRUCTED.
Send for Booklet—
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Ten guineas is all it costs to bring your mount up-to-date by the addition of the

1913½ ROC LATEST

SIDECAR PATTERN

Two-speed Gear.

(6 Days' World's Sidecar Record type)

The 1913½ big clutch type has been designed expressly for passenger work.

It solves all gear worries and guarantees you satisfaction.

The 1913 Roc gear was already recognised the last word in motor cycle gears for solo use.

The 1913½ big clutch type is just what thousands of "sidecarists" have awaited and expected.

The Roc gear was the first of all motor cycle gears—it is the first to-day. Nothing could be smoother, easier to operate, or be more reliable.

No better investment for the money is possible than in this 1913½ Roc dependable gear, fitted complete for ten guineas.

Write for particulars, stating make and h.p. of your machine.

No delay in delivery.

ROC GEAR Co.,

HAYMILLS, BIRMINGHAM.

London : Robertson's, 157, Gt. Portland St., W

MOTOR BICYCLES FOR SALE.

BAT, 1913, 3½h.p., 3 speeds, Sturmey-Archer, done 300 miles only; £42.—P. J. Evans, John Bright St., Birmingham. [X770

ZENITH, 1913, 3½h.p., Gradua gear, free engine, kick starter, and Millford sidecar; cost £70, £55.—P. J. Evans, John Bright St., Birmingham. [X771

MATCHLESS, 1913, 8h.p., 2 speeds, chain drive, and special sidecar; £68; complete Lucas lamp, speedometer, etc.—P. J. Evans, John Bright St., Birmingham. [X772

ENFIELD, 1913, 3h.p., 2 speeds, chain drive, kick starter, nearly new; £38.—P. J. Evans, John Bright St., Birmingham. [X773

CLYNO, 1913, 6h.p., 3 speeds, brand new, shop-soiled; £65; with sidecar £75.—P. J. Evans, John Bright St., Birmingham. [X774

TRIUMPH, 1913, free engine model, shop-soiled only; £48.—P. J. Evans, John Bright St., Birmingham. [X775

WILLIAMSON, 1912-13, 8h.p., air-cooled, and Canoelet sidecar, with screen, excellent order; £55.—P. J. Evans, John Bright St., Birmingham. [X776

ZENITH, 1912, 3½h.p., Gradua gear, excellent condition; £32.—P. J. Evans, John Bright St., Birmingham. [X777

ENFIELD, 1912, 6h.p., 2 speeds, and coach sidecar; £50.—P. J. Evans, John Bright St., Birmingham. [X778

ZENITH, 1911, 3½h.p., Gradua gear, and wicker sidecar; £30.—P. J. Evans, John Bright St., Birmingham. [X779

SCOTT, 1911, 3¾h.p., 2 speeds, kick starter, excellent order; £26.—P. J. Evans, John Bright St., Birmingham. [X780

HUMBER, 1913, 3½h.p., 3 speeds, kick starter, brand new; list £57/10, accept £47/10.—P. J. Evans, John Bright St., Birmingham. [X781

HUMBERETTE, 1913, 8h.p., chocolate finish, shop-soiled; list price £125, £110.—P. J. Evans, John Bright St., Birmingham. [X782

FORD, 1913, 20h.p., standard runabout, £120; slightly soiled, also special painted buff, with detachable spare wheel, etc., £138.—P. J. Evans, John Bright St., Birmingham. [X783

MORGAN, 1912-13, 8h.p. J.A.P., special sporting body, all accessories; £68.—P. J. Evans, John Bright St., Birmingham. [X784

ALLDAYS Midget, 1913, 8h.p., complete, all accessories; cost £150, £110.—P. J. Evans, John Bright St., Birmingham. [X785

HUMBERETTE, 1913, all spares, Stepney, lamps, etc., good order; £98.—P. J. Evans, John Bright St., Birmingham. [X786

NORTON-ROC, 4h.p., adjustable pulley, Amac, just overhauled.—Simpson, 21, Chestnut Rd., Moseley, Birmingham. [X766

1913 Rover, clutch model, 4h.p. J.A.P. engine, new machine; photo; approval; £37.—37, Clarendon St., Coventry. [X953

REX, 3½h.p., engine, Bosch mag., and frame, just completely overhauled; nearest offer to £17.—Gordon, Roslyn, Coventry. [X951

TRIUMPH, 1912, clutch, 1913 improvements, excellent condition, horn, whistle, etc.; £45.—Thrunscoe, Welholme Av., Grimsby. [X853

SCOUT Motor Cycle, Precision engines, 3¾h.p., delivery from stock; £38/10.—Taylor and Hands, 353a, Coventry Rd., Birmingham. [X9802

1913 2½h.p. Levis, perfect condition, only few weeks old, first-class accessories; any reasonable offer; plating, etc., like new.—Box 4,169, *The Motor Cycle* Offices, Coventry. [X954

PHELON-MOORE, 3½h.p., 1910, very little used, Jones speedometer, spare tube, lamp, accessories, splendid condition; trial run; £33.—Carrington, Braunstone Gate, Leicester. [X845

TRIUMPH, T.T., 1911, excellent condition, Phillipson pulley, racing and touring bars, P. and H. lamp and generator, 4 spare valves; £33, or offer.—13, Queen Victoria Rd., Coventry. [X955

TRIUMPHS, latest 1913 3-speed, free engine, and T.T. roadster models in stock for immediate delivery; cash, exchanges, or easy payments. — Premier Motor Co., Ltd., Aston Rd., Birmingham. [0340

£5/10, great bargain.—3h.p. motor cycle, h.b.c., enamelled, overhauled, re-bushed, Palmer cords, new belt, new accumulator, low, fast; trial here; guaranteed.—Roland Chappell, Sketchley, Hinckley. [X905

1913 P. and M. and Coachbuilt Canoelet Sidecar, Montgomery chassis, perfect condition; £68, or would take 1913 model R Douglas in part exchange.—Box 4,166, *The Motor Cycle* Offices, Coventry. [X882

P. and M., latest 1913 model, lamp and horn, Kempshall tyres, unpunctured, sidecar gear ratios, new 2 months ago, and in absolutely perfect condition; £57/10.—M. Sampson, 17, Grosvenor Rd., Coventry. [X723

1913 Bradbury, 3-speed gear, £49; 1913 Premier, 3½h.p., 2-speed, and countershaft, £46; 1911 Indian, 7h.p., new 1913 clutch, new tyres, £38/10; 1911 Humber lightweight, good condition, £17.—Jas. Plastow, Osborne St., Grimsby. [X838

£39 Buys a 1912 2-speed Clyno, and luxurious close cane Sidecar. Ready to drive away. Any trial.

SECOND-HAND.				Every one guaranteed.		
£29	10	1912 4	**Rex**	**Humber,** 3½, F.E.	£10	10
£15	10	2¼	Mag. **Rex**	**Rover,** 3½, clutch	£29	10
£12	10	3½	**Rex**	2 Mag. **Minerva** .	£11	0
£16	10	3½	Mag. **Birch**	**F.N.** Lightweight	£9	10
£27	10	5½	2-sp. **N.S.U.**	'12 3-sp. **Bradbury**	£47	10
£17	10	3½	**N.S.U.**	3½ Light **Rex** ...	£10	10
£19	10	3½	F.E. **Minerva**	1911 6 F.E. **J.A.P.**	£34	10
£35	10	'12	F.E. **Quadrant**	5½ **Rex**	£15	10
£8	10	3	**Humber**	Twin **Moto-Reve**	£15	10
£26	0	**Humber,** 3½, 2-sp.		**James,** 1910, 3½ .	£16	10
£16	0	**Singer,** 3, mag.		4½ Twin **Minerva**	£15	10
£10	0	**P.F.,** 3½		1912 **Rudge** Multi	£42	10
£34	10	'11 **Rex** Twin, 2-sp.		**Motosacoche,** mag	£15	10
£27	10	'09 **Rex** Twin, 2-sp		**Werner,** Twin ..	£12	
£55	0	New Twin **REX** de Luxe and Sidecar.				
£45	0	1911 Twin **REX** Sidette, chain drive.				
£47	10	1912 **RUDGE** Multi and Sidecar.				
£58	0	1912 2-speed Twin **REX** Sidecar, Brand new				
£42	10	1913 2-speed Twin **REX,** nearly new.				
£47	10	1912 **WALL** Tricarriage. Cost 90 Guineas.				
£31	0	5½ h.p. 2-speed **N.S.U.** and Sidecar.				

Easy Payments from one-quarter deposit and Twelve Monthly Payments.

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1913	6 h.p. 2-speed **REX**	£62 10
1913	6 h.p. 2-speed **REX,** chain drive.....	£67 15
1913	6 h.p. 2-speed **REX-J.A.P.**	£71 8
1913	8 h.p. **REX-J.A.P.**.....	£73 10
1913	W.C. **WILLIAMSON,** and Sidecar	£98 10
1913	A.C. **WILLIAMSON,** and Sidecar	£91 10
1912	twin 2-speed **REX** de Luxe, NEW	£53 0

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We offer a Brand New 1912 4 h.p. Tourist **REX,** **84½ x 95,** with Bosch magneto, B. and B. carburetter, push pump and feed lubrication, spring forks, Cantilever seat, 26 x 2¼ non-skid tyres, stand, carrier, toolbag, number-plates, pump, tools, and new F.R.S. standard lamp with grid generator, for **£34 10s.** Makers' prices of these goods are £46 and £2 13s. 6d. respectively. Cash offers or exchanges considered, as we wish to clear, **regardless of cost.**

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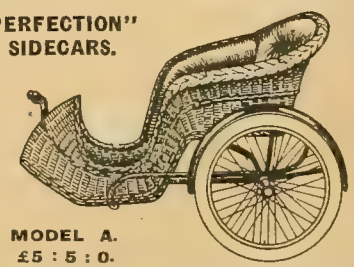

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1913 **ALCYON,** 3½ h.p. £36
1913 **EDMUND-J.A.P.,** 4 h.p., spring frame £42
1913 **ZENITH-GREEN,** water-cooled £54
1913 **B.S.A.,** 3½ h.p., 2-speed £55
1913 **BAT,** 6 h.p., 2-speed, chain drive £66

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MONTGOMERY No. 5, Edinburgh body £14 0
MONTGOMERY No. 7, Exeter body, hood, screen £17 10
MONTGOMERY standard £6 15
MILLFORD Corvette, storm apron, mat, and luggage board £11 10
MILLFORD spring wheel No. 4 chair £11 0
MILLFORD rigid No. 4 chair £9 0
MILLFORD rigid No. 14 chair £11 0
MILLFORD rigid No. 3 chair £10 10
BRAMBLE No. 6 ..... £10 15

SECOND HAND MOTOR CYCLES.

1424. 1913 **REX-J.A.P.,** 5 h.p., O.H. valves £35
1440. 1913 **TRIUMPH,** 3-speed, 14 days' old £48
With £13 13 Bramble Sidecar £56
1427. 1913 **RUDGE** Multi, 5 h.p., scarcely used £52
1435. 1913 **DOUGLAS** Model S, one week old £46
1438. 1913 **BAT,** 4 h.p., O.H. valves, No. 1 model, two weeks' old £42
1441. 1913 **NEW HUDSON,** 2¾ h.p., 3-speed, practically unused £38
1327. 1912 **BRADBURY,** 3½ h.p. £35
1341. 1912 **ZENITH,** 6 h.p. £48
1283. 1912 **ZENITH,** 3½ h.p. £38
1285. 1912 **CLYNO,** 6 h.p., 2-speed £46
1418. 1912 **BRADBURY,** free engine £36
1362. 1912 **RUDGE,** free engine £35
1395. 1912 **J.A.P.-CHATER,** 6 h.p., free engine, and Sidecar with child's seat £42
1406. 1912 **A.J.S.,** 6 h.p., with a lot of accessories .. £55
1416. 1912 **TRIUMPH,** free engine £42
1412. 1912 **HOBART,** 2¼ h.p. £22
1426. 1912-13 **F.N.,** 4-cylinder, 2-speed £36
1428. 1912 **TRIUMPH,** free engine, Cowey, etc. £39
1430. 1912 **F.N.,** 4-cylinder, 2-speed, and cane Sidecar £45
1432. 1912 **NEW HUDSON,** 2¾ h.p., 3-speed £35
1433. 1912 **REGAL-PRECISION,** 4¼ h.p., 2-speed, and Sidecar £34
1434. 1912 **ALCYON,** 2½ h.p. £25
1436. 1912 **MATCHLESS,** 6 h.p., 2-speed, twin belt, Turner Sidecar, and numerous accessories £68
1332. 1911 **ZENITH,** 6 h.p. £42
1443. 1911 **INDIAN,** 7 h.p., free engine, T.T. £30
1439. 1911 **F.N.,** 4-cylinder, 2-speed, and racy coach-built Sidecar £34
1442. 1911 **TRIUMPH,** 3½ h.p. £28
1282. **BROUGH,** 5 h.p., twin cylinder £25

SECOND HAND CYCLE CARS.

913 **CROUCH,** 8/10 h.p., w.c., 3 speeds and reverse, hood, screen, large flex horn, speedometer, 1 car and 2 cycle car headlights, acetylene tail light, large car generator, clock, Stepney with unused s.s. Hutchinson, large kit of tools including jack, etc. All as new and guaranteed Cost £175. Will accept £120
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MOTOR BICYCLES FOR SALE.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

KYNOCH-J.A.P., 1913 model, 4h.p., variable gear, as new; £40.—Whitbread, Shefford. [X792

ARIEL, 3½h.p., 1913, variable gear, as new, lamp, speedometer; £44.—Whitbread, Shefford. [X793

3½h.p. Humber, 1911, belt and tyres nearly new, excellent condition; £28.—Butler, 60, Howard Av., Bedford. [X795

TWIN Enfield Lightweight, excellent condition, £20; twin J.A.P., 6h.p., good condition, £29. — H. Middleton, Fairland St., Wymondham, Norfolk. [X911

LOOK!—3-speed and free engine for nothing. 1913 3½h.p. Singer, uncrated, at fixed engine price; £48/15.—P. Reynolds, Wimblington. [2103

LADY'S Enfield, 1912, 2-speed, free engine, 2½h.p., new condition; £40, or near offer; to be seen by appointment.—Dodds, Safety Wheel Works, Clifton, Beds. [X665

1913 Rudge Multi, 3½h.p., with Mille-Fulford sidecar, Lucas lamp and horn, Jones speedometer, only used 2 months, good as new; cost £77; no reasonable offer refused, as owner going abroad.—Blanchflower, Beaconsfield Rd., Norwich. [X561

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

MOTOSACOCHE, 1909, lightweight; £8.—S. Morgan, Bungalow, Pontypool. [X640

ARIEL, 2¾h.p., perfect condition; £8; any trial.—Austen, 5, Albert Rd., Abergavenny. [1937

1910 Free Engine Triumph, with 1913 cylinder; bargain, £25.—Harry Jones, Union, Felinfoel, Llanelly. [1955

1913 Hobart, 2½h.p., purchased May, perfect; £33.—Jones, Haulfryn, Granville St., Abertillery. [2084

1912 4-cyl. F.N., 2-speed, free engine, everything perfect, £39/10; sidecar, £3/10.—Tay, Bunbury Rd., King's Norton. [X819

ENFIELD, 2¾h.p., 1913, 2-speed, free engine, kick start, scarcely soiled; £37.—Harrison, The Chalet, Bromsgrove Rd., Redditch. [X670

3½h.p. Ariel, 1912, Roman rims, 3-speed Armstrong, footboards, decompressor, spring seat-pillar; cost £64, sell £35.—Dr. Martin, Brithdir. [X662

TRIUMPH, late 1912, free engine, splendid condition, accessories, spare belt, tube, etc., cost £60, only done 1,000 miles; £38.—Cooke, 31, Queen St., Cardiff. [X798

TRIUMPH, 1912, Armstrong 3-speed, Rich tubes both wheels, horn, new Mangin lamp and generator unused since May, grand condition throughout; nearest offer to £45.—Dr. Walford, Powick, Worcester. [X595

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

SINGER, new 1913, 3½h.p., free engine, 3-speed hub gear; £58/15.—Below.

SINGER Lightweight, new, 1912, 2½h.p., free engine, 2-speed bracket gear; list £48/15, bargain, £40.—Below.

BRADBURY, new, 3½h.p., free engine, 3-speed hub gear; £60.—Below.

L.M.C., new 1912, 3½h.p., adjustable pulley, valve lift, with hand and foot control; list price £48, £40.—Below.

TRIUMPH, 1910, 3½h.p., Mabon free engine clutch, just overhauled, tyres practically new; £28.—Below.

L.M.C., 1912, 3½h.p., auto-variable pulley, giving 2 speeds and free engine, kick starter, B. and B. carburetter, foot valve lifter, complete with accessories; £33.—Below.

ALLDAYS with sidecar, 1911, 3½h.p., Roc 2-speed and free engine gear, handle starter, just overhauled and enamelled; £36.—Below.

BAT, with spring wheel sidecar, 1912, 8h.p. J.A.P. twin engine, 2-speed gear, kick starter, Binks automatic carburetter, Clair silencer, Jones speedometer, new spare tyre cover; £55.—Below.

BRADBURY, 1913, 3½h.p., 2-speed, chain drive, kick starter; list £60; nearly new condition; £48.—Below.

VINDEC, 1910, 5-6h.p., 2-cyl., Vindec variable gear, Bosch mag., Druid forks; £25.—Below.

EXCHANGES; deferred payments.—Munn and Underwood, Indian, Singer, Bradbury, and L.M.C. agents, Junction Garage, Southampton. [1959

SCOTT, latest 1913 model, brand new; £58, great bargain.—Ginger, Motors, Banbury. [X9936

MATCHLESS, 1913 models for immediate delivery.—Sole Oxfordshire agents, The Morris Garage, Oxford. [0313

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PHELON and Moore, 1913 models for immediate delivery.—Sole district agent, The Morris Garages, Oxford. [0203

LINCOLN Elk, 1912, 3½h.p., excellent condition, spares; £23/10.—Blagg, Westmark, Petersfield, Hants. [2115

TRIUMPH, 1910, free engine, good condition, tyres almost new; 28 gns.—Crow, Kilbys, Winkfield, Windsor. [1902

TRIUMPH, clutch, 1911¾, splendid condition, new Kempshall, Hutchinson; £30.—8, Drummond Rd., Bournemouth. [X628

5h.p. Minerva, lamps, horn, stands, carrier, toolbags, new B. and B.; £8.—R. King, 43, Gosport St., Lymington, Hants. [2036

1913 B.S.A., chain driven, 2-speed, perfect condition.—Apply to A. Bonham Carter, Salamanca Barracks, Aldershot. [X9596

LAYTONS'.—James, 4h.p., 1912, 3-speed model, complete with sidecar, lamp, horn, thorough order; £40.—Laytons', Bicester. [2181

LAYTONS'.—Scott, 1913, brand new, soiled only; list price £68/5, offers wanted; easy payments, exchanges.—Laytons', Bicester Oxon. [2182

LAYTONS'.—Douglas, model O, 2-speed, just arrived; £48; exchanges, easy payments. — Laytons', Bicester, Oxon. [2183

LAYTON.—Triumph, 1911, free engine model, complete with lamp, horn, etc., first-class condition throughout; £32, worth £38.—Laytons', Bicester, Oxon. [2179

RUDGE Multi.—Deliveries from stock; trial runs given; exchanges entertained; trade supplied.—Official agent, Barnes, Slough. [9139

1912 Free Engine Triumph, perfect condition, and very fast, not run 3,000 miles; price £37/10.—Lawes, The Triangle, Aldershot. [X646

2¼h.p. J.A.P., Chater-Lea frame, spring forks, Advance pulley, new belt; £7, or nearest.—Long, 1, Whitley Wood Lane, Reading. [X765

1910 F.N. 2¼h.p. Motor Cycle, 2-speed gear, and free engine, in excellent order, Palmer cord tyres, etc. and B.; £20.—Pitt, Fordingbridge. [X933

B.S.A., T.T., July, 1913, 2-speed, all accessories and spares, not done 500 miles, as new; nearest 50.—Topham, 72, Chesterfield Rd., Bristol. [2098

HARTWELLS' Garage, Chipping Norton.—Triumph and Douglas agents; also agents for Swift cycle car for Banbury, Burford, and Chipping Norton.

TRIUMPH, 3-speed, 3½h.p., free engine, clutch; in stock; £59/15.—Hartwells'.

DOUGLAS model O, £48; in stock model R, £52.—Hartwells'.

ENFIELD Autolette in stock, £138.—Oxfordshire agents, Hartwells'.

TRIUMPH, 1912, free engine, in fine order throughout, new 1in. Dunlop belt, lamp, horn, and tools; 39.—Hartwells'. [1786

3h.p. Royal Enfield, late 1912, as new, Cowey speedometer, only reason selling cash wanted; 35, cost £56.—Jenkins, Rossmond, Cheltenham. [X902

WILLIERS Free Engine Clutch, complete with tyre, brake, and belt rims, free-wheel and control mechanism; £4.—Hunter, Brayfield, Newport Pagnell, Bucks. [X605

DOUGLAS, 1913½, T.T. model, about 1,300 miles only, perfect condition, heavy Kempshall 2¼in. rear; £38/10, no exchanges.—Heybourn Motors, Maidenhead. [2135

1912 8h.p. Matchless, horn, lamp, generator, speedometer, etc., tyres splendid (one new), all in perfect order; £47, or near offer.—Linington, 19, Junction Rd., Southsea. [2035

1913 P. and M., 3½h.p., only done 1,000, like new, 2¼ Kempshall, Lucas, spares; any trial; bargain, £58; bought runabout.—Tomlyn, 101, Oxford Rd., High Wycombe. [1990

DOUGLAS, model K, 1912, new November, done 1,000 miles, special Amac carburetter, condition new, spare valve and tools, complete; £36/10.—Hill, Grocer, Lymington. [1961

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

HUMBER, 1910, 3½h.p., 2-speed, free engine, handle starting, new Clincher studded tyre back, P. and H. lamp and generator, horn, good condition throughout; bargain to clear, £20.—The Morris Garages, Oxford. [X887

B.M.C., 1910, 3½h.p., 2-speed, footboards, very comfortable and powerful machine, horn; any reasonable trial; £23.—The Morris Garages, Oxford. [X888

ROVER, 1911, 3½h.p., free engine, good running order and condition, lamp, generator, and horn, tools, etc.; £25.—The Morris Garages, Oxford. [X889

BAT, T.T. model, 6h.p., 1911, exceptionally fast machine, Pedley tyre back, Palmer front, horn; open to any examination; bargain to clear, stock, £25, lowest.—The Morris Garages, Oxford. [X890

TRIUMPH, 1910, T.T. roadster model, excellent condition, Brooks B 170 saddle, horn, tyres and belt good; any reasonable trial; £22, lowest.—The Morris Garages, Oxford. [X891

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MOTOR BICYCLES FOR SALE.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

1913 Triumph, T.T., Lucas lamp, horn, etc.; £40.—Bunting, Wealdstone. [X865

1912 Triumph, free engine, another grand machine, costly accessories; £42.—Bunting, Wealdstone. [X866

8h.p. Zenith, with or without sidecar; £50.—Bunting, Wealdstone. [X867

DOUGLAS, single speed, splendid trim, expensive fittings; bargain, £20.—Bunting, Wealdstone. [X868

LAGONDA, 5h.p., 2-speed gear, make splendid tradesman's carrier, mag.; £12/10.—Bunting, Wealdstone. [X869

P. and M. and Sidecar, 1912, speedometer, lamp, etc., perfect condition; £55.—Mylam.

SWIFT, free engine, 1912, speedometer, etc.; £35.—Mylam.

MINERVAS.—Several from £8.—Mylam.

H. MYLAM and Co., The Old Firm, 354, Streatham High Rd. Night garage, motor cycles 1/-, sidecar combination 1/6, cycle cars 2/- per week garage. [1964

TRIUMPH, free engine, only run 600 miles; £35.—Read's Garage, Sheerness. [2027

P. and M., new, uncrated; must realise; £59.—B., 3, Queen's Av., Winchmore Hill. [1415

WOLFF, 2h.p., perfect, fast; exchange higher power. —64, Pitshanger Lane, Ealing. [1942

EAGLES.—Rover, late 1912, 3-speed model, Sturmey-Archer gear, new condition; £39.

EAGLES.—Enfield 1913 6h.p. combination, all accessories, new condition; £65.

EAGLES.—N.S.U., 3½h.p. Popular, low-built, 2 speeds, free engine, Cowey speedometer, fine condition; £21.

EAGLES.—Rover, 1913, 3-speed model, shop-soiled; offers.

EAGLES.—Bradbury, 1913, 3-speed model, shop-soiled; offers.

EAGLES.—Rudge, 1912 T.T. model, exceptionally fast, perfect condition; £28.

EAGLES.—Bradbury, 1912, standard model, new condition, all accessories; £29.

EAGLES.—N.S.U., 4h.p. twin, Bosch, m.o.v., 1911, spring forks, 2 speeds, free engine; £22.

EAGLES.—Bat-Jap, 1912, 3½h.p., spring frame, T.T. handle-bar, very fast; £27.

EAGLES.—N.S.U., 3½h.p. Model de Luxe, Bosch mag., spring frame, latest pattern spring forks, and other improvements, brand new; £37.

EAGLES.—Bradbury, 1912, N.S.U. 2-speed gear, free engine, had little use; £35.

EAGLES.—N.S.U., 3½h.p., T.T. model, 85×88, Bosch mag., enamelled grey; £19/10.

EAGLES.—Enfield 2¾h.p. twin, late 1912, 2 speeds, free engine, chain drive, footboards, nearly new; £29.

EAGLES.—L.M.C., 3½h.p., Bosch mag., spring forks, nearly new tyres and belt; £20.

EAGLES.—Any of the above can be had on approval, "Motor Cycle" deposit system, or deferred payments arranged.

EAGLES.—N.S.U. 2-speed gears to fit Triumph, Bradbury, J.A.P., B.S.A., Precision, Rudge, T.D.C., and other makes, the easiest gear on the market to fit, no alteration to motor cycle necessary; trade enquiries invited.

EAGLES and Co., High St., Acton, N.S.U. West London district agency. Tel.: 556 Chiswick. [X737

DOUGLAS, 1913, model O, for immediate delivery; exchanges; easy payments.—Below.

ROVER, 1913, 3-speed model, in stock; exchanges, easy payments.—Below.

ENFIELD, 1912, 2¾h.p., splendid conditon, Stewart speedometer, lamp, horn, and generator, tools, and spares, complete; £25, or easy terms.—Below.

SINGER, 1912, 3½h.p., free engine model, powerful and reliable mount, in good order; £29, or easy terms.—Below.

BRADBURY, 1912½, 2-speed, free engine, splendid order; £35, or easy terms.—Below.

ELCE and Co., 16, Bishopsgate Av., Camomile St., E.C. Avenue 5548. [2185

1907 Triumph, 1913 cylinder and piston, good order; £19.—Surridge, Ongar, Essex. [X672

1911 Douglas, good order; £24.—Surridge, Ongar, Essex. [X673

1910 Free Engine Triumph, good condition, little used; £28.—Surridge, Ongar, Essex. [X674

TRIUMPH, T.T., clutch, 1912¼, all accessories; £39.—293, Willesden Lane, N.W. [2116

CENTAUR-HUMBER, 2h.p., 1912, as new, spares; £20.—11, Sylvan Rd., Smethbrook. [2102

4h.p. Minerva-Chater-Lea, spring forks, B. and B., £10/10.—Oxley, 82, Caledonian Rd. [1999

MOTOR BICYCLES FOR SALE.

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PALMER'S Garage, Tooting.—3½h.p. 1912 Triumph, F.E., grand condition; clearance, £35.

PALMER'S Garage, Tooting.—3½h.p. Norton, 1912, with Bramble sidecar, Armstrong 3-speed; £35.

PALMER'S Garage, Tooting.—6h.p. 1912 Zenith and sidecar, very fine; £45.

PALMER'S Garage, Tooting.—3¾h.p. N.S.U., 2-speed, will take sidecar; £14/10.

PALMER'S Garage, Tooting.—2¼h.p. J.A.P., £6; 2¾h.p. Pebock, £5, clearance.

PALMER'S Garage, Tooting.—3½h.p. Minerva, very fine machine; great bargain, £14.

PALMER'S Garage, Tooting.—3½h.p. Alldays-Matchless, nearly new machine, splendid; £35.

PALMER'S Garage, Tooting.—3h.p. belt-driven 3-wheeler, running order; £8.

PALMER'S Garage, Tooting.—5-6h.p. Minerva and sidecar, very fine lot; £16.

PALMER'S Garage, Tooting.—3½h.p. Humber, 1911¾, grand solo mount, bargain, £25; also 4¼h.p. Fafnir Unecar, as new, £30.

PALMER'S Garage, Tooting.—4-5h.p. F.N., 2-speed, and sidecar; £25.

PALMER'S Garage, Tooting.—4h.p. Stevens, Bat, and sidecar, powerful lot; £12/10.

PALMER'S Garage, Tooting.—3½h.p. 1913 Rudge, T.T., grand machine; bargain, £35.

PALMER'S Garage, Tooting.—4¼h.p. Kelecom and sidecar; cheap, great bargain, £9.

PALMER'S Garage, Tooting.—Sole address, L. N. Palmer's Garage, Merton Tram Terminus, Tooting (20 mins. Victoria, 10 mins. Wimbledon). Motor 'buses 48, 49, and 66.—'Phone: 208 Streatham. [2161

2¾h.p. F.N., mag., B. and B., and 5-6h.p. Rex, £14 the lot.—14, Cranfield Rd., Brockley. [1956

1910 Clutch Triumph, just overhauled; £29.—2, Allen Villas, Lady Lane, Chelmsford. [2044

2¾h.p. Brown, Amac, h.b.c., Saxon forks, new tyre; £10.—Farmer, Woodbank, Erith. [2074

£4/5, Peugeot, 3½h.p. twin, requires cover, tube, piston; shed, £1.—13, Maple Rd., Anerley. [1916

DOUGLAS, standard, 1911, splendid condition; £26.—Simpson, 1, Peahen Buildings, St. Albans. [1924

ROVERS, all models, from £48/15, or £5/- monthly; deferred payments no extra.—Lamb's, below.

DOUGLASES, all 1913 models, from £48, or 55/- monthly.—Lamb's, below.

B.S.A.'s, all models, from £48/10, or 70/- monthly.—Lamb's, below.

HUMBERS, all models, from £35, or 40/- monthly; deferred payments no extra.—Lamb's, below.

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ENFIELDS, all models, from 50 gns., or 60/- monthly; no extra for deferred payments.—Lamb's, below.

TRIUMPHS, all models, from £49/5, or £3/3 monthly.—Lamb's, 151, High St., Walthamstow. [0716

IF You Want Bargains in 2nd-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet St., London. [X9705

MOTO-REVE, 1909, twin, 2¼h.p., good tyres, lamp, horn; £16.—Scoones, West St., Sittingbourne. [1944

2¾h.p. Triumph, perfect running order; £10.—Payne, Coombe Place, Horsell, Woking. [2086

1910 Douglas, speedy, light, footboards, tools, spares; £16, quick sale.—Dairy, Union St., Rochester. [X262

GRANDEX, 1913, 2¾-3h.p., 2-speed, free engine, new condition; £31.—10, Dover Rd., Walmer. [2056

3½h.p. N.S.U., 1908, free engine, good tyres; £18.—W. Wood, 11, Lemna Rd., Leytonstone. [2039

F.N., 2¾h.p., mag., tyres perfect, perfect condition; appointment.—80, Langham Rd., Teddington. [2072

ARIEL, late 1911, variable gear, free engine, excellent condition; £25.—Parton, 2, Berron Rd., Forest Hill, S.E. [1945

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RUDGE Multi, 1912, good order **£42**
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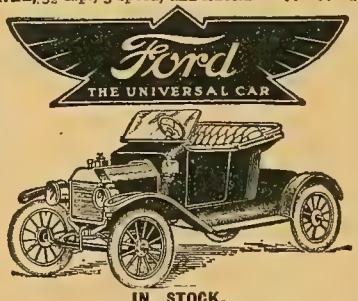
ARIEL, 3½ h.p., 3-speed, and sidecar **£38**



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WANDSWORTH Motor Exchange.—Great bargains.—1913½ Precision, T.T., nearly new; £32/10.—Below.

WANDSWORTH.—Matchless-Jap, 8h.p. twin, mag. 2 speeds, nearly new, unscratched; £45.—Below

WANDSWORTH.—Indian, late, 5-6h.p. twin, m.o.v. mag., re-enamelled, made new; £29/15.—Below

WANDSWORTH.—Rex, 1910-11, 5-6h.p. twin, mag. 2 speeds, good order; £28/10.—Below.

WANDSWORTH.—Enfield lightweight, 1910-11 2¾h.p. twin, m.o.v., mag., nice order; £18/10.—Below.

WANDSWORTH.—Douglas, 1911-12, twin, mag., 2 speeds, splendid order: sacrifice, £28/10.—Below

WANDSWORTH.—Rex, 1910, 3½-4h.p., m.o.v., mag. fine powerful bike; cheap, £15/10.—Below.

WANDSWORTH.—N.S.U. lightweight, 2h.p., mag., new tyres, nice little machine; £11/15.—Below.

WANDSWORTH.—F.N., 1909, 4½-5h.p., 4-cyl., mag. ready to drive away; £12/15.—Below.

WANDSWORTH.—N.S.U., 6-7h.p. twin, mag., 2 speeds, powerful sidecar machine; £23/10.—Below.

WANDSWORTH.—Minerva, 1910-11, 5-6h.p. twin m.o.v., mag., torpedo tank, perfect; £23/10.—Below.

WANDSWORTH.—Minerva twin; £12/15; exchanges.—Wandsworth Motor Exchange, Ebner St Wandsworth (Town Station). [X859

2½h.p. Cycle, low, vertical, 95/-; 2¾h.p. engine, 30/-; inspection invited. — Reynolds, Budebury Rd Staines. [199

3½h.p. Quadrant, F.E., Amac, h.b.c., accumulator Continentals; £12/10.—53, Northumberland St., Poplar. [203

MINERVA, 2¾h.p., B.B., new bearings, tyres perfect, low, ride away; £6.—481, Kingston Rd. Rayne's Park. [202

3½h.p. Rex, 2 speeds, free, 1912, fast, reliable, new tyres; £25 lowest.—Hydes, 16a, Delia St Wandsworth. [201

6h.p. Zenith, 1911, very good condition, speedometer, etc.; 35 gns.—Surbiton Lodge, Kingston-on-Thames. [205

HUMBER, 2h.p., 1912, free engine, in splendid condition and running order; £26.—Turner, Alexandra Rd., Hounslow. [X79

ZENITH-GRADUA, 3½h.p., 1911, perfect order £25.—73, Loughboro' Park, S.W. 'Phone Brixton 2042. [218

TRIUMPH, 1909, been very little used, first-class condition; £23.—Carruthers, 134, Olive Rd Cricklewood, N.W. [X82

TRIUMPH, 1909, 3½h.p., clutch, lamp, spares, little used, excellent condition; £26/10.—Waterworks, Wilmington, Dartford. [X26

TRIUMPH, 1912, F.E., bought new Easter, 1913, 3,000 miles, spares; £39.—A. C. Stephens, High St., Woodford Green. [198

5-6h.p. Overhead Valves Bat-Jap, special frame and engine, as new; £40.—Address, 91, Ladbroke Rd W. 'Phone: 130 Park. [198

DOUGLAS, all models, for immediate delivery; trade supplied.—Rey, 5, Heath St., Hampstead, and 173 Gt. Portland St., W. [966

TRUMP-J.A.P., 6h.p., 1913, new condition, unscratched; £45; seen after 4.—Quigley, 68, Marlboro' Hill, Wealdstone. [190

COME Over Here.—3½h.p. magneto Minerva: photo latest model, dropped frame; nearest £15.—2 Park Av., Golders Green. [204

RUDGE, T.T., 1912, very fast, excellent condition spares, £25/10; with Cowey, £28. — Remington Chalet, Sanderstead, Surrey. [201

REX, 1912, 4h.p., free engine, footboards, hand-starting, good condition; £25.—Apply (6 p.m.), Bull Hotel, East Sheen, Surrey. [192

DOUGLAS, 1913, P model, 2-speed, speedometer, etc. 600 miles only; £39, real bargain.—Apply, 12 Daleham Mews, Hampstead. [195

5-6h.p. F.N., 1911, splendid condition, Lucas lamp generator, Cowey, spares; £23; trial; getting on —Dove, Pinner Hill, Pinner. [X66

INDIAN, 1913, 7h.p., 2-speed, practically new; £6 no offer.—247, Vauxhall Bridge Rd., Victoria Station. 'Phone: 5486 Victoria. [X970

HUMBER, 1911¾, 3½h.p., 2-speed, free engine, good sidecar, beautiful condition; bargain, £33.—B 165, Hampstead Rd., Euston. [X66

DE DION, 2¾h.p., B. and B., low, fast, good tyres just overhauled; £10; appointment.—82, Par Hill Rd., Haverstock Hill, N.W. [191

PREMIER, 1912½, 2½h.p., free engine, splendid condition; reasonable offer.—R.F., Ranmore Park Rd., Kingston-on-Thames. [X93

TRIUMPH, 1912¾, clutch model, not done 600 miles as new; £38, genuine bargain.—228, Pentonville Rd., King's Cross, London, N. [216

DOUGLAS, 1911, perfect, new lamp, horn, Dunlop belt and Dunlop tyre, tools; £24.—Dane, 41, Cleveden Mansions, Highgate Rd., London. [212

OCTOBER 2ND, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND FORTY-NINTH CONSECUTIVE ISSUE.

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Night Riding.

NOW that the hours of daylight are rapidly decreasing more interest will be taken in subjects which deal with riding after dark. It has already been suggested that motorists should show an example to other road users by lighting up half an hour before the legal time—an excellent suggestion, as there is no doubt that more collisions take place in the twilight than at any other time, and it might be even advisable to adopt the same rule with regard to lighting lamps as at sea, where lamps are lit at sunset and extinguished at sunrise. If anything, there is more light on the sea than on the land, and if it is considered a necessary safeguard to show a warning light on shipboard from sunset to sunrise it should be equally advisable on the road, and it certainly imposes no hardship.

There, are, however, other items which might reasonably receive attention from the authorities, and one of the most important is that on tarred main roads it is extremely difficult when riding at night to see pedestrians and cyclists unless they happen to be wearing light coloured clothes. Now cyclists can safeguard themselves at all times by red rear reflectors, if they purchase those which are suitable and affix them correctly, *i.e.*, with lenses perpendicular to the road.

It is astonishing the number of stony-covered footpaths which run along main roads which are tarred. Under such circumstances it is quite natural for pedestrians to walk on the smooth road surfaces in preference to the path. If path and road were treated in the same manner pedestrians would use the footpath in preference to the road, and so leave the latter open for the faster traffic.

We have noticed when riding on tarred roads after dark that it is often difficult to detect the border line where the road merges into the grass edging or footpath as the case may be. When these roads are tar treated it should not be a difficult matter to lay a narrow strip of white road material down each side of the road which would prevent any possible chance of colliding with a raised footpath or kerb. On some roads the authorities have commenced to paint a white strip on the telegraph posts, which is distinctly sensible because these posts are nearly always tarred and practically impossible to discern against the background of a dark hedge or in any position where the light behind them is in any way obscured.

Hints and Suggestions.

WHILE on this subject of night riding we would particularly point out that the best plan to adopt in connection with acetylene gas lamps is always to keep them clean and well adjusted, filled with carbide and water, and when riding along if the water tap be turned on a few minutes before lighting up time arrives the gas generation can be quickly discerned by the scent, and then the lamp can be lit from the saddle by one of the patent strikers on the market. We suppose it is almost too much to ask motor cycle makers to agitate for the handy dynamo lighting sets with which cars are equipped, but we venture to think that more safe night riding would be done if small reliable dynamos were supplied in motor cycle form which would enable the road to be flooded with light at the mere turn of a switch. It may be recalled that in our article forecasting the possible improvements "Ten Years Hence," several experienced writers suggested that a very desirable feature of future motor cycles would be an electric lighting set, and in the light of recent developments on cars in the way of electric engine starters and change speed devices, an electric lighting set does not seem a great deal to ask for.

In writing the above we know that there are one or two dynamos on the market for lighting motor cycle lamps, but they are very much in the minority, yet we think it would pay some enterprising firm to put a small set on the market, particularly for sidecar combinations where the battery could be carried in a cupboard of the sidecar seat. The illuminating power of acetylene gas is too well-known to require any reference, and whatever is introduced in the electrical line, the gas generator and lamp will probably always be the lighter in weight if not in handiness. But to be able to switch on all lamps at a moment's notice and to be assured of a bright and fairly powerful light through a constantly charged battery, would quite recompense the user for any slight falling off in the penetrating powers of the light.

Anyway, we look forward to lighting our machines in this manner before many more seasons have passed, while for sidecar outfits we venture to predict an early date for the installation of a head light, sidecar lamp, tail lamp inspection torch and cigar lighter, all electrically lighted by a neat little dynamo installation.

A GOOD TESTING GROUND.

THOSE who desire to test their machines to the limit should follow the course of a run held recently over a most unusual course by the Birmingham M.C.C. The route to be taken is to Llanidloes, *via* Shrewsbury and Welshpool. Arrived there, the double journey to Machynlleth and back, *via* the mountain road—if it can be called a road—is followed.

The road is entered upon after crossing the River Severn to the right of the entrance of the town. The Contour Books describe the road as "An utterly impossible route, consisting of a series of precipitous hills, utterly unrideable up and highly dangerous down."

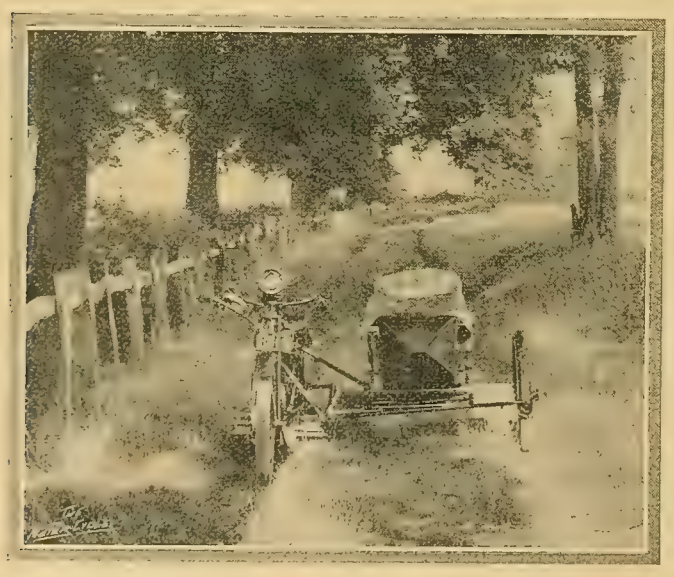
The road is said to be far more severe than anything there was in the much-talked-of Six Days Trials, and it is forty miles long. Shale surface, then rocks, then grass-grown track, watersplashes, precipices, and gulleys form the greater part of the stretch between Llanidloes and Machynlleth, and those in search of a really exciting ride should try this route. The run referred to above was the annual captain's run of the Birmingham M.C.C. Despite the terribly difficult course the event was won by a sidecar machine, viz., W. H Egginton, on a 6 h.p. Enfield and sidecar.

A sample of the roads in Wales traversed during the Captain's run, recently held by the Birmingham M.C.C.

72½ Miles in an Hour on a 10 h.p. Singer.

ON the morning of the 24th of September, the Singer cycle car, driven by Haywood, made an attempt on the nine hours' record. Unfortunately at the end of fifty laps a tappet roller gave out, owing to being over-hardened, and the vehicle had to be withdrawn. It had, however, by then singularly distinguished itself. The fifty miles were covered in 41m. 28⅗s., 72.33 miles an hour previous best 47m. 50⅗s. One hundred miles were covered in 1h. 22m. 49⅕s., 72.44 miles an hour previous best performance 1h. 37m. 51⅕s. In the hour 72 miles 976 yards were covered, which means that the magnificent speed of 72.55 miles an hour was averaged. The previous best performance in the hour was 62 miles 1,136 yards. All the previous best performances mentioned above were accomplished by Haywood on the 10th of May this year. Haywood's fastest lap on Wednesday was his nineteenth, which he covered at the rate of 74.12 m.p.h. The vehicle was measured and weighed after the performance, and everything was found to be in perfect order. The chassis weight with tanks and with oil in the crank case was 660 lbs., or 12 lbs. under the limit. Palmer tyres were used, which weigh 1½ lbs. per tyre more than the covers used by Singer's on previous occasions. The Singer engine is of 1,096 c.c.

It is interesting to compare these speeds with other class records established at Brooklands. The hour record in the 500 c.c. motor cycle class still stands to the credit of G. E. Stanley, who on the 15th of October, 1912, covered 67 miles 782 yards in the hour on his 3½ h.p. Singer. The twin 1,000 c.c. record is not so impressive, in comparison, as 70 miles 1,388 yards still stands to the credit of the late A. J. Moorhouse on a 7 h.p. Indian.



A Colonial model Rudge sidecar which has a clearance under the chassis of 10in. The track is 4ft. 8½in; further, it has four point attachment. The one illustrated is destined for Canada.

OCCASIONAL COMMENTS
by "IXION"

Mixture Detectors.

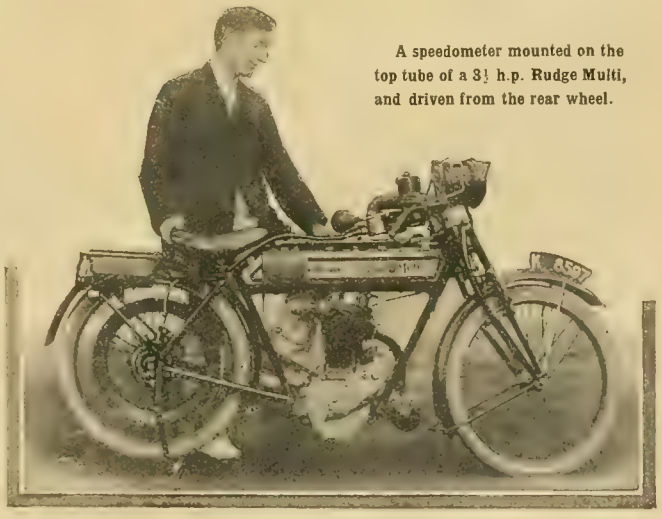
The E.I.C. quartz window sparking plug adapter, which is intended to be used as a mixture detector on the basis of the colour of the flame of the explosions, should have a good sale. It is similar in principle to the Calvert quartz sparking plugs, which were sold as far back as 1903. But its manufacturers have evidently forgotten that the sparking plug aperture on many modern cylinders comes directly under the tank, and so fails to afford sufficient clearance for their device to be used. I hope they will bring out an alternative model with an elbow in it, for the quartz cylinder window is of real value in tuning up a carburetter.

Candour and the A.C.U. Judges.

I thoroughly agree with "Sparks" that the A.C.U. judges are either too timorous or too modest: possibly they remember the hot water into which their route cast them, and shun further unpopularity such as a little frank criticism might bring: possibly they have crept into their shell, and fancy that the motor cycling public is no longer interested in the facts they have elicited and the opinions they have deduced from those facts. In either case they are wrong: they have lost—or, may we say, merely postponed—a golden opportunity of rehabilitating themselves. Their report might have been composed by a perfect diplomat with the idea that it should be read to a grand assembly of the Society of Motor Cycle Manufacturers, and exercise a most mollifying effect upon them. As it stands, it is not worth the paper it is written on. It tells us a great many things we knew long ago—"record entry," "very stiff course"—"British team deserve hearty congratulations," and much similar flapdoodle. But at the end seven headings aroused faint promise of really valuable information, but here we find the briefest paragraphs of this very precious document ruined by a pusillanimous anonymity.

Speedometer Drives.

It is evident I am not a voice crying in the wilderness when I draw attention to the noise and rapid wear inseparable from the naked driving gears located at the front hub, for the paragraph has produced quite a bulky correspondence. I illustrate a Rudge belonging to Mr. F. R. Stuart, of Blundellsands, which has its speedometer neatly mounted on the top tube (as I recommended) by means of fittings sold by Mr. G. Wray, of Southport, Hugh Gibson's quondam riding associate. So far as this machine is concerned, I commend the dial fitting only, and not the rear wheel drive, though those who like a rear drive can obtain the Stewart speedometer equipped for the purpose, not to speak of Mr. Wray's fittings for adapting other makes. But, personally, I see little to choose between the rear and front wheel drives so far as silence and durability of the gears are concerned. Indeed, the rear wheel position is the worse in these respects, besides offering possible inconveniences when the wheel has to be removed or adjusted, and its chief merit is that it lends itself better to top tube dial fitting. Since I wrote my notes of September 18th it has occurred to me that a silent encased and self-lubricating drive for a top tube dial might well be arranged from the standard magneto transmission. Existing magneto chain cases are normally of the dumb-bell pattern. If they were arranged to include a gear wheel for driving the speedometer the case would either have to be altered to a banjo shape, or else one end of the "dumb-bell" would have to be made deeper. If one of our large factories, with an output of 5,000 or 10,000 machines per annum, were to incorporate such a provision in the magneto drive, any speedometer maker would gladly standardise an instrument to suit, and the machine would not be disfigured from the standpoint of those riders who do not use speedometers, for the opening left for the shaft and sheath in the top of the magneto chain cover could be neatly closed by a small cap. The plan would give us a silent and durable drive in conjunction with the top tube dial position: and the slight inevitable reduction in the diameter of the two pinions would be more than compensated by the protection and lubrication provided, while a slight increase in the width of the teeth could easily be arranged. I think this plan preferable to my original suggestion of taking the drive off the counter-shaft gear box, both because it is instantly applicable to every type of machine, and because the gear box is usually quite large enough to be unsightly without any increase in bulk. The only thing is the trip recorder would go up with a bang when using the free engine.



A speedometer mounted on the top tube of a 3½ h.p. Rudge Multi, and driven from the rear wheel.

"Ailette" on Freak Gears.

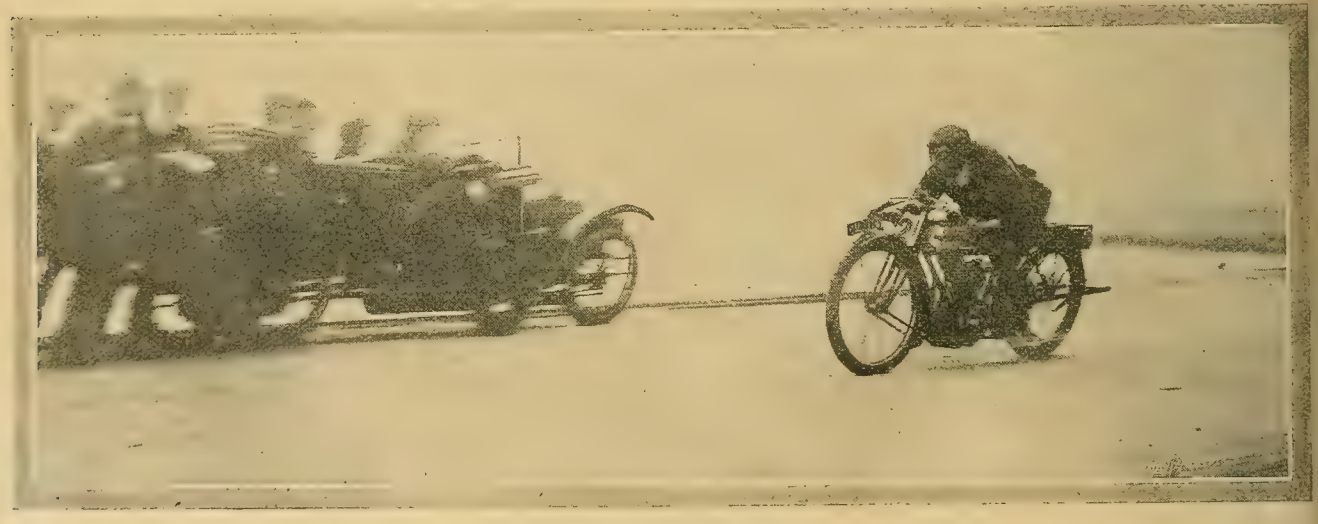
My colleague "Ailette" is inclined to differ from one or two members of the staff on the question of freak gears, and his interesting little note on p. 1210 of September 18th raises several very valuable points. He establishes the fact accepted by everybody except the trade that the lowest gear of any motor vehicle, be it bicycle, cycle car, or motor car, should be a true emergency gear, capable of enabling the engine to extricate the vehicle from any position, and of enabling the owner to visit any beauty spot in the country. So far, so good. The principle is thoroughly sound, and is applauded by every sensible owner, though there is only one motor car in the world, viz., the Stoewer, with a bottom ratio of 24 to 1, the makers of which can be said to have grasped the point at all completely. But this contention of "Ailette's" does not affect the Six Days or other controversial freak trials by a hair's weight. For all these trials manufacturers fit gears which they never dream of supplying to the general public. In such trials one may find 3½ h.p. three-speeders with special hubs giving an emergency ratio of 16 to 1: sidecar outfits with a bottom ratio of 18 to 1; two-speeders with ratios of 5 and 12 to 1: cycle cars with a low gear of 15, 16, and 17 to 1: and so forth. If we compare the standard models, the 3½ h.p. has an extreme gear of perhaps 13 to 1, at which the engine pulley is so small that the belt will not grip except on the level: the sidecar has an extreme of probably 11 to 1, the two-speeder is geared 5 and 8½: and the cycle car goes no lower than 12 at the outside. The mechanical contrivances by which these emergency gears are procured may range from special hubs, gear boxes, and sprockets to special axles. In most cases the makers possess but three or four samples, and though they will perhaps loan a sample to a favoured amateur for the purposes of an odd competition or two, they will very seldom sell them outright. The reason usually is that these special gears are mechanically unsound—some portion is so small that the wear is rapid, and prolonged satisfaction would be impossible, although the device may last a thousand miles in skilful hands.

Freak Hills cause Freak Gears.

I think my point should now be clear. If the "freak hill policy" had the effect of compelling makers to standardise a true emergency gear on all the machines they sell to the general public, we should consider very seriously whether this policy were not to be retained and applauded, no matter how much flukiness it imported into our fixtures. *But it has no such effect. It does less than nothing towards the standardisation of emergency gears.* On the contrary, it breeds temporary freak gears for competition purposes only, and it leaves the touring machine sold to the general public just exactly where it was, so far as emergency gear ratio is concerned. This is why I prefer my own terminology and the phrase "freak gear" to "Ailette's" phrase "emergency gear." None the less, I am heartily at one with him in urging that every variably geared motor bicycle and cycle car should possess a true emergency gear.

Weights in the A.C.U. Trials.

I can never read a trials weight list without fiendish chuckles. This year is no exception. In the 350 c.c. class I note that seventeen out of eighteen machines exceeded 200 lbs., and that seven of these "medium-weight tourists" scaled 2 cwt. or over. In the 3½ h.p. class the average weight, all on, ready for the road, is considerably nearer 300 lbs. than 200 lbs. 300 lbs. comes near being the minimum for a 750 c.c. machine, and if you fancy the comfort provided by 3in. tyres and rear springing, together with an engine capable of propelling so luxurious a specification, you must go to 3 cwts. Personally, I should have very little objection to these ultra-heavy machines were it not for the strain and labour implied in lifting them up on to their stands. I only know one stand which is really suitable for such leviathans, and I am not sure that it is still made: it consisted of two loose crutch legs, hinged to the rear forks, and had the merit of propping up the machine if one leg was dropped, without the unfortunate owner being forced to heft the whole three hundredweight into the air whenever he wished the machine to support itself.



A CURIOUS SNAPSHOT EFFECT.

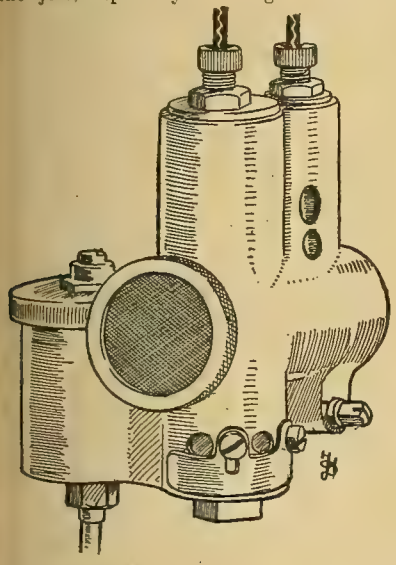
The photograph shows S. Crawley (Triumph) crossing the finishing line at the Brighton Speed Trials at over a mile a minute. As will be seen a slight movement of the camera has had the effect of showing the speed-man almost stationary, while the car and spectators by the roadside seem to be in full flight.

A NEW BINKS CARBURETTER.

Tested to give over 150 m.p.g. at 20 m.p.h. with a 500 c.c. Engine.

FROM his long experience of carburation, Mr. Charles Binks has evolved a very simple and effective automatic carburetter, which gives a truly wonderful petrol consumption without sacrificing either acceleration or power produced. We make this statement after a close study of the device and also a conclusive road test.

The principle on which Mr. Binks has been working is that a large proportion of the petrol in a daily run is lost by being shaken out of the jet by road vibration, and serves no useful purpose in propelling the machine. He arrived at this conclusion after protracted road trials with a glass-sided carburetter, by which means it became plainly visible that, whatever the petrol level, much unnecessary petrol was squirted out of the jets, especially on rough roads. It

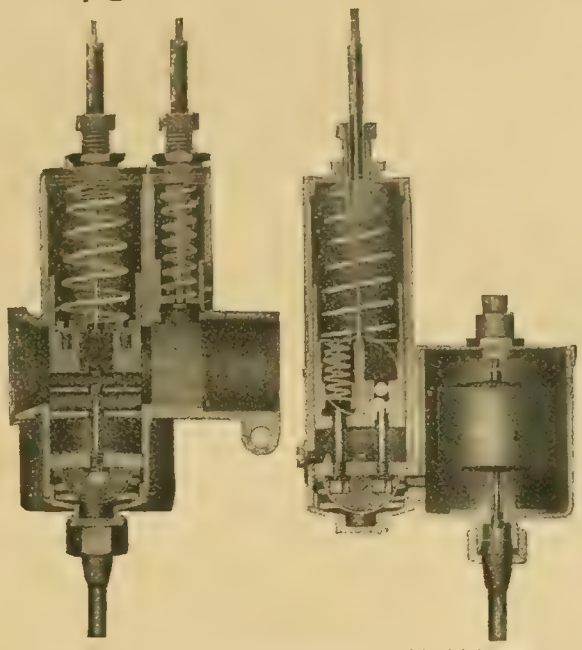


The Binks carburetter. The main air adjustment by means of a spring clip is visible.

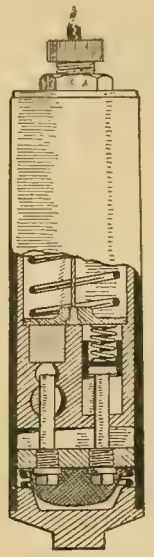
is obvious, then, that to save this wastage the jet or jets must be entirely shut off when not in action, such as when running downhill with the throttle shut or when running on the pilot jet.

A Pilot Jet Adopted.

In the new design two jets are retained, one being a small pilot jet for slow running and the second being a larger jet, which comes into action at speeds exceeding about 20 m.p.h. By a clever arrangement of varying choke tubes, a very progressive action is obtained, and if the throttle is gradually opened it is hardly possible to tell when the second jet comes into action. When the throttle is shut, both jets are sealed by pads of "bull neck," a species of leather, but as soon as the barrel is slightly raised the pilot jet is uncovered, and is surrounded by a small choke tube formed by a hole in the side of the solid barrel. On further opening the throttle a larger hole is opened up, and the extra air thus admitted is compensated for by the increased suction caused by the higher engine speed. Up till the time when the barrel itself begins to uncover the inlet port proper, the main jet remains sealed by its pad. This is brought about by the main jet pad being in the form of a brass covered piston mounted in a guide and held down on the jet by a spring. (This may be clearly seen in the part sectional sketch shown herewith.) As soon, however, as the main port begins to open, the small piston reaches the end of its guide, and is therefore raised with the barrel, thus uncovering the main jet, further throttle opening admitting more air in proportion.



Sectional views of the new Binks carburetter. The jet dampers are clearly shown.

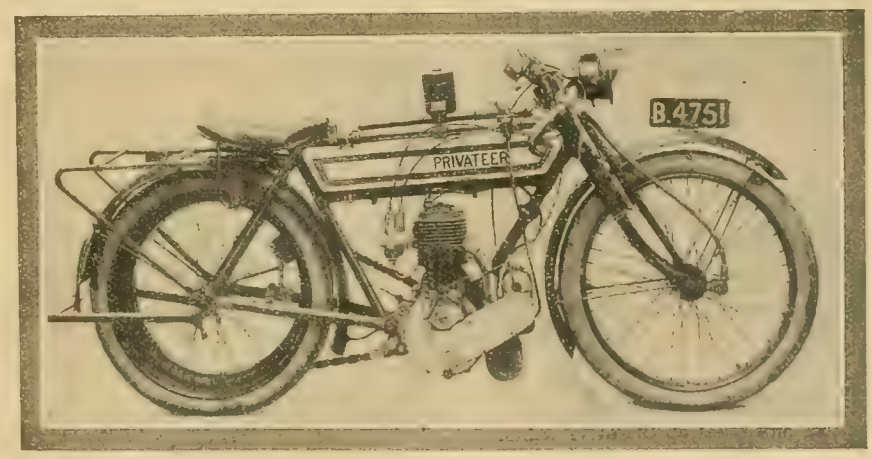


Section through throttle barrel of Binks two-jet carburetter showing main jet shut off.

Cold Air Inlet.

On the engine side of the carburetter is mounted a hand controlled air valve. It must be understood that the carburetter is automatic in action, and that this air valve is used as a correcter for atmospheric conditions or to allow cold air to pass into the engine when running down hill with the throttle shut. The valve itself shows evidence of the careful design which characterises the carburetter, for Mr. Binks, realising that a piston valve will not remain airtight after prolonged use, uses the sides of the valve for uncovering the extra air ports only, and prevents air leaks when the valve is shut by a coned face at the bottom of the piston.

Both jets are easily accessible by removing a cap below the jet chamber, inside which is a large filter to prevent any grit which may pass the float chamber reaching the jets. The float chamber is of the usual type, the needle being of the pull up type with the valve working in a



The motor cycle used for carrying out the tests of the Binks carburetter referred to on this page.

A New Binks Carburetter.—

detachable, and, consequently, easily renewable, seating. A neat snap-on lid is used.

Results of our Road Tests.

After a thorough examination, we undertook a road test, and, on reaching open country, carefully measured exactly one gill into a special test tank, and started on a consumption trial. The machine was driven at an average speed of 20 m.p.h. over the main London-Coventry Road, and accomplished exactly 9.9 miles on the gill, giving a consumption of 157.4 m.p.g.—a very creditable performance. The machine was fitted with a Fafnir 85 × 88 mm. single-cylinder engine, with a fixed gear of just below 4⅝ to 1, and, except for dropped handle-bars, was in full touring condition, with wide mudguards, lamp, horn, speed indicator, carrier, etc. We rode the machine home at varying speeds to prove that the jets were not too small for touring purposes, and found that, though the machine would fire evenly at a fast walking pace, it would accelerate smoothly to approximately 50 m.p.h. Mr. Binks assured us that, with racing jets, the machine would do well over 140 m.p.g. at the same average speed, and was prepared to prove his statement by a further test, but on this occasion we had no further time at our disposal.

ZENITH 1914 MODELS.

A Counter-shaft Gradua Gear Affording Wider Ratios.

Messrs. Zenith Motors, Ltd., intend to market three distinct types for next season, all of which will be twin-cylinder machines—the 3½ h.p. 70 × 64½, the 6 h.p. and the 8 h.p.

The chief innovation consists of a new counter-shaft drive. The power is transmitted from the engine to the counter-shaft by means of a chain, and entirely enclosed and running in oil is a large cone clutch, operated by a pedal. On the same shaft on which the larger chain wheel is carried, the pulley, which is 7in. in diameter, is also fitted, while on the opposite side is a kick starter, consisting of a chain and free wheel, which are entirely enclosed. The whole mechanism is swung on a pivot at the top, and attached at the bottom to a slotted bracket so that the driving chain may be easily adjusted. Gear ratios ranging from 4 to 1 to 11 to 1 may be obtained.

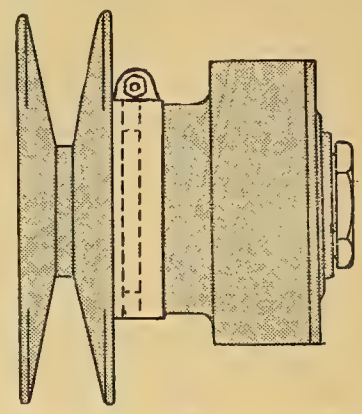
The same frame is used for all models, while each model will be sub-divided into two types, one without the counter-shaft drive and the other fitted with it.

A Remarkably Smooth Clutch.

All Zenith specialities, such as the Gradua gear, and the quickly detachable back wheel will be retained. Mr. Barnes demonstrated the efficacy of the new clutch to us in the course of a short drive round Weybridge, and on several gradients, varying from 1 in 20, to 1 in 9, he stopped and restarted the sidecar combination without the slightest falter, and on several occasions turned right round on the middle of the hill and restarted. The clutch is delightfully smooth in action, and takes up the drive without the slightest shock.

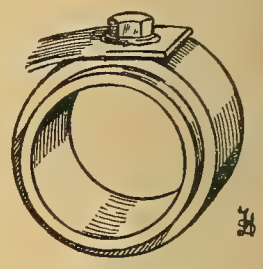
TIPS FOR USERS OF PHILIPSON PULLEYS.

One of the only troubles which is likely to befall users of the wonderfully simple Philipson governor pulley is the breakage of the spring controlling the action of the governor. Though an unusual occurrence, one or two have snapped at the point at which the inner end is affixed to the central collar, but the cure is quite simple. The collar as sent out on Philipson pulleys up to date is quite circular, but if a flat about ½in. wide is filed on the collar so that the end of the spring is anchored to a flat surface, no trouble should be experienced in this direction. This tip should be more valuable to users of racing governors than the touring type, as the former have stronger springs.



Suggested clip for Philipson governor pulleys to exclude dirt.

Now that winter is approaching and muddy roads will soon be the order, a simple device to exclude mud and dirt is advisable to bridge the space between the rubber buffer and the governor. Users will have noticed that mud mostly collects at this point, and as the all important screw for the floating flange is adjoining, the necessity for the exclusion of foreign matter is apparent. Oil, too, has a habit of collecting grit, and soon the thread would be worn. The suggestion is to fit a band of strip tin over the rubber buffer, wide enough to enable one side to project sufficiently to bridge the recess. A clip similar to those used for water joints of car engines is admirable and will be found to keep the interior of the pulley quite clean.



To prevent the spring breaking where it is anchored, file a flat on the collar as shown.

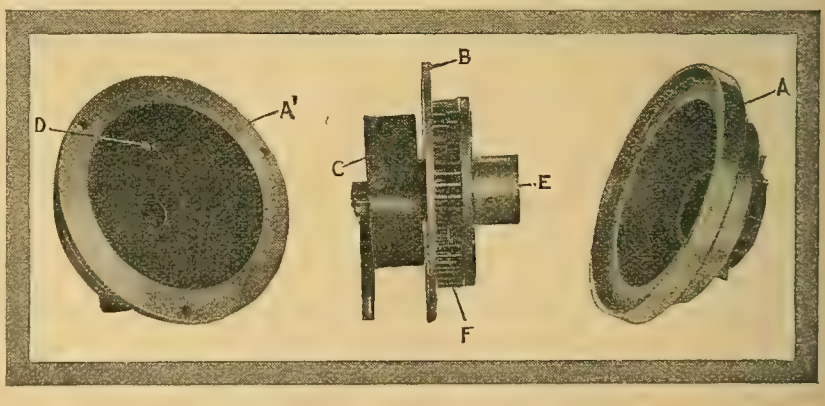
THE "KILSHOCK" TRANSMISSION GEAR.

This is a device made by Messrs. Oppermann and Company, 13, Albemarle Street, Clerkenwell Road, E.C., which is designed to render chain transmission smooth and at the same time to obviate loss of power through any slip.

The accompanying illustration shows the device taken to pieces, and it will be noticed that it consists of an outer shell A A¹ carrying the engine sprocket, a plate B attached to which is a boss carrying a groove, into which the end of the coil spring C shown in the photograph is fitted. The other end of the coil spring is attached to a spindle, which engages with the hole D in the shell A¹. The two outer shells are fastened by screws on to the central plate. The inner sleeve E, which runs through the sprocket shaft, is keyed on to the engine.

The only connections, therefore, between the sprocket and the engine are through the spring and the differential gearing F, shown in the illustration. The object of the spring, of course, is to take up the shock, and of the differential gear to give up the drive the moment the shock is relaxed.

The device has been well tested, and has been proved to be satisfactory. It is made of the best quality steel throughout, and is intended for use on motor cycles and cycle cars which depend on chain drive for propulsion.



The "Kilshock" device for fitting to chain transmission.

Question & Reply

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply.

Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

South Wales to North Devon.

I am intending motor cycling to Combe Martin, North Devon, and should be obliged if you could let me know the best route from Monmouth, trying to avoid towns such as Bristol, also the Porlock and Lynmouth to Lynton hills. My mount would be a single-geared clutch Triumph, and I should like to do the journey in a day. What should you estimate the mileage to be?—F.W.P.

Your best route would be as follows: Monmouth, Gloucester, Stroud, Nailsworth, Dunkirk, Doddington Ash, leaving Bath on the right, and continue to Radstock, Wells, Glastonbury, Bridgwater, Taunton, Milverton, Bampton, South Molton, Barnstaple, to Combe Martin. The distance is about 150 miles.

Welding a Cracked Cylinder.

My 3½ h.p. engine has lost power lately, and I have discovered a small crack on the exhaust valve seating. Is this serious? Is it likely to become worse? Is a new cylinder necessary, and, if so, shall I have to have a new piston, too, to ensure a proper fit? My friends tell me that the welding process is not satisfactory.—J.S.H.

Your best plan will be to get an expert welder's opinion on the crack. Sometimes these cracks increase, and then, of course, the engine loses compression. Sometimes they can be repaired, and this again is a matter for the expert welder to decide. Generally speaking, it is possible to have satisfactory repairs of this description carried out by welding, but it is not a cheap process, and must be done properly.

Running on Benzole.

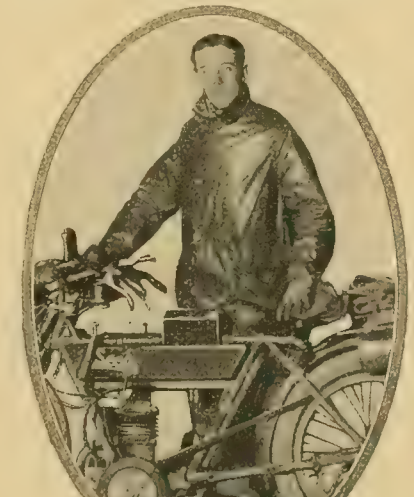
I have a 1913 three-speed Triumph and sidecar, with which I leave for a holiday in a day or two. I had intended trying benzole, but have just been informed that there is danger of burning and damaging the valve pockets and interior of the engine. I cannot afford to run any risk of damaging my engine, with which I am quite satisfied, only I find the cheapness of benzole hard to resist. Please advise as to the correctness of what I have been told.—S.J.M.

In using benzole there is no danger whatever of burning or damaging the valve pockets and interior of the engine. Sometimes the valves are covered with a fine deposit, but it does not affect the running of the engine, and is purely on the surface. Provided your carburetter will take benzole it is quite to be recommended, but possibly you will have to make slight adjustments to give a larger air supply.

Tyres for High-powered Sidecar.

The tyres on my 6 h.p. motor cycle and sidecar have worn smooth, although I have only run them 2,000 miles; also I am having punctures in sidecar and front tyres. Should these have worn down so quickly? Would it be advisable to fit a Lomax non-skid band on rear wheel? Are these quite satisfactory and also easy to put on and take off? Would it be better to have tyres retreaded or buy new ones, as I have noticed some of your correspondents have had very poor results from retreaded covers?—CEDAX.

If the sidecar is properly aligned the tyre should not wear down so quickly. You might try fitting a non-skid band on the driving wheel tyre. This, we understand, is satisfactory and easy to attach. Some tyres stand retreading very well; others will not. Retreading is sometimes rather a lottery. Your best plan, we think, would be to fit voiturette tyres for the sidecar combination.



A. Milner (2¾ h.p. Levis) who successfully completed the Birmingham to Carlisle and back 24 hour run, climbing all hills (including Shap Fell) with a single gear.

Two Types of Twin Engines.

I should be much obliged if you could let me know the advantages of the 90 mm. × 77½ mm. twin J.A.P. engine, with side-by-side valves, as compared to the 85 mm. × 85 mm. twin engine of the same make, also with side-by-side valves. How do they compare in the following points: (1.) Slow running when free. (2.) Petrol consumption. (3.) Carbonisation of cylinder and piston heads. (4.) Maximum speed. The machine would be used with sidecar, passenger, and luggage.—N.E.A.

The 90 mm. × 77.5 mm. engine is of considerably later design than the 85 mm. × 85 mm. twin. It runs more quietly, and is more controllable and smoother running. The petrol consumption would, we imagine, be about the same, and there would be no difference as regards carbonisation. The maximum speed would be about sixty-five miles an hour solo, and about fifty or fifty-five with sidecar, under favourable conditions.

Carburetter Needs Adjustment.

Will you kindly explain the following point? My new twin-cylinder 5-6 h.p. J.A.P. ran splendidly for 1,000 miles, the ignition at that time being fully retarded. Something fouled the point of the carburetter needle, and I had a new one fitted. Since then it drives with full air as before, but I must advance ignition fully to obtain a speed of 30 m.p.h. The plugs soot up about every 100 miles. Once, on being started, it caught fire. I never need lessen the air supply, and if I remove the gauze from the air intake the machine runs very badly. I can, of course, open the air slide wider than the throttle, but with the gauze off the engine backfires badly.—T.

When the new needle valve was fitted probably the petrol level in the carburetter was upset, and we should advise you to test this. The fact that the plugs soot up is probably due to too much oil in the crank case rather than the carburetter adjustment. Machines are apt to catch fire if the magneto timing wheel has slipped. Perhaps this is the case with your machine. With the spark advance lever half retarded, the points of the contact breaker should have just begun to break, when the piston is at the top of the compression stroke. See that your carburetter (jet, air inlets, etc.) is clean and free from air leaks, which cause bad starting, loss of power on hills and spoil an otherwise slow running machine.

A Two Days Sidecar Run.

Would you kindly tell me the best route to take from Darlington (Co. Durham) to Blaenavon (Mon.) with sidecar combination?—W.R.

Your best route would be as follows: Darlington, Northallerton, Boroughbridge, Wetherby, Aberford, Ferrybridge, Doncaster, Worksop, Mansfield, Nottingham, Loughborough, Leicester, Coventry, Kenilworth, Warwick, Stratford-on-Avon, Evesham, Tewkesbury, Gloucester, Ross, Monmouth, Abergavenny, to Blaenavon. This should take you two days.

A Question of Licence.

I recently bought a motor cycle at an auction sale. It is a 1½ h.p. Werner, which I have just had put into running order. Would you kindly tell me how to register it and what licence I shall require? I want to run it with a carrier for delivering goods. Can I put my name on the tank and ride it with only a driver's licence?—W.L.

Any policeman will tell you the local licensing authority. You have to apply to them (or to any other registration authority you like) for a registration number, fill up a form, and pay a fee of 5s. You cannot be exempted from the local taxation licence unless the machine is constructed to carry goods or merchandise, and is solely and entirely used for this purpose, and never on any occasion used for your own pleasure.

Advice to a Beginner.

I notice that you are willing to help with information and advice intending motor cyclists among your readers. I have been reading "Motor Cycles and How to Manage Them," and it gives a general impression that for a beginner a single-cylinder, medium power machine is desirable. My motor cycling friends, however, do not seem to think this so. I hope before long to take up motor cycling, and I would like to get a twin-cylinder machine about 7 h.p. I should want later to fit a sidecar, and would like to be able to maintain a good speed in very hilly country. I would be prepared to take considerable trouble, and to go thoroughly into everything from the start, and, of course, to take all possible care. This being so—(1.) Could not a beginner with average commonsense start with a higher power, twin-cylinder machine? (2.) Do you consider it very important that a beginner should learn on an older machine before buying a new one?—C.C.S.

(1.) We still maintain that a low-powered machine is best for a beginner, but for a man of intelligence, who can quickly master his machine, high powers do not present much difficulty. The great thing to do is to become thoroughly accustomed to the machine before running it fast, but the average beginner nearly always starts motor cycling with the idea that the machine will get out of hand and he will not be able to stop it. (2.) Naturally we give this advice so that a beginner would have less chance of spoiling things in the case of an old machine than with a new one.

The Midlands to North Wales.

Please let me know the best route, with approximate distance, from Nuneaton to Llanfairfechan (North Wales).—C.A.B.

Your best route would be as follows: Nuneaton, Atherstone, straight along Watling Street, the Holyhead Road (which is signposted by the Royal Automobile Club), *viâ* Shrewsbury, Llangollen, and Corwen, as far as Bettws-y-Coed, where branch off for Llanrwst and Conway, seven miles after which you reach Llanfairfechan. The distance would be approximately 140 miles.

Carbon in Base Chamber.

(1.) The back wheel of my tricar has $\frac{3}{16}$in. spokes, which break at the hub of the wheel or an inch above it where the spokes cross. I have tried the makers, spoke manufacturers and wheel makers and cannot get $\frac{3}{16}$in. spokes; the size seems unusual. (2.) I have taken down my twin-cylinder engine, and find two black marks on the third piston ring in the front cylinder and the same on the second ring of the back cylinder. There was also a lot of carbon on the piston heads and also black carbon deposit all over the inside of the crank case. The engine has been running and firing perfectly. What is the cause of the extra deposit and dirty crank case? The rings are tight, and the slits were not in line.—J.O.

(1.) We think you must be labouring under a misapprehension with regard to the size of the spokes. $\frac{3}{16}$in. are entirely out of the question and are never used. They are far too large, and therefore it is only natural that you have difficulty in procuring them. The usual size is 12 gauge, or 10 gauge for extra heavy ones. Any garage or motor cycle agent would be able to supply you with these. (2.) With regard to the trouble with your piston rings, it is very obvious that gas is leaking past the rings, which would account for the black marks and also for the presence of carbon in the base chamber, though it is very unusual for this to be found there; of course, the mere fact of burnt oil blowing past the rings is bound to keep the base chamber in a dirty condition. The remedy is to fit new piston rings and thoroughly clean the under side of the piston, and also be sure, when fitting the new rings, that the carbon is completely cleaned out of the ring-slots.

Shrewsbury to Bradford.

Will you kindly let me know the shortest and best route between the above towns, missing all towns possible, particularly Manchester; also the distance?—A.C.P.

Personally, we should advise the following route: Shrewsbury, Wem, Whitchurch, Tarporley, Warrington, Wigan, Preston, Whalley, Clitheroe, Gisburn, Skipton, Ilkley, and Bradford. This is not the most direct, but it is certainly the road on which you will meet the least traffic. The distance is approximately 141 miles.

Starting Difficulty.

My new mount, a 6 h.p. twin, is very difficult to start when cold, and the other day I had rather a fright, for on trying to start (handle gear counter-shaft) the charge blew back through the carburetter and it burst into flame. To what do you attribute this, and is it a rare occurrence? Can you give me any help regarding difficulty of starting?—C.B.M.

Difficult starting is nearly always due to too much air at slow speeds, caused either by mal-adjustment of the carburetter, or air leaks in the carburetter or inlet pipe unions. The backfire might have been due to the inlet valve sticking and not closing properly. See that the stems of the valves are free in their guides. They may require a little rubbing with emery cloth. Smear a little graphite on the stems before replacing the valves.

EXPERIENCES WANTED.

"G.G.G.F." (Parkstone).—Humber, 1911, 3½ h.p. two-speed, with sidecar. General reliability, hill-climbing, and average consumption.

"W.R.B." (Cardiff).—2½ h.p. single-gear Wolf, also Auto-wheel.

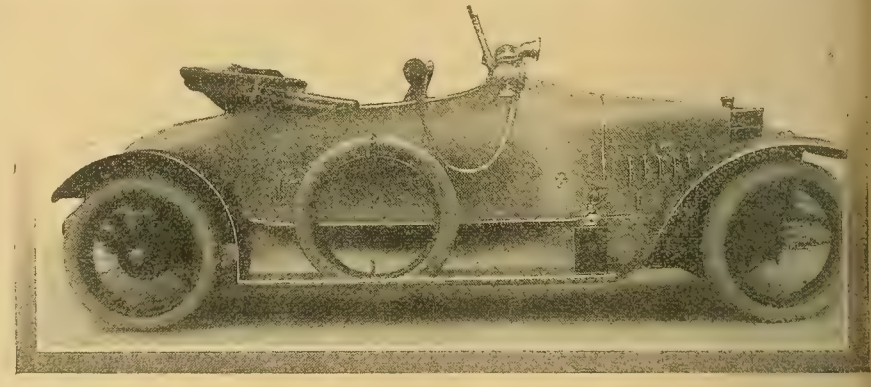
"C.W." (Norwood).—General experience of the Auto-wheel.

"G.H." (Ripon).—Most suitable belt for Brampton gear.

"D.J.R." (Paddington).—3 h.p. Enfield. Efficiency of lubrication system, speed, maintenance of power, and general efficiency.

"G.W.S." (Brandon).—1912 2½ h.p. Torpedo-Precision.

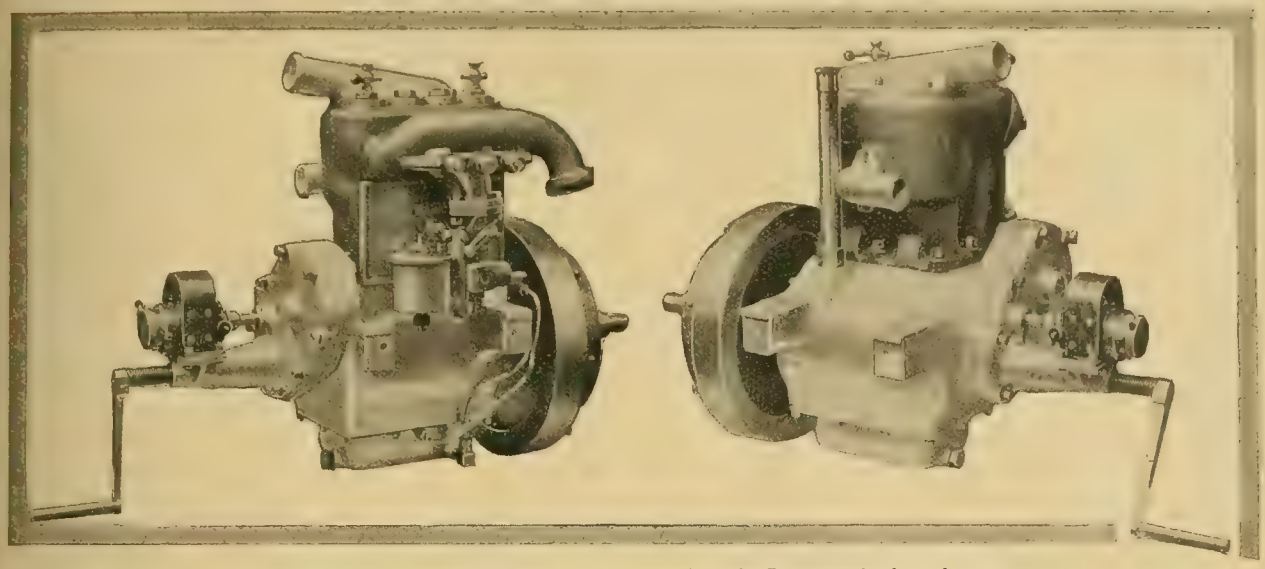
"D.H." (Sidcup).—Benzole with 3½ h.p. Triumph (1910 preferred). Consumption, speed, and hill-climbing.



The above smart looking Wilton cycle car, which has an attractive body finished in blue, was noticed recently at Brooklands.

The Dorman Two-cylinder Engine.

Single Piece Cylinder Casting. 9 b.h.p. at 1,500 r.p.m.



Both sides of the twin-cylinder (80 mm. × 108 mm.) water-cooled Dorman engine for cycle cars.

IT will undoubtedly come as news to many readers that the firm of W. H. Dorman and Co., Ltd., Stafford, have engaged in the manufacture of internal combustion engines for upwards of twelve years, and designed and constructed during this period engines to the order of several different firms who market motor vehicles for both pleasure and business purposes. Recognising the demand that there is for a motor for use on small cars and cycle cars they have decided to manufacture and sell under their own name the twin-cylinder water-cooled engine, which we illustrate. We recently had an opportunity of examining several of these engines in process of manufacture and test, and have no hesitation in saying that any firm deciding to adopt this engine will be thoroughly satisfied with Messrs. Dorman's products.

The works are large and comprehensive, and in addition to manufacturing petrol engines the firm construct a large number of light machine tools used by motor manufacturers. They are, therefore, particularly well equipped for the production of their own engine.

Features of the Dorman Engine.

The accompanying illustrations show both sides of the twin vertical engine, which has a bore and stroke of 80 × 108 mm. = 1,098 c.c. The two cylinders are cast together, and offset from the crankshaft, the water jackets being of generous proportions, which enable the engine to keep particularly cool. The firm have their own foundry, and are, therefore, well equipped for turning out clean cylinder castings exactly to their own ideas, and of a uniform construction. The pistons are specially constructed with a view to good compression; at the same time provision for the oil distribution over the cylinder walls has been well carried out. The rings are duplex, *i.e.*, there is a deep groove in the top of the piston into which is sprung a very wide eccentric piston ring. Over this are placed two other rings of exactly half its width. The latter are not eccentric. Their purpose is to make a perfect compression joint, the inside rings supplying the spring. There is no bottom ring, but a sleeve is provided to prevent piston rock, and between this sleeve and the rings is a recess with a sharp edge which acts as a scraper, and always carries a body of oil in it to lubricate the cylinder walls. If the crank case be filled up with oil we are assured that the engine will not smoke, neither will the oil exude. The gudgeon pin is held by a set screw provided with a certain taper which keeps it firmly in position and yet enables it to be readily removed when required.

A Tappet Guide Refinement.

The valves are interchangeable, and equal in diameter to half that of the cylinder bore. The tappets are adjustable, and a little refinement in the tappet guides enables oil to travel up one side of the guide, fill the well at the top, and return to the crank case down the other side. The tappets therefore work in an oil bath and no oil overflows from the well. The valve guides with their springs are enclosed with an aluminium cover, and are readily accessible. The camshaft is profiled from a solid bar, and is driven by gear wheels running in an oil bath, and being all very substantially designed and accurately cut they run without undue noise. The crankshaft is of particularly robust proportion, made of high tensile steel and ground to exact sizes on the journals and pins. It is essential on any twin-cylinder vertical engine for the crankshaft to be very strong, and the crankshaft of the Dorman engine is practically unbreakable. The connecting rods are carefully balanced, fitted with bronze small end bearings and anti-friction big end bearings. The lubrication is automatic by mechanical pump. Oil is supplied to two separate troughs underneath each connecting rod, the latter being fitted with scoops to the big ends. The oil sump below the crank chamber holds three pints of oil, which will run the engine for a very considerable distance without replenishment.

The Eisemann high-tension magneto is carried on an extension of the crankshaft bearing, and is driven by

The Dorman Two-cylinder Engine.—

an adjustable universal coupling. Another model can be supplied with an alternative position for the magneto if desired, but the standard position renders the magneto most accessible where space between engine and radiator permits it to occupy the place in which we illustrate it.

Brake Horse-power Developed.

The Dorman engine develops 9 b.h.p. at 1,500 r.p.m., and will run up to 2,500 r.p.m. when the engine is capable of delivering 14 h.p. Of course, like all two-cylinder vertical engines it has a "critical" period, but the engine has been so balanced and designed that this period is found at about 700 r.p.m., at which speed the vehicle would be travelling nine miles per hour on the top gear—a speed which is seldom found necessary with the top ratio in use. At speeds above and below 700 r.p.m. we found the engine to be quite free from vibration, and when throttled down we think it would be almost impossible to detect by touch that the engine was a two-cylinder and not a four-cylinder. The Sthenos carburetter is employed, this being fitted on the near side of the engine.

Messrs. Dorman have already secured some large contracts with this engine, and among other small cars and cycle cars to which it will be fitted for 1914 we may mention that the makers of the G.W.K. intend to have 500 of their friction-driven cycle cars fitted with this engine. Another large firm will also market a complete set for cycle car construction consisting of the Dorman engine with crank case extension to take the gear box, universal joint, and back axle. The price of the engine complete with magneto and carburetter, but without the flywheel, is £50. Flywheel and clutch, and if desired, a water pump fitted on the engine, can be supplied at an extra cost. The approximate weight of the engine complete without the flywheel is 100 lbs., and the over-all dimensions, from the magneto contact maker to the flywheel disc, are 22¼in., height from the drain plug to the centre of the water outlet 27in.

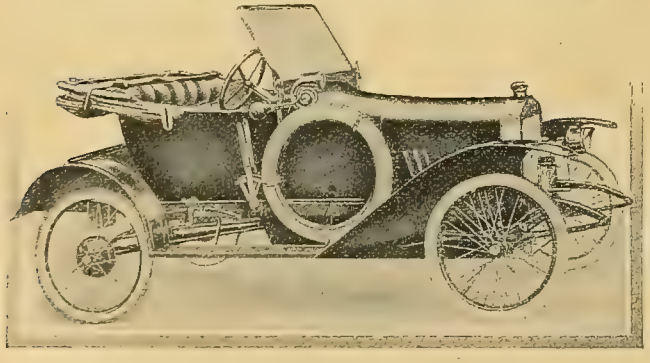
SWIFT IMPROVEMENTS FOR 1914.

AN inspection of the latest model Swift cycle car at present undergoing tests convinced us that there will be a large demand for this vehicle during 1914, and the firm are making extensive preparations to cater for it. The alterations for 1914 are not sweeping, but the appearance of the machine has been changed for the better. The twin-cylinder vertical engine has been very little changed, the only alterations consisting of a slight widening at the base to enable the engine to be fitted to a larger and wider pressed steel frame, which will take the place of the tubular frame, and the provision of exhaust pressure-feed lubrication.

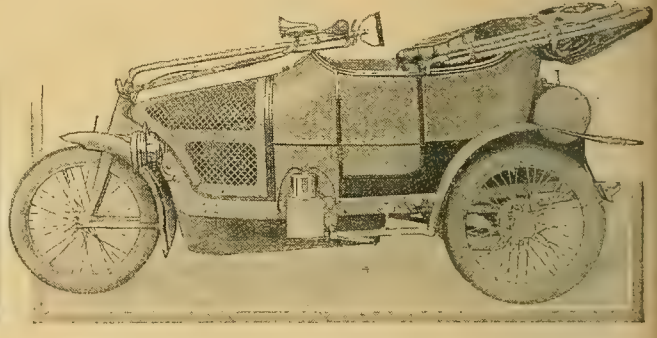
Instead of cheapening their production in this direction the Swift Co. have designed it on the lines of their larger vehicles. That is to say, the gear box, worm steering, back axle, and other component parts have been designed on the lines of the 12 h.p. car, but, of course, lighter and smaller. To all intents and purposes the new Swift is not a cycle car but a miniature car. The frame is upswept behind and inswept in front, the front axle is of H-section, whilst it has worm and worm-wheel steering, three-speed and reverse gear box, and cardan-shaft with double universal joint. The gear box has been brought in line with the gate change quadrant, and particular attention has been paid to the springing. The wheels and tyres have been increased in section from 650 × 65 to 700 × 80 mm., and all wheels run on ball bearings. The body is 3in. wider than formerly, and modernised by a tapered bonnet. This naturally has greatly improved its appearance. The wheelbase is 7ft. 3in., the wheel track 3ft. 7in.

Running boards have now been fitted. £140 is the price fixed upon, which is only a £3 increase on last year. This figure includes hood and screen, two acetylene lamps, and oil tail lamp, also horn.

The Swift Co. expect to be in a position to give delivery immediately following the Show. A large section of the Cheylesmore factory is being devoted to the construction of these machines, and when we paid our tour of inspection we saw rows of pressed steel frames and large quantities of rough and finished parts in the stores and in course of construction in the works.

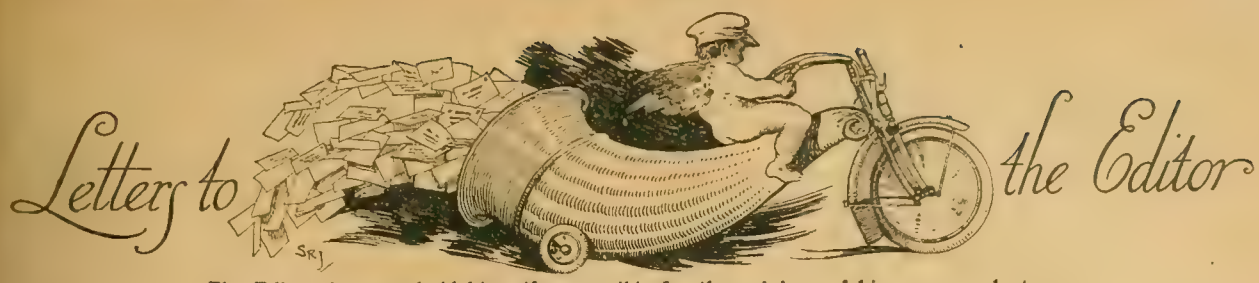


The Premier, a four-cylinder cycle car of Bavarian origin.



The Walter three-wheeler which is on similar lines to the Wall tri-carriage.

QUITE a number of light four-wheelers and a few three-wheelers are being turned out in Austria, but the demand there, writes our Vienna correspondent, is almost exclusively for the cycle car built on car lines—the large car in miniature, in effect. The appallingly rough road surfaces encountered outside the towns makes a three-wheeler awkward to handle, thus such types are usually only found in towns.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

The Price of Motor Cycles.

Sir,—As one of the large number of would-be motor cyclists, I must congratulate Messrs. Humber, Ltd., on their initiative in reducing the price of their motor cycles in 1914 by £5. This is a very welcome move in the right direction, as in recent years, with variable gears and other refinements, the price has usually tended to increase. With the greatly increased production during the last two or three years, it is time that such a reduction should become more general, especially as the motor cycle is now out of the experimental stage.

I may add, though not yet a motor cyclist, I derive great pleasure from the perusal of your journal, and wish it every success. MANCUNIAN.

Level Crossings.

Sir,—May I use your columns to call the attention of the public to the disgraceful way in which traffic is hindered and delayed by level crossings on the main roads?

A few days ago I was travelling on the main road from Northampton to London. Arriving at a level crossing we found the gates shut. After eight minutes a slow passenger train went through, but the gates still remained shut. Again we waited, this time for seven minutes; then a small goods engine passed. Now, at last, the signalman came down from his box and opened the gates after a delay of something over fifteen minutes.

Surely all this delay is unnecessary. At least the gates might have been opened between the passing of the train and the goods engine, and I find it difficult to believe that it need be necessary to shut the gates eight minutes before the arrival of a train.

This is not the only occasion on which I have been kept needlessly waiting. I have frequently been delayed from five to ten minutes, and even more, at other level crossings, and I should like to hear the opinions of others on this matter. G. BILLINGSLEY WILLIAMS.

Benzole.

Sir,—I should like to give you my experiences with benzole. I ride a 2½ h.p. Brown-Precision, which averaged about 110 m.p.g. I was then persuaded to try benzole, so I emptied my tank (which holds exactly seven pints) and put exactly six pints of benzole into the tank. I then went from Mildenhall to Cambridge and back, at an average of 25 m.p.h., and again measured the benzole of which there were four pints left. This resulted in 44 miles to one-quarter of a gallon of benzole = 176 m.p.g. I find my little engine picks up better, and think there is a decided improvement all round. A. D. PRYOR.

Sir,—When on a visit to Manchester recently with a 1913 three-speed Triumph and sidecar I obtained two gallons of benzole from the Birchenwood Colliery Co., Ltd., Kidsgrove, and tried it with the jet I was using, viz., 38, and also a 32, but preferred the former. I was greatly surprised at the increase of power over petrol, and although I rode with full extra air and magneto fully advanced, engine would not knock even when picking up on hills with 4½ to 1 gear, and my passenger was over eleven stone. I averaged ninety miles to the gallon, whereas with petrol I do about sixty. Upon the return journey I had to fill up with petrol at Rugeley, and between there and Lichfield again had to resort to more second gear work, reduce the air supply and retard the magneto. The price I paid for the benzole was 1s. 3d. per gallon, and, provided it has no bad effect on the engine, I would much rather use it if it cost 6d. per gallon more than petrol instead of less.

W. H. BROAD.

Sir,—I have read with interest your readers' views respecting the above. I am desirous of your knowing my exact experience. Some four months ago I started to use benzole (95%) on my 3½ Humber with sidecar. At first I found that it was more powerful, and I increased my mileage to the gallon but with rather harsh running, and recently, thinking I had a broken piston ring, I took the cylinder off, and, to my surprise, found that I had a cracked piston and gudgeon pin. I may mention that I am absolutely confident it is not through any fault of the makers. PETROL.

[Our correspondent appears to think that the cracked piston is due to use of benzole. This is quite improbable.—ED.]

Clothing for Doctors.

Sir,—I should like to draw the attention of my motor cycling *confrères* to the spring leggings made by Brooks, the saddle people. I have found them extraordinarily convenient, their great virtue being that they can be taken off and on in a second or two without undoing strap, buttons, or any fastenings whatever. One of the great drawbacks of doctoring on a motor bicycle, to my mind, has been the bother and mess of getting out of one's overalls when going into people's houses. I have often got my hands so dirty in this process that I have had to ask for a wash before going up to see the patient. Then, in going away, one has to spend an awkward three minutes scrambling into muddy overalls again, under the eye of a supercilious footman. This is all done away with by the spring leggings. So simple and admirable are they in use that one is tempted to ask, "Why on earth did no one think of them before?"

H. GASKELL, M.B.

Touring in Scotland.

Sir,—I observe the question by "G.K.C." in your issue of September 11th, and would like to give the writer the benefit of my experience in the Highlands of Scotland while touring on my motor cycle. In the first place, I may mention motors are not allowed on the Trossachs Road, at least from Callander, and to cross Loch Lomond to go to Loch Katrine would be quite absurd. Rather take the brake tour from Callander to Trossachs one day when the rider feels tired. The change will be welcome. From Edinburgh I would advise the motor cyclist to proceed by Linlithgow, Stirling, and Balloch to Loch Lomond; along Loch Lomond to Ardlui, Crianlarich, Dalmally, Taynuilt, and Oban. Return by the same road to Crianlarich, and proceed to Killin, along the north shore of Loch Tay to Kenmore, thence on to Dunkeld or Pitlochry, and north to Blair Atholl, Dalwhinnie, then to the left for Loch Laggan and Fort William, along the Caledonian Canal to Inverness (I prefer the north side of Loch Ness for scenery). If time permits go north to Beauly, Dingwall, Strathpeffer, and right on to the west coast, and return to Inverness; thence south by Carr Bridge, or east by Elgin, Aberdeen, Balmoral, Braemar, Blairgowrie, Perth, Crieff, St. Fillans, Loch Earn, Loch Lubnaig, Callander (for Trossachs), Stirling, Biggar, Dumfries, Carlisle. This tour through Scotland would take nine days comfortably, but be sure and carry a spare cover and tube; they will probably be required.

I travelled most of these roads this summer with my wife, a tent, and a sidecar. S 40.

Consideration.

Sir,—As one of the officials responsible for the organisation of the East Meon hill-climb, I cannot let the letter in your issue of 11th September, entitled "Consideration," go unchallenged. This event was run off between the Southampton and Portsmouth sections of the Hampshire Motor Cycle Union, and I consider your correspondent's strictures as to the conduct of the competitors to be greatly exaggerated. I have no means of knowing what the conduct may have been of unattached motor cyclists who were present as spectators only, as I was occupied at the hill, which is nearly two miles from the village, for from about 2.30 until after 6 o'clock, as were also all the competitors, so they had no opportunity of "careering through the High Street" between the times mentioned, as they were fully occupied with the weighing and running off of the various classes, and did not enter the village until the event was finished, and then only to have their tea previous to dispersing. Judging by the keen interest in the riders displayed by the local people, I do not think there were any who would object to more frequent visits to their "sleepy hollow."

The latter part of your correspondent's letter does not display the best of taste. Surely, sir, a motor cyclist can don any headgear he chooses? I seem to have recollections of seeing many prominent riders mentioned as taking part in open trials and on Brooklands garbed distinctively, and even fantastically, but I have never heard them described as "jack-asses!" I would strongly advise "AA 1160" to join up with the nearest club to him (the Portsmouth and District), when he will find that the "jack-asses" are a fine lot of fellows, and "good sports" to a man.

H. PERCY YOUNG,
Hon. Sec. Southampton and District Motor Club.

Sir,—The four members of the Portsmouth and District M.C., who reply to my letter, scarcely justify themselves by impugning my sportsmanship. I am sufficiently a sportsman, I hope, to remember that there are other people who use the roads besides one's own self; and that, apparently, is what they do *not* remember. They make no reply whatever to my charge of riding at an unsafe pace through a narrow village street. Was that sportsmanlike? They say that if I had been a true adherent to the cause I should have been too busy rejoicing in the sound of a healthy exhaust to abuse their ideas of enjoyment. What cause? I certainly cannot see how the riding of machines through a village with exhaust open advances the cause of motor cycling. And, finally, they defend their extraordinary headgear on the ground of picturesqueness. Why not go the whole hog, and paint their overalls with stripes of purple and green, and their faces like a clown's at the circus. It would be just as sensible. It is worth noting that the report of the A.C.U. Six Days Trial rejoices over the practical elimination of outlandish costumes from the trial. Club secretaries, please note!

But the whole matter is of wider importance than merely the action of some participants in a club hill-climb. In the first place, motor cyclists who live in the country are well aware that there is still a vast amount of prejudice against motor cycles and their users. Is that prejudice likely to be lessened by actions such as those against which my complaint was directed. And, secondly, we not infrequently hear regrets that the vast majority of motor cyclists remain aloof from the local clubs. This is undoubtedly true, and one of the reasons, I am sure, is that many of us heartily dislike the "knutty" element in the clubs. AA 1160.

Colonial Requirements.

Sir,—I have noticed a good deal written about road clearance on colonial models. Now I ride a 3½ h.p. Abingdon fitted with the Armstrong three-speed gear, and I find that with only four inches road clearance, I very often strike a rough bump with the bottom of the crank case. I am very much in favour of, say, six inches road clearance on colonial models. English firms can hardly be expected to know the vile roads their machines have to be ridden over in the country out here. Large tanks to hold not less than two gallons are necessary, as fuel cannot always be obtained in every township. Sufficient mudguarding is often neglected, especially on the back wheel, which should be well guarded.

Cut-away frames are exceedingly comfortable to ride over rough ground, as one can very often avoid a spill, by using one's legs from a low riding position.

Variable gears are, I find, absolutely necessary over rough and hilly country. I use and recommend the Armstrong three-speed gear, which has not given me one moment's trouble in nine months' use.

Footrests seem to be out of place on most models, being placed too far ahead, whereas if placed almost under one's saddle a far better balance can be obtained over bad roads.

In closing, just let me wish *The Motor Cycle* every success, and that these few hints will not be altogether discarded as coming from one who knows. LOUIS H. LEE.

Failford, N.S.W.

Sir,—I send you herewith a photograph which I thought would be of interest.

The machine is a 2½ h.p. Motosacoche (1912 model), and when I suggested fitting a sidecar my friends rather doubted that it would be capable of pulling one with satisfactory results.

I have, however, now run the combination a considerable distance, and the way it travels is really remarkable for such a small h.p.

The photograph enclosed was taken on the front at Yarmouth, for we have just completed a holiday trip of about 300 miles. The journey down from London took nine hours, making an average speed of fifteen miles per hour,

A single-cylinder Motosacoche which successfully pulls a sidecar. (See accompanying letter.)

for we spent a little time on the road repairing the rear cover, which burst just outside Saxmundham.

Unfortunately, the pleasure of the ride was somewhat marred by the wet, for it rained all the way down until we reached Lowestoft. By the way, all hills, although there are not many steep ones on this route, were climbed well, and without any "l.p.a." It came up East Hill at Colchester on the return journey very well.

The return journey was successfully accomplished in about the same time, although we were delayed with some belt troubles between Brentwood and Romford, which, however, were soon remedied by inserting one or two new links, for it is a Whittle belt, which really stood the extra work exceedingly well.

The engine is fitted with a Motosacoche variable gear, which proved very efficient. The sidecar is a Middleton, I chose this type as being the most suitable, owing to its being light, yet strong and comfortable.

I am of opinion that this combination is the smallest set on the road capable of giving such results with a passenger, and I think it speaks volumes for the reliability of the Motosacoche engine, for it has not given the slightest trouble.

I think it only right to add that the makers do not recommend fitting a sidecar to the lightweight machine, as they say it is not intended for such work. I dare say it is putting an excess strain on the frame, but I have found it stands up to the work wonderfully well. H. WINGROVE.

Hub and Counter-shaft Gears.

Sir,—As gears and transmission systems seem to be claiming much attention at present, perhaps my experiences may prove of some interest.

I have ridden my 6 h.p. No. 2 Bat 3,700 miles to date, 550 miles of which have been with sidecar and chiefly in North Wales. The belt has been shortened once, and has never pulled through or slipped, and positively looks brand new. I use a top gear of 3.5 to 1 for solo, and 4 to 1 with sidecar. The Armstrong gear has never given the slightest trouble, and runs perfectly silently. I may add, that I always give the magneto cut-out a momentary jab as I change gear, which eases the driving pressure.

The belt drive I consider ideal for a motor cycle if run on large pulleys, but the fault with most machines having counter-shaft gear and belt is that the pulleys are then too close, and the drive rendered harsh. In my opinion an ideal machine would have a three-speed sliding gear box incorporated with the crank case, but in front, and the drive by a six or seven inch pulley and 1½in. belt.

EXPERIENTIA DOCET.

Sir,—Regarding the controversy now taking place on the merits of hub and counter-shaft gears, may I be allowed to give my experience with hub gear?

My mount is a 3½ New-Hudson, 1912, fitted with a Canoelet sidecar and Armstrong three-speed gear. The machine has now run 4,683 miles, and has never been troublesome. It weighs, together with sidecar and spares, 350 lbs. My weight is nearly 14 stones. My wife is 13 stones, and my son 5½ stones. I have traversed some of the worst roads I should think it possible to find, through the Peaks of Derbyshire, and round about Lancashire, and neither the machine nor gear has ever failed me up to the present.

I must be a little more fortunate than your correspondent, Mr. W. McLean. I have not experienced the belt trouble he complains of, neither have I experienced the trouble of grit getting into the free-wheel and grinding itself useless. Neither have I found any difficulty in getting the back wheel out when it has been necessary to repair a puncture or replace a cover. True, the weight in the hub somewhat slows the machine, but it is nothing to speak of. It also, by its extra weight, has a tendency to wear the tyres out a little faster. I accomplished 1,379 miles on my driving wheel tyre, which was a well-known make, and very little more on the front wheel and sidecar which I had retreaded.

A. RYALL.

Sir,—Having ridden a two-speed counter-shaft Premier about 3,000 miles this year, mostly with a sidecar, perhaps I can add a word to your interesting correspondence.

To my mind there is no doubt the drive is noisy, but the pull is splendid and the belt needs no touching at all. The only fault, to my mind, is there is no way of lubricating the chain with any ease. I have removed my cover altogether and find the chain runs much better, as I can apply graphite to it. My luck with chains has not been good, as I have found several rollers broken after about two months' use.

CONSTANT READER.

[We cannot agree with our correspondent that running the high speed chain exposed is better than covered. It is against all good practice, and probably the broken rollers he complains of are caused by lack of proper protection for the chains.—ED.]

Carbon on Sparking Plugs.

Sir,—I was much interested in your article "A Strange Experience." I see you state that inserting a small extra spark gap in the circuit intensifies the spark at the plug, and offer as a proof, the fact that the small external gap will burn away the carbon on the points of a sooted up plug. Now, whether there are two gaps in the circuit or only one, the magneto gives out practically the same amount of energy at each break of the primary circuit, if the speed be constant; nearly all this energy is dissipated in heat at the gap, the ohmic resistance of which is great compared to the rest of the circuit. By adding another gap in series, of about the same length as the plug gap, the heat will be equally divided between the two, hence there is less at the plug. The explanation of the external gap, clearing a sooted up plug, is as follows: With a clean plug, the high tension leads, etc., have quite an appreciable electrical capacity as they pass near the frame, so the current from the secondary of the magneto charges up this capacity until the voltage is high enough to break down the air gap. The discharge then takes place, the current which flows across the points being considerably greater than that produced in the secondary at any moment, but is of much shorter duration, hence the total energy remains the same. Now with the plug sooted up, the current flows round the circuit without ever charging the capacity, since current is simply the maximum secondary current of the magneto and is insufficient to burn away the carbon. As soon as an external gap is introduced, the capacity effect is re-established; the resistance of the carboned up points is greater than the rest of the metal circuit, and as a large current flows (though only for a short period) the heat produced is sufficient to burn away the carbon. In short, without the extra gap, the heat produced at the carbon is low and of comparatively long duration; with the extra gap it is high, though of very short duration.

It may interest some of your readers to try the effect of a small capacity shunted across the plug. With this, sooting up seems to me to be practically impossible, though unless a switch is fitted to cut out the capacity, the starting is difficult, and also the points are burned away far more rapidly.

JOHN F. B. CARSLAKE.

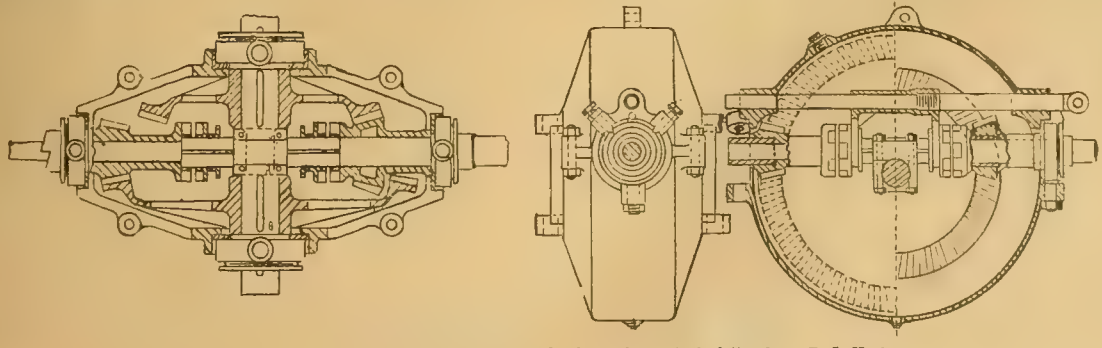
The Differential—Yes or No?

Sir,—With reference to the letters in *The Motor Cycle* as to substitutes for the differential in small cars, I enclose a sketch of the drive of a small car, a Ridley, which I had in 1903, which was quite efficient. The drive was by two bevels, one for each speed, and though the engine was only a 3½ h.p. De Dion the car would take two people quite comfortably. Free wheel clutches were fitted to the driving wheels. The next car I had was a Swift, with a 6 h.p. De Dion engine, driven on the same principle. This car, unlike the former, was fitted with a reverse, which was obtained by locking one driving wheel, and this was quite practical.

FRED. J. HARKER.

The Silencer Question.

Sir,—It may interest your readers to know that I received a summons for making noise with an 8 h.p. Zenith in Birmingham. The case came on for hearing on 19th September, and was dismissed. The Zenith has two long exhaust pipes flattened at the ends and drilled with about one hundred small holes. The noise is not there at all, but



Section of the 1903 Ridley voiturette double bevel drive, referred to in letter from F. J. Harker.

a quiet purr of the twin. A plain clothes policeman arranged the summons on the fact that I had no silencer or expansion chamber. I contended I had both contained in the long pipes, and decided to plead not guilty. I had no cut-out at all, and this seemed to satisfy the Judge that I had indeed tried to get noiselessness. The case came up as follows. I was accosted one evening on going home by a plain clothes man on a cycle. He asked me if he might have a word with me, and I asked what he wanted. He replied that I should have to dismount to hear what it was. I considered it impudence from this person, who ever he was, and refused to have anything to do with him, and so went on. The Judge thought there was no evidence of noise, at least made knowingly, but said that he thought that I knew well that it was not simply a man wanting to waste my time. I assured him that the word "police" never entered my head at all, and that the policeman had only to say he was an officer, and I should naturally have got off. However, it is a warning to others that those who imagine that they are safe are not. The fact that a motor cycle has a silencer is nothing in its favour. I was summoned because of alleged noise. F. R. SWINBURNE.

The A.C.U. Trial for Cycle Cars.

Sir,—The A.C.U. have given proof of their interest in the cycle car movement by the announcement of a trial in October and the T.T. race in 1914. For my own part I believe, as you do, that eventually all light passenger machines must compete together; but, just for the present, there is no doubt a strong feeling that the movement will be helped by a trial for cycle cars only. There are a number of cycle cars (by no means all) which are not able to compete with sidecars on equal terms, but which nevertheless seem to possess some merit. May I venture; however, to suggest that if the trial is made easy in regard to hills and road surfaces it should be made equally easy as regards timing? It would be distinctly hard luck if a machine which was capable of a far more severe test failed because the driver made a mistake of a minute or so at controls. The fact that the trial is known to be comparatively easy, and "geared down," if I may say so, to the capacity of less efficient machines, makes failure more serious. The man in the street will say, "Oh, the X.Y.Z. is no good, it couldn't even get through the Cycle Car Trial." He will not stop to consider the reason. If it is thought necessary to differentiate between the successful cars, a flexibility test is perhaps the most satisfactory method, unless your suggestion of a fifty miles' spin at Brooklands be accepted. H. GEORGE MORGAN.

An Undesirable Practice.

Sir,—No doubt your article on "Carrier Riding" was prompted by kindly motives. The practice is fraught with danger, and fatalities occurring through the burdening of the carrier with a passenger, especially as you hint, of the fair sex, are derogatory to the pastime.

Now, I am not suffering from the "headstrong rashness of youth," and am, I feel sure, of a sober mind (at least at present), yet when you speak of prohibition by law my blood boils at the thought. I do detest this prating of law, law, law! The law was not meant to be a mothering institution. Legality was never intended to say, "Now, Johnnie, you must not climb trees."

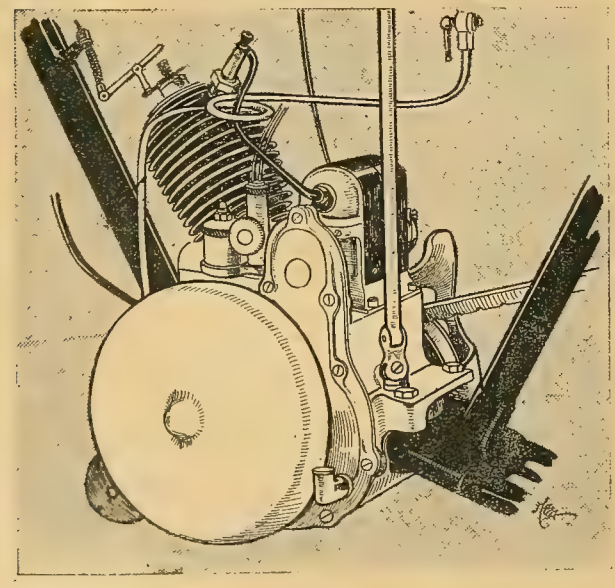
No, if men care to risk their lives by flying (upside down, if you like) why—let them fly. Apply this to the question at issue. Let us choose, and be ourselves responsible for at least some of our actions. A famous poet writes:

It matters not how strait the gate,
How charged with punishment the scroll;
I am the master of my fate,
I am the captain of my soul.

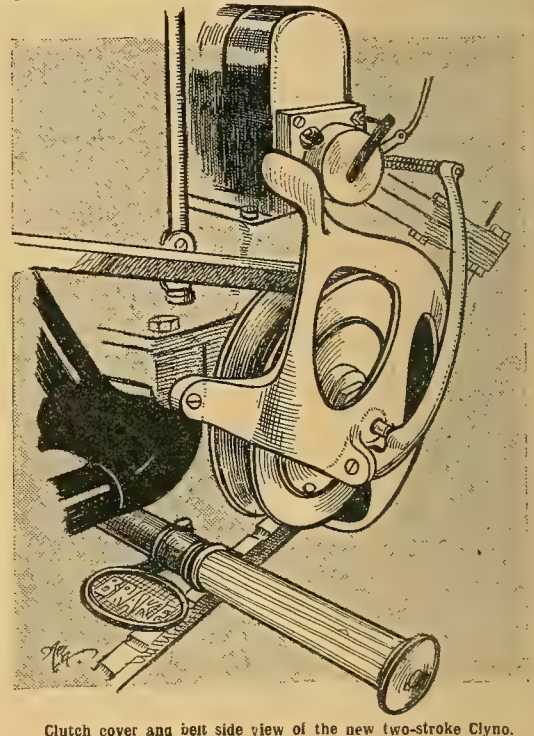
J. A. ALLEN.

THE NEW 2½ h.p. TWO-STROKE CLYNO.

QUITE the most interesting machine at Alms Hill last Saturday was the new Clyno. It has an inclined cylinder, and the outside flywheel, to use an Irishism, is enclosed; that is to say, it is outside the crank case but enclosed separately to avoid mud slinging. The engine works on the two-stroke principle, is fed with gas by an Amac carburetter, and fired by a Bosch gear-driven magneto. On the top of the cylinder is a decompressor to free the engine for starting purposes. The gear box containing two speeds of the sliding type forms a unit with the engine. The accompanying sketch shows the neat universal joint at the base of the operating rod. The engine pulley contains a plate clutch, and the belt is amply guarded at this point. The lubrication is by oil mixed with the petrol, a principle employed on the Connaught and also on many American two-stroke engines designed for marine work. The petrol consumption is said to be 110 m.p.g.

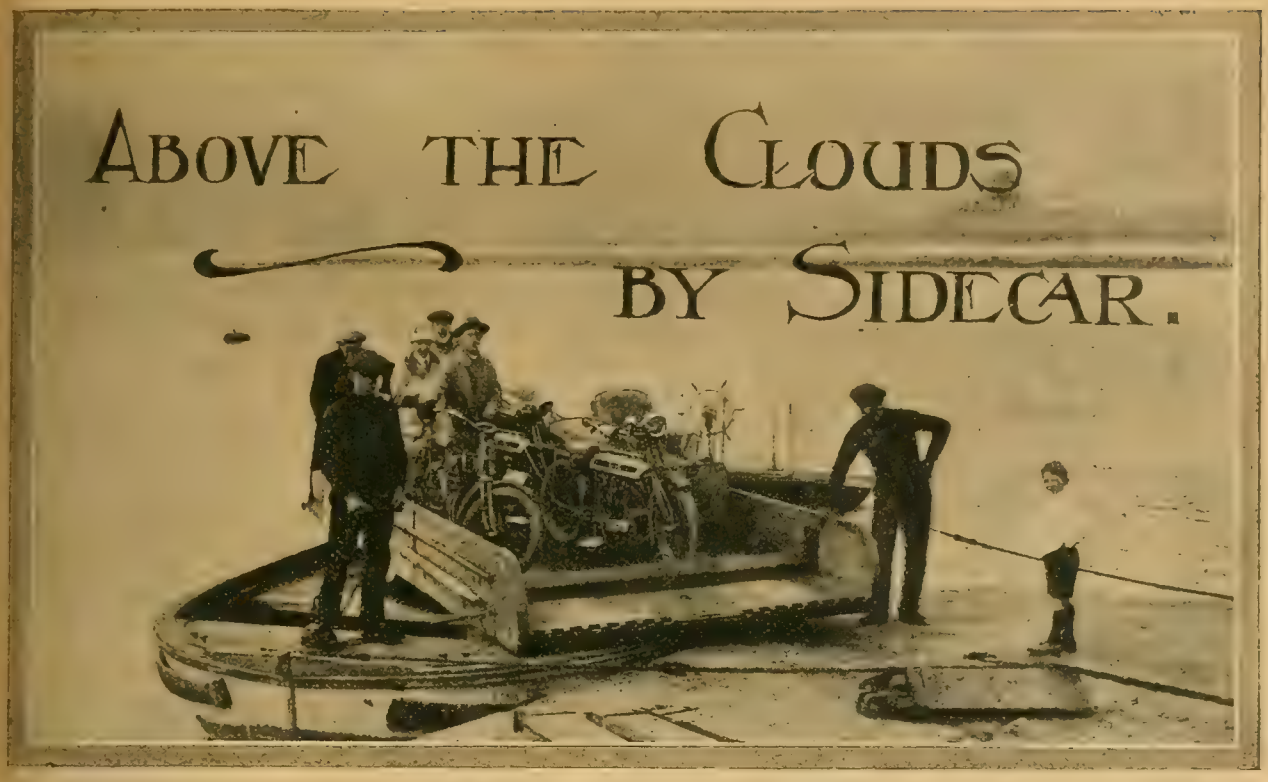


Flywheel side of the 1914 Clyno motor bicycle—a 2½ h.p. two-stroke single-cylinder. The belt is on the right hand side.



Clutch cover and belt side view of the new two-stroke Clyno.

ABOVE THE CLOUDS BY SIDECAR.



At the Ballachulish ferry on the way back to Glasgow.

ONE morning recently when the streets of Glasgow were bare and deserted, a small party of enthusiastic motor cyclists gathered in a garage in the western district of the town, and shortly after might have been seen leaving tenemented streets by way of Great Western Road, the main outlet to the mountains and lochs of the West. The object of the day's journey was known only to themselves and a few close friends, and none guessed that they had designs upon the ascent of Ben Nevis, the highest mountain in the kingdom, by motor cycle and sidecar.

The trip was the outcome of a long-cherished notion of the leader of the party, Mr. D. Bell, the West of Scotland agent for A.J.S. machines. The party consisted of five members, who were accommodated in two A.J.S. sidecar combinations and a solo 5 h.p. F.N., a fair passenger occupying the seat of honour in the sidecar which, it was expected, would, before the mantle of night descended o'er the Ben, have reached the highest hotel in Great Britain.

The journey to the Argyllshire town of Fort William, whence operations were to be commenced, was not without its charms. In the morning mist Loch Lomond resembled an immense sea of glass with the surrounding peaks mirrored on its still surface. The towering Ben Lomond, reaching to a height of over 3,000 feet, gave us some idea of the magnitude of the task before us, but in the enjoyment of the surrounding beauties thoughts of the struggle to come were banished from our minds. Through the picturesque Glen Falloch, which might be termed the "Gateway to the West Highlands," the road ascends somewhat, thereafter skirting the bases of the majestic Ben More and Stobinian, which guard the entrance to the calm and peaceful glen.

Progressing onward, our road strikes north over the bleak and desolate moor of Rannoch, where the long pull up the Black Mount is a test of low gear work. This rises to a height of over 1,500 feet, and a glorious prospect is viewed from the summit. In front are the peaks of Lochaber, surmounted by the grim and frowning heights of Ben Nevis, the centre of our thoughts.

An Expensive Crossing.

We experienced some little delay in getting across the ferry at Ballachulish, where, for ferrying a distance of about 200 yards, they charged us ten shillings for the three machines and the passenger. We were now within sight of our destination, and were all eagerness to start the conflict with the steep and precipitous sides of the mountain.

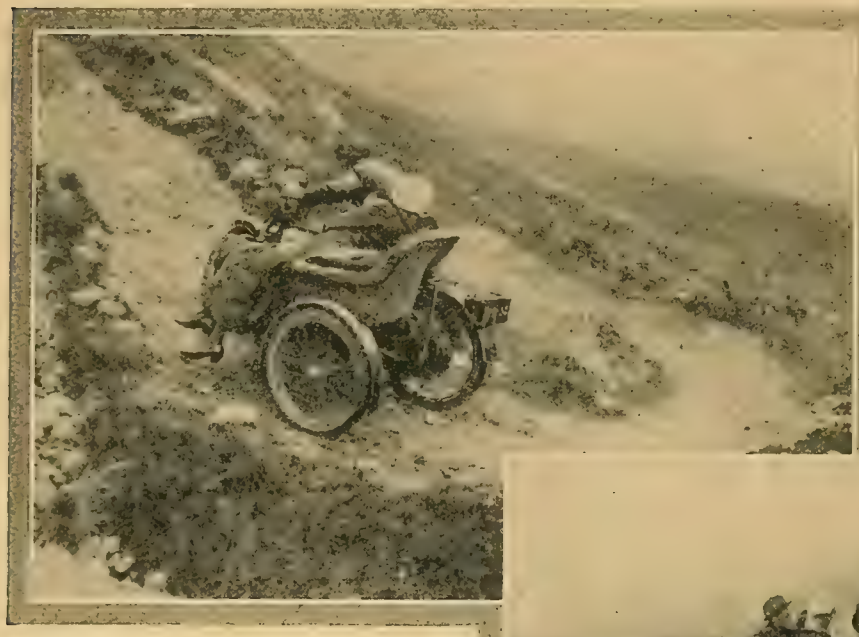
As it was somewhat late in the afternoon, we did not lose any time in getting to the foot of the mountain, arriving there about three o'clock, and in the afternoon sun the surrounding peaks stood out boldly against a cloudless sky.

The Beginning of the Struggle.

The narrow and rocky path above us appeared impossible of ascent, but, losing no time, the plucky rider of the A.J.S., with the lady passenger in the sidecar, was soon threading his way among the boulders and ruts, and the first ascent of Ben Nevis by motor cycle and sidecar had commenced. Turning over at a fine rate, on a low gear of 16 to 1, the

Above the Clouds by Sidecar.—

machine made light of the steep gradient, and soon covered the first half-mile. Thereafter the path became narrower and the surface deteriorated, necessitating great care in negotiation, and the slightest slip on the part of the driver would have been highly dangerous. Showers of stones and dirt were thrown backwards by the revolving wheels, and the smell of burning rubber from the tyre permeated the surrounding atmosphere. The higher we progressed the steeper and more awful became the track,



(1) One of the many hairpins on Ben Nevis.

and in one place the back wheel sank up to the chain cases in black, sticky mud, caused by water on the loose surface. At one point it appeared that the ascent would have to be given up altogether. Huge boulders lay on the path, and a watercourse ran right down the centre. By some superhuman effort the rider, however, surmounted this difficulty, and, continuing at about ten miles per hour, covered fully a quarter of a mile before coming to a halt again.

Darkness Necessitates a Halt.

Darkness now descending, it was deemed advisable to abandon the climb for the day and proceed to our headquarters in Fort William on foot.

Mid-day on the morrow found us again with the A.J.S., and it was splendid to see the easy manner in which the machine started at the first kick. After having lain overnight in the mountain mist, this was an excellent demonstration of the easy starting capabilities of a modern motor cycle.

Now came one of the most trying parts of the ascent. Great stones covered the track, and the first hundred yards occupied us fully half an hour. At one portion it was deemed advantageous to take to the grassy sides of the track, but these were even worse than the track itself, which was joined a little further on. Up past the half-way house the combination had three up, a passenger being carried on the carrier. Rapid progress was now made, and, although the surface was, if possible, worse than any they yet experienced, a point about a mile from the top was reached without any untoward incident. Here, however, the back tyre, which had been showing signs of the terrible ordeal to which it had been subjected, burst with a loud report. An old spare was substituted, but only a few yards had been covered before it was decided to desist for the day. One of the party tramped to the summit of the mountain and stayed overnight, while the others journeyed afoot to Fort William.

Third Day of the Climb.

Saturday was spent in a return to Glasgow for new tyres, and on the Sunday morning these were fitted and the climb commenced afresh.

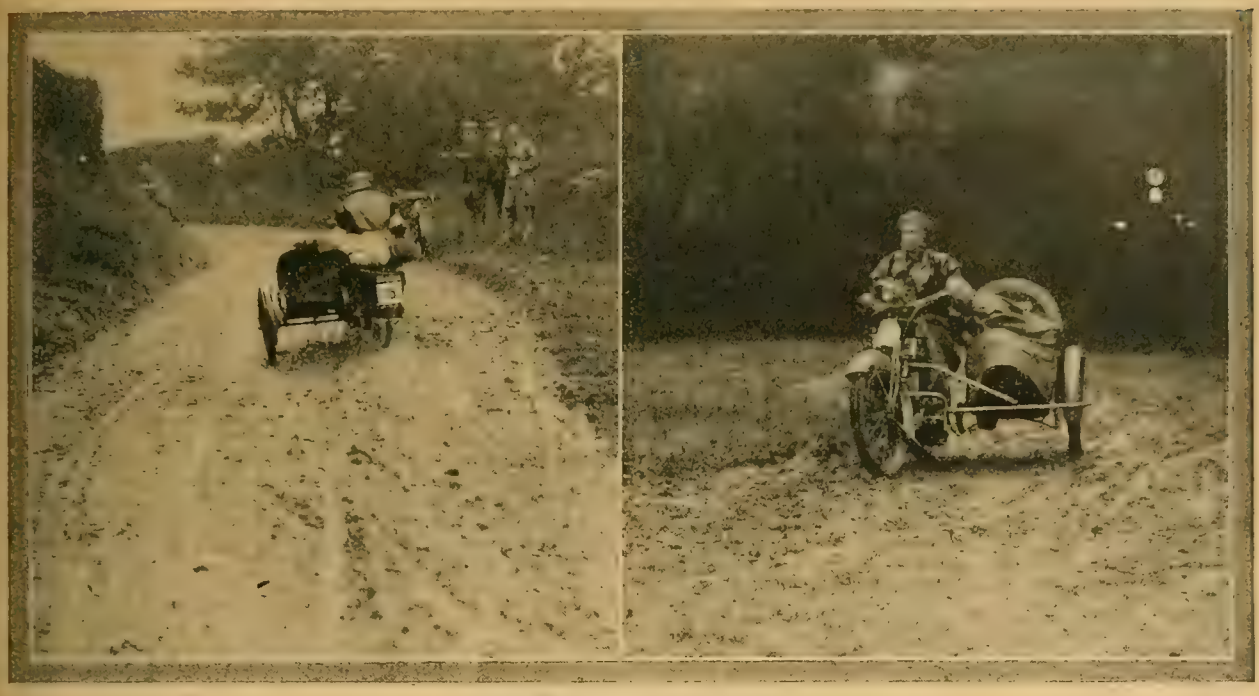
(2) Keeping the combination from running over the side of one of the hairpins while being photographed in the mist near the top. For three miles the surface is as rough as shown.

Gradually ascending yard by yard, rounding hairpins with gradients of appalling steepness, the party slowly neared the top of the mountain. In addition to the terrors of the track, the mist descended, completely blotting out the surrounding scenery, and, with nothing but a blank white wall all around, the roar of the engine was the only sound which disturbed the solitude of the scene. Nearer and nearer we got to the summit and the level stretch at the top, and soon the first ascent of Ben Nevis had been accomplished by a motor cycle and sidecar.

J.L.G.

SEVERE TRIAL IN NORTH WALES.

Liverpool A.C.C. Open Reliability Trial.



CILCAIN, THE FIRST TEST HILL.

O. Wade (5-6 A.J.S. sidecar). G. Wray (5-6 Clyno sidecar).

ON our way to Queensferry, the starting point of the Liverpool Auto Cycle Club's reliability trial, last Saturday, we called to inspect a hill out of Llangollen known as Altybady, which the solo riders were expected to climb, and, having failed ignominiously at the first attempt on a low-geared mount, formed the opinion that if the rain continued it would prove an effectual stumbling block to the competitors. The hill in question has a gradient of quite 1 in 4, but that is not all: deep channels cross the road, and in wet weather the mud is thick and holding, and can best be compared to Porlock, the Somersetshire terror. We saw, among others, two A.J.S. riders who had made ascents, also the riders of two 3½ h.p. Humbers, but each profited by practice, for at the first attempt they had come to a standstill.

We broke the news very gently on arrival at Chester, but the competitors, now accustomed to hearing tales of "impossible" hills the night before the trial, and having such confidence in their mounts, were inclined to doubt whether anything short of a church steeple could stop them. Tessier, for instance, was open to lay odds that nothing could stop his Bat, and Bees, practised in the art of freak hill-climbing in the Six Days' Trial, was of the same opinion concerning his L.M.C. As events proved, only two succeeded in making clean ascents of the hill, though others got up under engine power, but having to steady themselves with their feet.

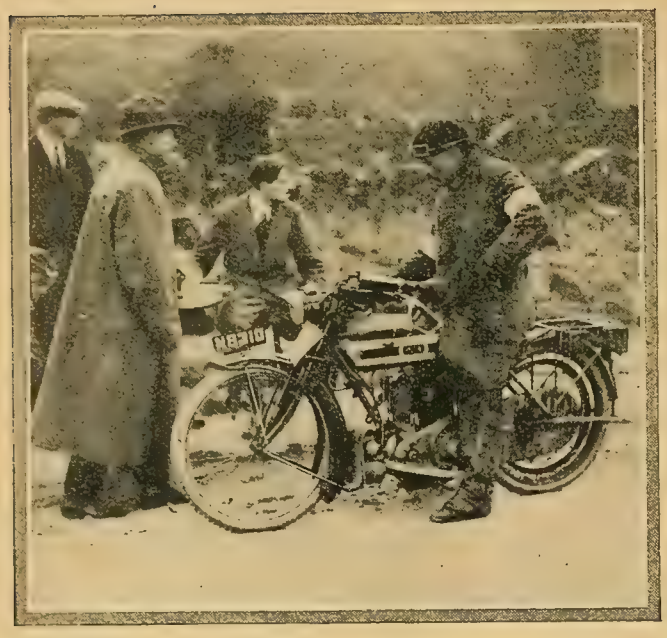
A Representative Entry.

The trial was one of those selected for manufacturers' support, ninety-five entrants appearing on the list. Among these were six each Triumphs and Clynos, five Sunbeams (including the 1914 model 3½ and 6 h.p.'s), several Quadrants, A.J.S.s, and Bats, whilst two-strokes were represented by Scott, Levis, and Connaught. Among the entrants were Mrs. and Miss Baxter, who rode a 6 h.p. Rex and a Connaught respectively.

A prize offered for the best performance on a single-geared machine tempted a number to start with a fixed ratio, but we feel certain that they would decide differently if the trial were re-run. Among these was a Rudge converted to chain drive and belonging to T. E. Greene, the Grand Prix winner, who had come over with a Dublin team, and two Rovers ridden by Orde and Ne some.

Thanks to explicit information and route cards having been forwarded by post to each competitor in ample time, the start was effected in orderly fashion, Mold and Denbigh

Hugh Gibson (twin-cylinder Bradbury sidecar) climbing Llanfair Talhairn.



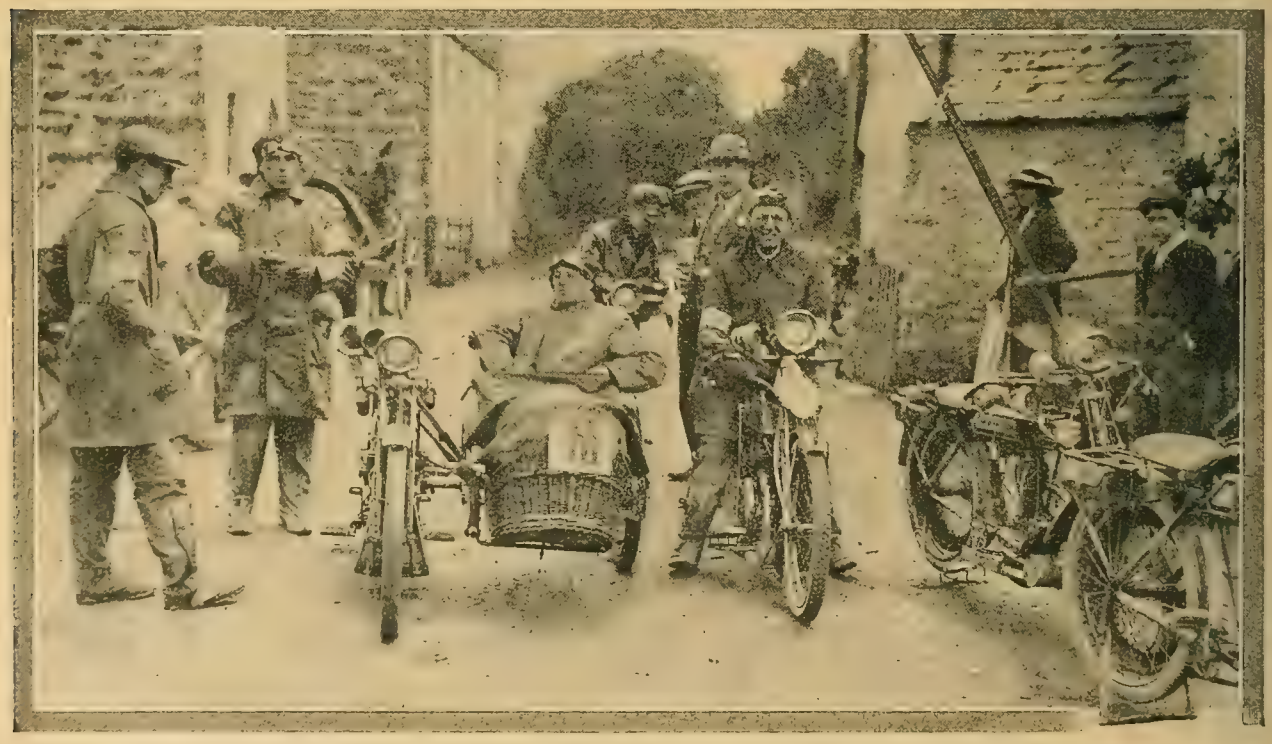
W. Heaton (2¾ h.p. A.J.S.) at a secret check. Heaton and Brown (Indian) were the only riders to climb successfully the last test hill.

being the places first visited. Main roads were not the usual order, miles of by-lanes being covered in order to include test hills. The first of these was Cilcain, which was in a very heavy state. This hill has accounted for many a rider in previous trials, but the right hand bend this time was as slippery as it could be. No less than thirty riders thus early lost their chances of a non-stop. Coopland's Indian sidecar skidded almost completely round, Gregson (Bat) and Greene (Rudge) followed suit. H. G. Bell (F.N.) sideslipped and damaged his change-speed lever. Whilst fixing up a repair, Mrs. Baxter almost collided with him owing to a skid. Fox (Matchless) stopped owing to his gear lever jumping out of engagement. C. T. Newsome found the hill too much for a single gear, and Haslam (Rover sc.) was under-powered. A. J. Stevens stopped simply owing to the back tyre failing to grip the slippery surface. There were only three cycle cars in the trial—a Morgan and two Humberettes. H. F. S. Morgan and S. Wright made good climbs and were applauded by a number of fallen riders. A privately owned Humberette was not so successful.

Then followed miles of twisty and narrow roads, over which a 20 m.p.h. average was expected, but it was next to impossible. The sun hereabouts made its appearance and had the effect of making the road surfaces still more tacky. The solo riders had a very anxious time, riding with their legs dangling. Quite a dozen sideslipped and damaged their machines. We passed F. Dover (Premier) very late by the roadside, and he called out "gear." Later we caught up with Miss Baxter cooling down at the foot of a long rise after Henllan.

A Long Climb at Llanfair.

The second real test of the morning's run was at Llanfair Talhairn, where the spectators saw many riders skidding up the hill from one side to the other, passenger machines with their driving wheels buzzing round, and many stopped altogether. Those who found Cilcain too much for them were mostly unable to climb this tongue twister, though Stevens this time was successful. Morgan stood still with his back wheel churning a deep groove in the mud. Llanfair Talhairn is about a mile in length, and many an engine knocked before the summit was reached. The corresponding descent to Llangerniew proved highly dangerous. Competitors descended crabwise at walking pace, being jolted into and out of stone gulleys formed across the road; at times the gradient was so steep that one could not check the progress of a machine by locking the back wheel. H. Silver's Quadrant got out of hand (it was the rider's first competition), and rider and machine charged the bank, fortunately without doing much damage. Yet over all this terrible going competitors were expected to risk their necks and average 20 m.p.h. (Subsequently a time allowance was made.) Passing on these narrow roads was practically impossible. A. J. Stevens attempted to pass Wright's Humberette and cannoned a bank, which nearly spoilt his chances, and the Humberette was later held up for over a mile by a pony and trap. Indeed, so many competitors must have been a nuisance on these narrow



Scene at the check at Llangerniew. The competitors are: H. C. Marston (3½ h.p. Triumph sidecar) and J. S. Watson (Sunbeam).

Severe Trial in North Wales.—

roads, for sheep and cattle were constantly met. A water-splash followed, and two at least were stopped, the belt of Mundy's Triumph refusing to grip, apparently owing to the pulley groove having worn, and Sixsmith (Scott), who fell. Then followed a grass grown track, which improved to Llangerniew, where a time check was arranged for those who had taken risks to average 20 m.p.h. By now the competitors were beginning to wonder what competitions were coming to—acrobatic performances on by-lanes or tests of reliability and hill-climbing. W. H. Carson (Excelsior sc.) had been delayed by his throttle slides sticking, which nearly led to an accident, as he descended one hill with the throttle wide open. The rider's presence of mind in snatching the high-tension wire off the plug saved the situation.

After Eglwys Bach there followed one of the most difficult tests of the day, viz., Pennant Hill, a long climb up a single figure gradient certainly approaching 1 in 4 and covered with a thick coating of real Welsh grease. Again the bunch who had failed previously konked out, but one of the most wonderful climbs was by Marston on a Triumph sidecar. He is the same rider who did so well in the Six Days Trial, and was again able to show solo men with as much engine power as he possessed that there is a great deal in handling a machine correctly. Cocker (Singer) skidded and stopped, and No. 4 (Clyno sc.) left a few more ounces of rubber from his back tyre, which persisted in slipping on the worst hills. Scott (Premier sc.) suffered in the same way. The A.J.S., Triumphs, Bats, Sunbeam, and Diamond teams to a man accounted for the climb.

At Llanrwst a tremendous drove of sheep was encountered. Horsman (Singer) swung round a corner and ran into one of them, both finishing in the hedge. The rider was surprised to find that the sheep was killed. The shepherd demanded 30s., so Horsman wisely left his card. Ayres (Villiers) was stopped on a hill due to the back cone screwing up and locking the hub. After putting matters right he blew a cover off the rim, and so retired.

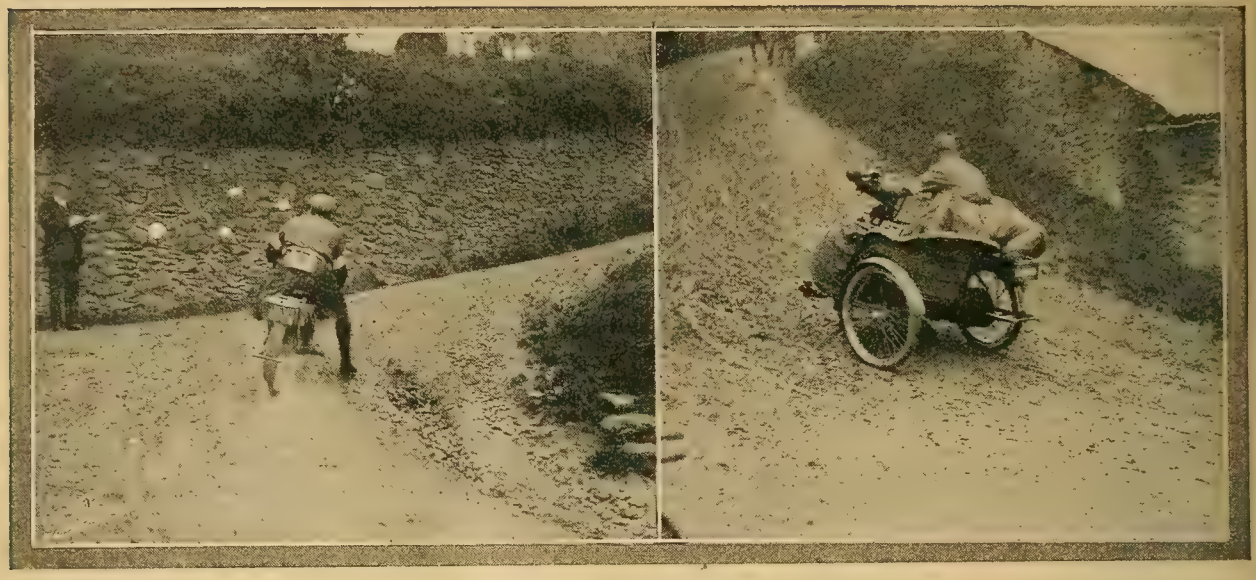
The Pass of the Cross.

At Bettws-y-Coed (66¾ miles), where lunch was taken, the mud bespattered machines told their tale of the road traversed. Many showed signs of falls. Blaenau Festiniog was the commencement of the afternoon run to Maentwrog, the scenery on this section being much admired. Out of Maentwrog there was another test hill, though not so severe as the others. At Dolgelly there was another check, and then over the mountains to Dinas Mawddwy village and up Bwlch-y-Groes, which still remains, in our opinion, the fairest and most gruelling test for an engine we have ever encountered. Many more records were spoilt on the "Pass of the Cross," Marston having to run beside his Triumph sidecar for a few yards, though this did not affect his award, as the 500 c.c. passenger machines were allowed to fail on one hill and then gain a gold medal. The little Hobart, ridden by Dudley, made another surprisingly good climb, for the engine is only 290 c.c., and Fenn, on a new three-speed counter-shaft geared B.S.A., which we understand is a forerunner of the 1914 model, got up very well. Two Clynos found the gradient too much for them, but Frank Smith (who made a reappearance in competition) and R. Pearson made no mistake. The Quadrants seemed to have plenty of power, and, as usual, all the Sunbeams made a fine show. Hugh Gibson's new twin Bradbury, which is now approaching its thousandth mile, got up comfortably. The Levis, ridden by Newey, again showed what an efficient little engine can do. By the way, this rider rode up from Birmingham the same morning, starting at 4 a.m. After the trial he went home by train, hitched a sidecar on to his machine, and next day competed in the local club's twelve hour event. Of the cycle cars on Bwlch-y-Groes Morgan stopped apparently owing to overheating, whilst Sam Wright drove his air-cooled Humberette to the summit in great style, passing two solo riders on the way. The Diamonds emitted a sharp crackle and got up in style, Davies doing particularly well. Cocker told us that he changed to top gear after the corner and almost completed the climb on top.

A Surface like a Quagmire.

There was a fifteen minutes halt for tea at Bala, then on to Corwen and Llangollen, where the solo riders branched off to the right to climb Altybady, which was in a frightful state. It was almost shameful to see competitors who had covered so many miles and successfully climbed so many severe hills floundering about in the mud and being bumped over the gulleys. To steer a straight course was impossible, and unfortunately there was only a strip two feet wide fit to ride on. The hill, as well as the surface, much resembled Porlock in the 1912 Six Days Trial, and we consider that the Liverpool club had a great deal of pluck in including it, especially in the light of the complaints regarding freak hills in the A.C.U. Six Days Trials. There were none, however, so bad as Altybady. Some of the performances are recorded on the next page.

Mrs. Baxter (6 h.p. Rex) in the watersplash near Llansannan.



SCENES ON LLANFAIR TALHAL RN.

(1) C. T. Newsome (Rover), who pluckily attempted to take a single-geared machine through the trial.

(2) One of the A.J.S. sidecars on the same corner. The position of the passenger will be noted.

E. F. Baxter (6 Rex), good for best part of the hill, but had to foot-slog; he eventually skidded across road. It appears that the low ratio of his engine-shaft gear was inoperative.

W. Heaton (2¾ A.J.S.). Splendid ascent.

C. Wilson (Quadrant) failed just round first bend.

F. G. Edmond (3½ Humber) almost reached top, but a belt fastener broke.

C. T. Newsome (3½ Rover) foot-slogged all the way from first bend.

S. Tharp (3½ Triumph) failed on first bend.

R. F. James (6 Rex) nearly reached top, then skidded and dashed into bank.

L. Guy (Scott) petered out

J. B. Sproston (2¾ Sunbeam) stopped near top.

A. J. Dixon (3½ Singer). Very good as far as he got, then clutch gave out, and he stopped.

S. C. Perryman (3½ Quadrant) failed at first bend.

A. G. Fenn (3½ B.S.A.) almost succeeded, foot-slogged at top and was assisted.

J. Cocker (3½ Singer) jumped off half-way between the two bends.

J. Baker (3¾ Scott) skidded and charged bank.

D. H. Noble (3½ Rover) stopped near top.

V. E. Horsman (3½ Singer) stopped with his engine buzzing near top.

S. Sawer (3½ Premier) ran alongside when the engine knocked between the bends and reached top.

C. E. Nokes (3½ Sunbeam). Clever climb; kept in saddle while paddling and dancing for forty yards.

J. A. Dudley (2½ Hobart) failed first bend.

L. Park (2¾ Douglas) foot-slogged and stopped.

S. Doward (3½ Bradbury) stopped.

G. Featherstonhaugh (3½ Rover) stopped.

R. G. Mundy (Triumph) came to rest well up hill.

S. T. Tessier (6 Bat) stopped near top.

N. H. Brown (7 Indian) second clean ascent, sensational and fast climb.

H. Newey (2½ Levis) stuck in gutter, assisted out and then got up.

S. Tubb (3½ Humber) stopped near top.

J. H. Fox (5 Matchless) charged bank.

A. W. Brittain (3½ Bradbury) ran all the way from the first bend.

J. S. Watson (2¾ Sunbeam) skidded into the gutter.

L. Mogridge (2¾ Mead) stopped well up.

F. W. Sixsmith (3¾ Scott) failed, and charged bank.

A. H. Mee (2¾ Diamond) nearly succeeded.

W. Y. Ford (2¾ Diamond), bad skid and failed.

W. Jones (A.J.S.) passed very late. He was obliged to assist his machine.

Longton (Alldays) had the bad luck to have his change speed rod break. Fastening the low gear home, he actually made the third successful ascent of the hill.

The stragglers had a very anxious time, for they had to light lamps before Llangollen was reached and climb the worst hill in the dusk. How the checkers went on we do not know.

The last section of the run was completed in darkness, two time checks being taken. The riders were thoroughly tired, for the run of 180 odd miles had been brimful of excitement, what with slippery roads and constant single figure gradients.

The provisional list of awards was issued on Saturday evening, but it is anticipated that the list of gold medal winners will be reduced rather than increased.

GOLD MEDAL WINNERS.

W. Heaton (2¾ A.J.S.)
O. Wade (6 A.J.S. sc.)
J. B. Sproston (2¾ Sunbeam)
A. G. Fenn (3½ B.S.A.)
Hugh Gibson (6 Bradbury sc.)
Frank Smith (Clyno sc.)
C. E. Nokes (3½ Sunbeam)
R. Pearson (Clyno sc.)
N. H. Brown (7 Indian)
H. Newey (2½ Levis)
H. R. Davies (2¾ Diamond)
V. Busby (3½ Sunbeam)
T. Silver (7 Quadrant sc.)
W. Jones (2¾ A.J.S.)
H. C. Marston (3½ Triumph sc.)
S. Wright (8 Humberette)

SILVER MEDAL WINNERS.

G. Wray (5-6 Clyno sc.)
F. G. Edmond (3½ Humber)
A. J. Dixon (3½ Singer)
L. Guy (Scott)
W. Court (6 A.J.S. sc.)
S. C. Perryman (3½ Quadrant)
J. Baker (3¾ Scott)
T. C. de la Hay (6 Sunbeam sc.)
V. E. Horsman (3½ Singer)
Rex G. Mundy (3½ Triumph)
D. H. Noble (3½ Rover)
G. Featherstonhaugh (3½ Rover)
C. S. Burney (3½ Blackburn)
S. T. Tessier (6 Bat)
S. Tubb (3½ Humber)
H. Silver (4½ Quadrant)
R. P. Ravenhill (3½ Rover)
W. H. Longton (3½ Alldays)
L. A. Bees (4 L.M.C.)
C. Freeman (Clyno sc.)
A. J. Stevens (A.J.S. sc.)

It is anticipated that the A.J.S. team will carry off the team award, for that trio made the unequalled performance of gaining three gold medals.

Of the gold medal winners six drove sidecars, one a cycle car, four motor cycles over 500 c.c., and five lightweights (which were allowed one stop on a hill).

Sidecar Touring in the States.

An American sidecar outfit. The absence of a mudguard to the sidecar wheel will be noticed.

The Harley Davidson luggage carrying tricar which accompanied a recent sidecar tour in the States.

The accompanying photographs show how a little sidecar tour is managed in the States. Half a dozen sidecar outfits, with their drivers and passengers, took part in a recent tour for three or four days under the auspices of the Milwaukee Motor Cycle Club. The luggage question had to be considered, so the tourists hit upon the happy idea of chartering a luggage-carrying tricar, which followed them from town to town, delivering their luggage to them at each night's halt. The vehicle which performed this useful duty was an 8 h.p. twin-cylinder air-cooled Harley-Davidson, a make of machine highly popular in the U.S.A.

CLIMBING BEN NEVIS BY SIDECAR. (See pages 1271-2).
The mountain climbers resting beyond the halfway hut. The little loch seen below is one of the highest in Scotland.

FURTHER SINGER RECORDS.

On Monday last, at Brooklands, B. Haywood, driving a 10 h.p. Singer, continued his onslaught on cycle car records, and succeeded in adding the following to his bag, in addition to those referred to on page 1268.

		Time.
150 miles	... ...	2h. 14m. 5⅘s.
	Speed, 67.12 m.p.h.	
200 miles	... ...	2h. 59m. 13s.
	Speed, 66.95 m.p.h.	

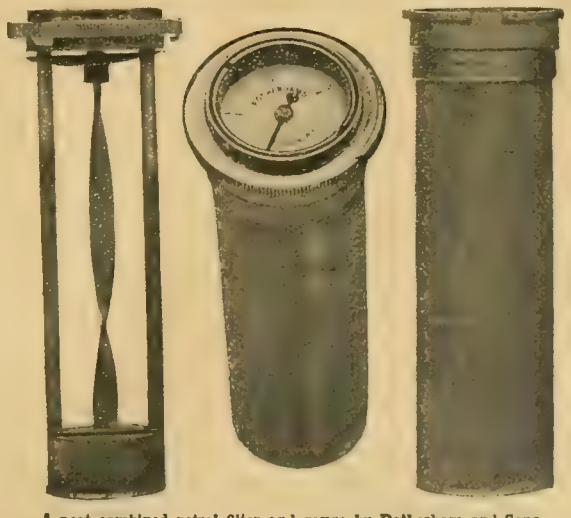
In two hours the Singer covered 134 miles 806 yards. Speed, 67.23 m.p.h.

In three hours 200 miles 1,542 yards were covered. Speed, 66.95 m.p.h.

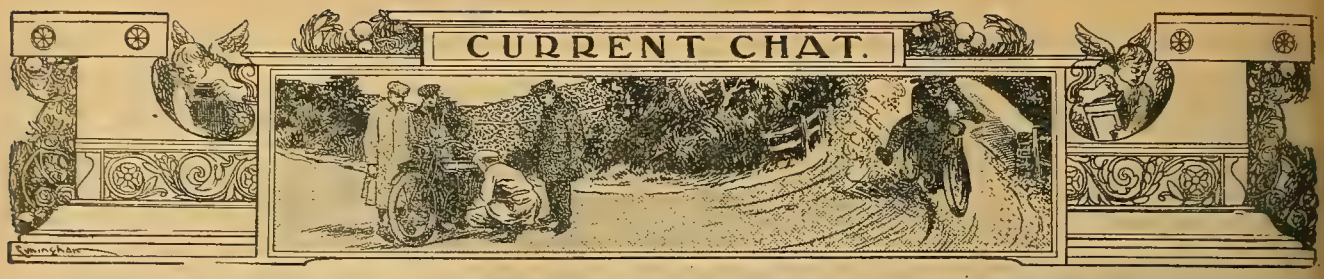
Monday's run had to be abandoned owing to engine trouble.

ROTHERHAM COMBINED GAUGE AND FILTER.

The combined gauge, tank stopper, and filter shown in the accompanying photograph, which is practically self-explanatory, has the advantage of dispensing with a separate gauze filter, the stopper and the gauge indicator being combined together. The fixing of the stopper is the same as the 1913 pattern marketed by Messrs. Rotherham, the gauge being formed by means of a cork float which travels up and down a spiral strip of metal, and revolves the indicator needle which is attached to the strip. The indicator dial is spaced out to show when the tank is quarter, half, threequarters, and full. The gauze filter surrounds the whole of the device, and no petrol can enter the tank without first passing through it. This article is a *multum in parvo*. A tank stopper is a necessity, a gauge is a desirable feature of any motor cycle, and a filter can be regarded as an almost indispensable refinement.



A neat combined petrol filter and gauge by Rotherham and Sons.



TIME TO LIGHT LAMPS.

October	2	...	...	6 36
,,	4	...	...	6.31
,,	6	...	...	6.27
,,	8	...	...	6.22

The Modern Reliability Trial.

Saturday's trial in North Wales of the Liverpool Club was very much like the missing sixth day's run of the A.C.U. Six Days Trials. Single figure gradients in by-lanes, terribly rough surfaces, and a watersplash were provided.

Sidecar Outfit Stolen.

Mr. Richard Bird, Ballydule, Queenstown, reports that his P. and M. and sidecar has been stolen in Salisbury. The registered number is IK 2, and the engine number S 1960. In the sidecar was a new Skew non-skid cover and a Gladstone bag. We are informed that this is the third machine that has been stolen lately in Salisbury.

The Gaillon Hill-climb.

We learn with regret from our contemporary *L'Auto*, that the motor cycle class in the Gaillon hill-climb has been cancelled, probably owing to the fact that the Motor Cycle Union of France does not recognise events run by newspapers. This fact will be a great disappointment both to the dozen or so British riders who expressed to us their desire to compete, and also to the French entrants.

Innovations in the London-Exeter Run.

The M.C.C. winter run to Exeter and back on December 26th and 27th will be over the same route as last year, but to add further interest for this year it is proposed to make one hill each way a non-stop section. Mr. Harold Karslake has been appointed to take charge of the run.

London-Edinburgh Without Stopping Engine.

A slight mishap to the Williamson sidecar which R. G. Mundy was to have driven from London to Edinburgh last week on a non-stop engine run caused the attempt to be postponed a few days. The sidecar was expected in Edinburgh last evening.

Continental Models in 1914.

Considerable improvements are announced amongst various Continental machines. The N.S.U., for example, we understand, will place on the market a type with gear box giving three speeds and possessing a metal to metal clutch. The N.S.U. gear lever as at present fitted will be discontinued, and the gear will be worked by a lever either on the frame or on the handle-bar. Two new Alcyons will be produced in 1914, one of 350 c.c. and the other of 500 c.c. The cylinders will be set at 60°, and the two-speed gear will form a unit with the engine. The first speed will be 50% reduction on the second. The 500 c.c. type will be specially designed for sidecar work. Terrot is also introducing a new model.

SPECIAL FEATURES:

CYCLE CAR ENGINES.

SEVERE TRIAL IN NORTH WALES.

BEN NEVIS CLIMBED.

Over 300 Miles per Gallon.

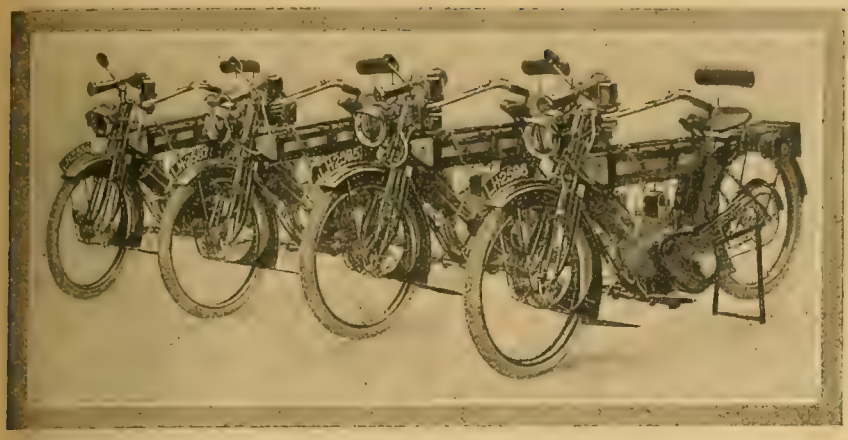
Last Saturday the Sutton Coldfield Club held a petrol consumption trial, and the announced results really make one gasp. In the solo class, two twin James head the list with 334 and 320 miles per gallon respectively, and a Singer cycle car was first in the passenger class with 87 m.p.g., an A.C. having the biggest mileage 101 m.p.g. We do not know the adopted means of checking the results, but we fear that many readers will require some amount of convincing that such remarkably economical results are possible.

Speed Trials at Weston.

The Bristol M.C.C., who are holding open speed trials at Weston-super-Mare on Saturday next, have obtained 120 entries for these events. A capital point is that half of this number are from club members, which shows that sporting events still receive plenty of support, and club life is by no means declining, as some would have us believe.

Elaborate preparations have been made for the smooth running off of the various events, and after crossing the finishing line competitors will return to the starting line by a separately marked off run.

INSPECTION OF THE ULSTER VOLUNTEER CORPS AT BELFAST BY GEN. SIR GEORGE RICHARDSON.
Part of the motor cycle corps.



Four P. and M. machines belonging to the Royal Flying Corps. They are fitted with Kempshall tyres and are very completely equipped, as will be seen from the photograph.

New Manchester Index Number.

Motor vehicles in Manchester have increased to such an extent that the Local Government Board have now granted a fresh registration number to the Council of the County Borough. The new number is NA.

The International Trophy.

The 200 guinea International Trophy, which was won by the English team in the A.C.U. Six Days Trials by defeating the French team, is now on exhibition in Gloucester at the premises of Messrs. Gibb, Gough and Sons, of 26, London Road.

Remarkable—Nobody Killed !

Under the above heading an American contemporary publishes a paragraph relating to a well-known saucer racing track, and says, "The —— track has a remarkable record, in that it has not been marked with an accident, either to riders or spectators, that approached a serious nature."

A.A. and M.U. Notes.

THE LONDON - PORTSMOUTH ROAD. — Those A.A. and M.U. members who have sent in complaints to the Association regarding the unsatisfactory condition of portions of the London-Portsmouth Road will be glad to hear that the local authorities controlling the Petersfield-Portsmouth section are about to spend a large amount in converting the surface into granite in place of the flint and gravel now used.

An Adventurous Sidecar Trip.

A remarkable journey by motor cycle and sidecar has just been accomplished in America, where Mr. and Mrs. Le Roy Snodgrass, of Long Beach, California, have succeeded in crossing the Continent from their home to New York on a four-cylinder Henderson and sidecar. They carried a complete camping outfit, and naturally a good deal of their journey was through very wild and desolate country, especially out West. Specially strong wheels were provided, but otherwise there was nothing very special in the machine. Four months were spent on the trip, the running distance being 5,600 miles. It is interesting to note that 187 gallons of petrol and 14 gallons of oil were used on the journey

The Brooklands Meeting on Saturday.

At the Brooklands meeting on Saturday several new machines will make their appearance, one a twin-cylinder New Imperial to be ridden by E. L. Buchanan. A 3½ h.p. single-cylinder Humber new to track work will be handled by S. Wright, and it is said to be capable of nearly 70 m.p.h. Edmond will bestride his fleet little twin. No fewer than six Singers are entered and five Rudges. A machine which will be watched with particular interest is the A.B.C., which has a new jockey in J. L. E. Emerson, the old Norton exponent. A little Minerva will also try its luck from a limit mark. D. C. Bolton is riding his latest mount—a Douglas—and D. R. O'Donovan (Norton) is training very seriously for the event.

A list of entries follows :

FUTURE EVENTS.

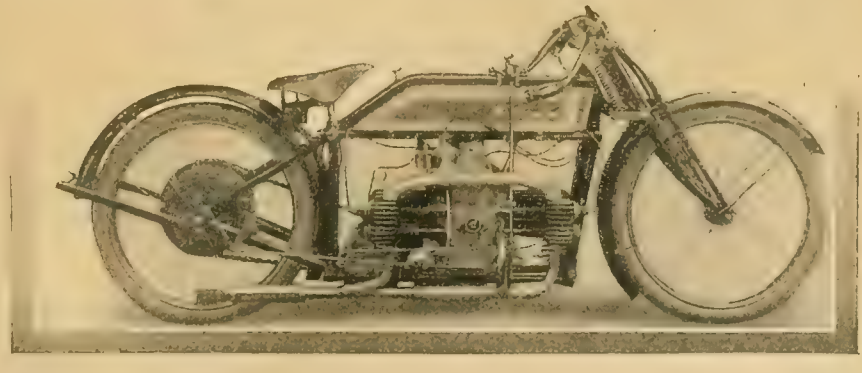
Oct.	4.	—Sutton Coldfield & Mid-Warwickshire A.C. Open Trial.
,,	4.	—B.A.R.C. Brooklands Meeting.
,,	4.	—Bristol M.C.C. Open Speed Trials.
,,	11.	—Coventry & Warwickshire M.C. Annual Open Hill-climb.
,,	11.	—B.M.C.R.C. Meeting and A.C.U. Championships.
,,	25.	—Mersey M.C. Open Trial.
,,	29.	—A.C.U. Open One Day Trial for Cycle Cars.
Nov.	24 to 29.	—Motor Cycle & Cycle Car Show at Olympia.

The 17th Short Motor Cycle Race (a handicap, about 5¼ miles). Prizes £10, £5, and £3, or cups at option. For all classes of motor bicycles.

	Bore and Stroke.
P. Fletcher (Indian 1 cyl.)	82½ × 93
G. E. Stanley (Singer 1)	85 × 88
J. Cocker (Singer 1)	85 × 88
J. R. Haswell (Triumph 1)	85 × 88
J. E. Bird (Singer 1)	85 × 88
N. F. Holder (Blumfield 2)	67 × 95
E. E Elwell (Douglas 2)	61 × 60
W. Heaton (A.J.S. 1)	74 × 81
H. C. Newman (Ivy 1)	70 × 90
L. Hill (Rudge 1)	85 × 88
E. N. Openshaw (Triumph 1)	85 × 88
C. Williams (A.J.S. 1)	74 × 81
J. W. Tollady (Singer 1)	85 × 88
A. L. Monger (Rudge 1)	85 × 88
E. L. Buchanan (New Imperial 2)	70 × 64½
E. C. Stanley (Douglas 2)	60 × 60½
A. M. N. Holzapfel (Green-Precision 1)	70 × 90
W. H. Buckeridge (Douglas 2)	60½ × 60
D. R. O'Donovan (Norton 1)	79 × 100
C. R. Taylor (Zenith 2)	85½ × 60
J. A. B. Hellaby (Indian 2)	82½ × 93
H. W. Wynn (Rudge 1)	85 × 88
M. R. Allen (Douglas 2)	60½ × 60
D. C. Bolton (Douglas 2)	60½ × 60
A. J. Lucc (Zenith 2)	90 × 77
A. G. Miller (Martin-Jap 1)	90 × 77½
W. A. Jacobs (Singer 1)	69 × 93
J. P. Le Grand (Singer 1)	69 × 93
J. A. Manners-Smith (Triumph 1)	85 × 88
R. G. Parker (Norton 1)	79 × 100
W. D. Hawkes (Ixion-Precision 1)	85 × 88
C. G. Pullin (Rudge 1)	85 × 88
A. L. Pullin (Rudge 1)	85 × 88
J. L. E. Emerson (A.B.C. 2)	70 × 64
H. H. Square (Robin-Minerva 1)	68 × 69
F. W. Carryer (New Imperial 1)	90 × 77½
S. Wright (Humber 1)	84 × 90
F. G. Edmond (Humber 2)	60¾ × 60

The 14th Long Motor Cycle Race (a handicap, about 8½ miles). Prizes—£10, £5, and £3, or Cups at option. For all class of motor bicycles

	Bore and Stroke.
P. Fletcher (Indian 1 cyl.)	82½ × 93
G. E. Stanley (Singer 1)	85 × 88
J. Cocker (Singer 1)	85 × 88
J. R. Haswell (Triumph 1)	85 × 88
J. E. Bird (Singer 1)	85 × 88
N. F. Holder (Blumfield 2)	67 × 95
E. E. Elwell (Douglas 2)	61 × 60
W. Heaton (A.J.S. 1)	74 × 81
H. C. Newman (Ivy 1)	70 × 90
L. Hill (Rudge 1)	85 × 88
E. N. Openshaw (Triumph 1)	85 × 88
C Williams (A.J.S. 1)	74 × 81
J. W. Tollady (Singer 1)	85 × 88
E. L. Buchanan (New Imperial 2)	70 × 64½
W. H. Buckeridge (Douglas 2)	60½ × 60
D. R. O'Donovan (Norton 1)	79 × 100
O. M. Baldwin (Matchless 2)	90 × 77½
C. R. Taylor (Zenith 2)	85½ × 60
J. A. B. Hellaby (Indian 2)	82½ × 95
H W. Wynn (Rudge 1)	85 × 88
D. C. Bolton (Douglas 2)	60½ × 60
A. J. Lucc (Zenith 2)	90 × 77
G. C. Miller (Martin Jap 1)	90 × 77½
W. A. Jacobs (Singer 1)	69 × 93
J. P. Le Grand (Singer 1)	69 × 93
J. A. Manners-Smith (Triumph 1)	85 × 88
R. G. Parker (Norton 1)	79 × 100
W. D. Hawkes (Ixion-Precision 1)	85 × 88
C. G. Pullin (Rudge 1)	85 × 88
A. L. Pullin (Rudge 1)	85 × 88
J. L. E. Emerson (A.B.C. 2)	70 × 64
F. W. Carryer (New Imperial 1)	90 × 77½
S. Wright (Humber 1)	84 × 90
F. G. Edmond (Humber 2)	60¾ × 60



The above racing model Williamson has just been supplied to an Italian motor cyclist—F.V. Lantranchi of Milan.

The Inter-club Hill-climb at Arms Hill.

"ARMA virumque cano"—"I sing of arms and the man." So wrote Virgil in the first book of the Aeneid; and so write we of Arms (sometimes called Alms Hill) and the men who climbed last Saturday. We have no little affection for this short sharp hill on the slopes of the lovely Chilterns, as *The Motor Cycle* "discovered" it and wrote it up in February last year. It was a perfect afternoon, more like summer than autumn, and the hill was in excellent condition. Excellent for Arms that is to say, as it has a permanently abnormal surface which, being chalk, is unrideable in wet weather. Just at the steepest part, which is said to be 1 in 3, are two iron drain pipes, one each side of the road, which are called "the cannons," and just below this point the surface is almost dangerously loose.

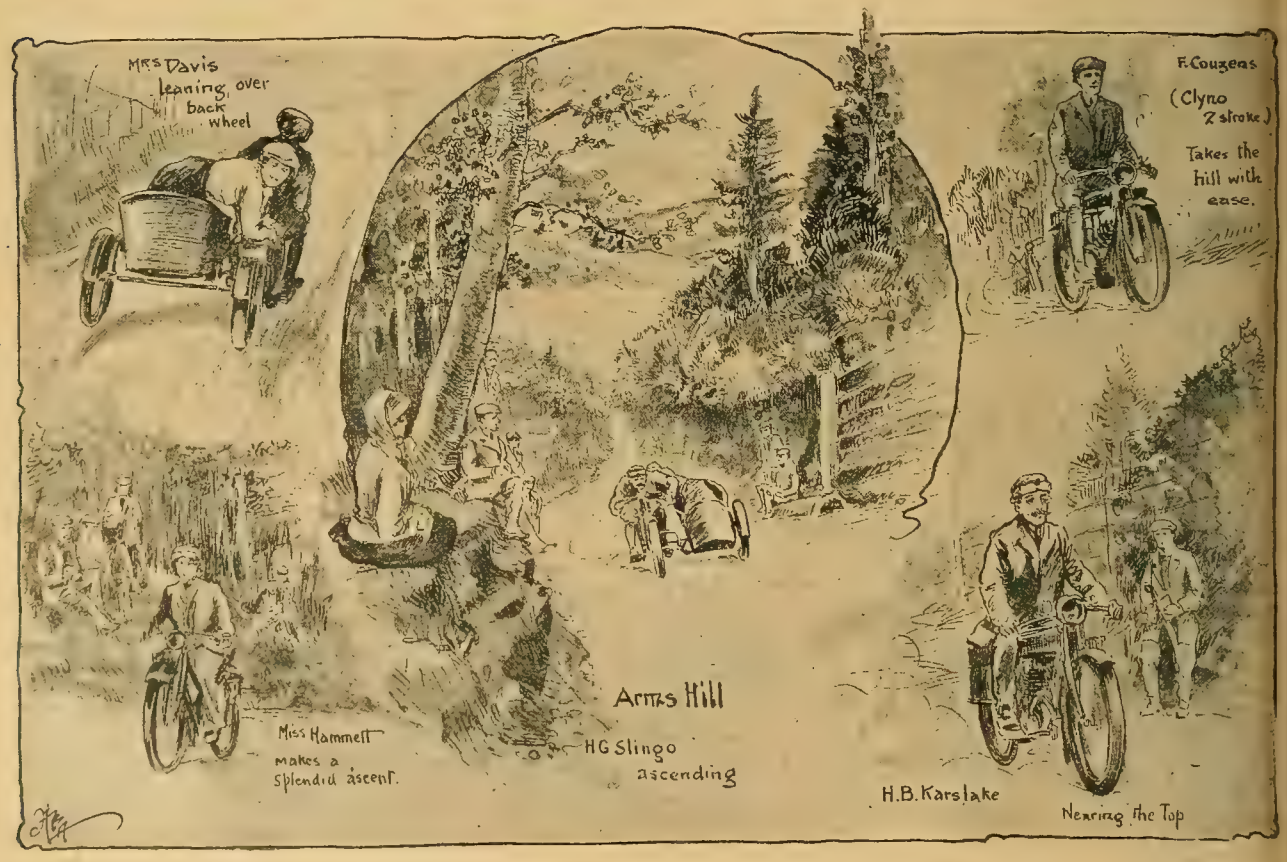
A Late Start.

The hill-climb was advertised to start at 3 p.m., but the event did not begin till 1 hour 45 minutes after this time. One team, the North-west London M.C.C., failed to turn up altogether, and of the two teams left that of the Oxford M.C.C. was composed of eleven men and that of the Middlesex M.C.C. of thirteen men. No times were taken, as the hill was considered too dangerous for a speed climb, but the contest was arranged in the following manner: Observers with flags were placed at four points on the hill, and marks were awarded as follows—up to the first flag 25 marks, up to the second 50 marks, up to the third 75 marks, and up to the last flag 100 marks. The results were based on the ten best scores of each club added together, and of these three had to be single-cylinder solo machines, one solo machine single-speed, three multi-speed solo machines (single or multi-cylinder), and one passenger machine or cycle car. On Saturday not a single cycle car entered the competition. It is a pity that the event was not better organised. No one had number plates, and even the observers did not know the names of the competitors. There was no programme, and the whole event was unbusinesslike. The best feature of the proceedings was the arrangement that no competitor was allowed to descend the hill, as each man had to return to the start by another route, but one man who ignored this regulation and might have caused serious trouble was allowed to get off scot free.

The Climb.

However, Mr. R. C. Davis, of the Oxford team, did his best, and is to be congratulated on giving the press all the assistance in his power. The first man up the hill was Davis on his 1914 Clyno sc. This machine has the cylinder radiating fins cast pear-shaped, larger valves, and a lower compression than last year. He made an excellent ascent, but his passenger, like others in this competition, was seated in an abnormal position. Slingo (Oxford), on a 1913 Clyno sc., also came up well. Gray, 6 Rudge sc. (Middlesex), failed the first time at the lowest flag, and the second time below "the cannons." W. Brown, who was driving a 6 Zenith fitted with the water-cooled valve caps described in a recent issue, for the Middlesex Club, came up in excellent form. Couzens (Oxford), on the new 2½ Clyno two-stroke, made a clean but slow ascent, which was much admired and no mean performance for so small a machine. Another good climb was made by yet another two-stroke, the 2¾ Stuart, ridden by Plint, also for the Oxford Club. H. G. Hill made a good climb for the Middlesex Club on his 2½ single-speed Calcott, but failed on the crest through belt slip. The Douglases ridden by Fletcher, Miss Hammett, Hilger, and Dangerfield for the Middlesex Club, and Eastwood for the Oxford Club, performed well, but Bocock (Middlesex) failed. Mills, Zenith-Green (Middlesex), failed on the summit through belt slip. Brown (Zenith) made a very fast climb solo, but had a terrific skid just short of the last flag. His machine pirouetted in the most extraordinary manner on the ground, but he cleverly extricated himself.

T. A. Brown, 3½ T.T. Triumph, single-gear (Middlesex), probably made the fastest ascent. Karslake's Rover


Mrs Davis leaning over back wheel
F. Couzens (Clyno 2 stroke) Takes the hill with ease.
Arms Hill
Miss Hammett makes a splendid ascent.
HG Slingo ascending
H.B. Karslake Nearing the Top

The Inter-club Hill-climb at Arms Hill.—

(Middlesex) made many excellent ascents both during and before the competition. There were numerous failures, of which quite a large percentage were due to belt slip. Most of the machines had ample engine power for the gradient, and next to belt slip most of the remainder of the failures were due to skidding on the loose surface. The results were as follows. The Middlesex Club won by twenty-five marks, the performances of its teams being as follows :

FIRST THREE SINGLE-CYLINDER SINGLE-GEARED SOLO MACHINES.

Rider and machine.	Marks.
T. A. S. Brown (3½ T.T. Triumph)	100
J. Lloyd (3½ Rudge)	100
M. G. Abraham (3½ Ivy-Precision) failed first flag	25

FIRST THREE MULTI-SPEED SOLO MACHINES.

J. A. Hilger (2¾ Douglas)	100
P. Dangerfield (2¾ Douglas)	100
H. Karslake (3½ Rover)	100

PASSENGER CLASS.

W. W. Brown (6 Zenith sc.)	100

NEXT BEST THREE MULTI-SPEED SOLO MACHINES.

Miss Hammett (2¾ Douglas)	100
W. L. Smith (3½ Premier)	100
G. T. Gray (6 Rudge)	100
Total	925

Also scored :

G. L. Fletcher (2¾ Douglas)	100
H. C. Mills (3½ Zenith-Green)	50
W. W. Brown (6 Zenith)	50
R. D. Bennett (3½ T.T. Triumph)	25

OXFORD M.C.C.

FIRST THREE SINGLE-CYLINDER SINGLE GEARED SOLO MACHINES.

Rider and machine.	marks.
A. F. Plint (2½ Stuart two-stroke)	100
H. G. Hill (2½ Calcott)	50
W. A. Matthews (3½ Triumph) failed above "Cannons."	50

FIRST THREE MULTI-SPEED SOLO MACHINES.

V. Couzens (2½ Clyno two-stroke)	100
H. R. Annis (3½ New Hudson)	100
L. Eastwood (2¾ Douglas)	100

PASSENGER CLASS.

R. C. Davis (5-6 Clyno sc.)	100

NEXT BEST THREE MULTI-SPEED SOLO MACHINES.

R. C. Davis (5-6 Clyno)	100
H. G. R. Slingo (5-6 Clyno)	100
A. James (6 Zenith)	100
Total	900

Also scored :

H. G. R. Slingo (5-6 Clyno solo)	100
T. G. Hill (4¼ James)	50

A Yorkshire Trial for B.S.A. Riders.

Originally intended to be a pleasure jaunt, the trial for B.S.A. machines with sidecars, promoted by Messrs. Armitage and Sons, York Street, Leeds, and held last week-end over an eighty mile course from Leeds to Scarborough, turned out eventually to be quite a serious reliability trial. There were twenty-one entries. The route followed was the main road as far as Malton, and then after some miles the fun commenced. The road was rather hilly, difficult to follow, and included a few water splashes, one of which was situate at the foot of a bad hill and naturally caused some anxiety, although only one competitor failed, the reason being water in his carburetter.

Punctually to time the riders commenced to finish well to their schedule.

After the competitors had been checked in at the second milepost from Scarborough a move was made to the Balmoral Hotel, where over sixty competitors, passengers, and officials sat down to lunch, after which the prizes were distributed as follows :

	Rider.	Marks lost
1.	F. Kilburn	13
2.	C. Clayton	14
3.	H. Fryer	17
4.	H. Noble	18
5.	J. Bader	20

The "hard lines" prize to the rider arriving nearest to thirty minutes after his schedule time was awarded to L. Buckton, and Mrs. Laycock gained the ladies' prize.

Competitors and officials in the B.S.A. Reliability Trial in Yorkshire last week-end.

HERTS M.C.C. FORTHCOMING SPEED TESTS.

The open flexibility and speed events will take place at Brookmans Park on the 25th inst.

The course is about four-fifths of a mile long. It will be divided into two equal sections, called the slow section and the fast section.

The slow section must be transversed at a given speed, according to the division. The rider in each class showing the greatest acceleration over this speed in the fast section to be declared the winner of that class.

Division A. (single-speed machines), 10 miles per hour.

Division B. (variably geared machines), 5 miles per hour.

Division C. (variably geared machines, amateurs), 8 miles per hour.

All competitors exceeding the time limit in the slow section will have the excess deducted from their time in the fast section.

There will be classes for machines of 350 c.c. and larger capacities as usual.

The Motor Cycle in the Army Manoeuvres.

MOTOR cyclists on manœuvres are attached to the Directing Staff, the Chief Umpire's Staff, the Signal Companies, the aeroplanes, and the Divisional Chief Umpires. Those doing duty with the Chief Umpire, Director, and aeroplanes usually live in hotels or standing camps in comfort, riding out and home each day. Those with the Signal Companies and Divisional Umpires bivouac with the units to which they are attached, and "doss down" with a ground sheet and blanket, as tents are not carried on active service. Their motor cycles also "sleep" unprotected in the open fields.

Those motor cyclists who were out during the divisional manœuvres will not soon forget the Friday night near Stukeley. It rained heavily all night; a start was made before the dawn, with everything and everyone dank, dirty, and dripping.

The Divisional Manœuvres came to an end on the Saturday morning, and bands played their regiments into the rest camps, where the luxury of sleeping in a tent was enjoyed by some.

Early on the Monday morning the Army exercise began, and consisted of moving two columns along two parallel roads *via* Leighton Buzzard and Towcester, until on the Wednesday the four divisions deployed for the attack, which concluded late on Thursday. All food and fodder was brought up from the railhead by means of mechanical transport, from which the horsed transport of the various units picked up their rations.

All despatch riders have their exciting moments and hair's breadth squeaks, so that it is more interesting to make a general review of the motor cyclists' work and how machines and traffic control have improved.

In 1910 the casualties amongst motor cyclists were enormous, dozens of machines being wrecked or put out of action. This was due to the difficulty of passing troops and trains on the roads. Things were better in 1911, and this year the manner in which way was made for despatch riders was just wonderful, the only troublesome people to pass being the regimental bands and the yeomanry. I award the palm for giving easy passage to the cavalry and artillery. It was thrilling meeting the heavy artillery once at the trot!

Reliability and Silence.

As an instance of the reliability of machines, there were nine of us working with the headquarters of the Third Division for ten days. Every one of the machines was in the open night and day, rain or shine, and yet after a night in the rain each machine fired promptly, and at the conclusion of manœuvres not a single machine had crocked, the average mileage being about 650. Naturally, there were bent footrests and damaged lamps, but what would one expect when one has so frequently to ride across fields and take to ditches and roadsides! There was quite a number of single-geared fixed engine machines out, but these were heavily handicapped when trying to pass troops and trains on narrow roads, when the gutters were thick with mud. Fortunately for the owners, hills were few. Tyres gave a good deal of trouble, due in most cases to gashes from bottles.

MOTOR CYCLISTS AND THE MILITARY MANŒUVRES.

(1) Invasion of Whatley by the White land force. Cambridge University Scouts attached to the Headquarters Staff. (2) A motor cyclist scout receiving instructions from an officer, near Towcester. (3) Priming the 80 h.p. Gnome engine of the Blackburn monoplane from the tank of a Blackburne motor bicycle.

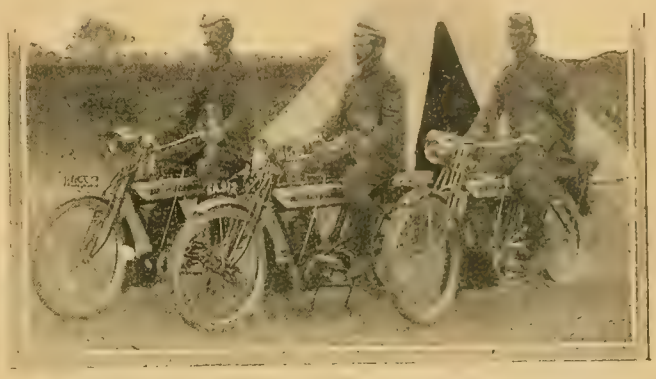
The Motor Cycle in the Army Manœuvres.—

It would be an excellent thing if motor cyclists on manœuvres would try to render their machines as *noiseless* as possible, instead of removing silencer ends and opening cut-outs, as so many of them do. Tired men, marching long distances, become irritated by the ceaseless string of barking motor cycles brushing past, and their nerves get on edge.

A Compliment to the Motor Cycle.

Officers and men seem to think (and it is a compliment) that a motor cycle can go through any block, over any surface, in any weather, when really an aeroplane would be the only suitable vehicle. These manœuvres are the third in which I have served as a motor cyclist, and they have easily been the most strenuous owing to the fact that I was the only motor cyclist serving with the umpires of my division, and this caused me to be never off duty; in fact, I did not even remove my boots for five days. My most unpleasant experience was meeting and passing the mechanical transport of the Second Brown Army at night on a narrow greasy road near Leighton Buzzard, blinded by the continuous stream of powerful headlights. The Army rations (active service) consisted of "dixie" tea and bread and butter for breakfast. Biscuits and cheese in haversack (sometimes). Bread and butter and tea (sometimes bully beef) for supper. The one good meal was dinner in the rest camp on the Sunday after Divisional Manœuvres, viz. stewed beef, peas and potatoes.

Many of the officers I came in contact with were motor cyclists, but all of them said they had more respect for their machines than to bring them out on manœuvres. It is left for enthusiasts like the readers of *The Motor Cycle* to fill the breach, and here I find myself, tired and sleepy, yet looking forward, all being well, to next year's Army work. MERCURY.



Sergeant Smith, Corporal Armstrong, and Corporal Robinson of the London Cyclist Corps on manœuvres. All are riders of Zenith-Gradua machines.

BIRMINGHAM-CARLISLE-BIRMINGHAM.

Open 24 Hours' Trial of the Birmingham M.C.C.

The official awards in connection with the above run, a report of which appeared last week are as follow: H. Ball (Triumph), F. E. Baker trophy and gold medal for best solo performance; W. H. Egginton (Enfield sc.), L.M.C. watch and gold medal for best passenger performance; team prize, value £3 3s., the Rover team (R. W. Duke, D. M. Brown, and G. N. Ratcliffe).

GOLD MEDAL WINNERS.

E. Walker (Monarch sc.)
T. Stevens (James sc.)
F. J. Chidley (Triumph)
A. G. Cocks (Connaught)
S. A. Rowlandson (Rudge)
R. W. Duke (Rover)
A. G. Clease (Rudge)
A. N. Barrett (Rudge)
E. H. Littledale (Ariel)
T. A. Biggs (Rudge)
D. M. Brown (Rover)
H. Berwick (Hampton)
H. G. Dixon (James)
S. C. Perryman (Quadrant)
L. L. Sealey (B.S.A.)
G. Nott (Clyno sc.)
J. D. Drysdale (Hazlewood)
W. H. Bedford (Hazlewood)
M. L. Riley (Enfield sc.)
A. H. Johnson (Alldays sc.)
H. Hopkins (Abingdon King Dick)
S. Tharp (Triumph)
L. Newey (Ariel)
H. R. Davies (Diamond)
A. H. Mee (Diamond)
A. Milner (Levis)
E. Gutgemann (Veloce)
G. N. Ratcliffe (Rover)
A. W. Sarsons (Sun-Villiers)

SILVER MEDAL WINNERS.

F. E. Farmer (Ivy-Precision)
J. Huntingdon (Triumph)
S. Wright (Humberette)

BRONZE MEDAL WINNERS.

F. T. Hill (Triumph)
H. G. Liefeldt (Rudge)
K. K. Scheve (Rudge)
T. Pollock (James)
J. Drew (Enfield sc.)
T. F. Blumfield (King Dick)

With the results an official announcement states that owing to the method of timing (by competitor's own watch and checkers' synchronised watches) having confused some of the checkers, those checks about which there was the slightest doubt as to the accuracy or otherwise of the times taken have been ignored. The only checks considered were Kendal (both journeys), Shap (outwards only), and the finish. Carlisle was taken as an untimed control only.

REMARKABLE RESULTS OF A PETROL CONSUMPTION TEST.

Sutton Coldfield and Mid-Warwickshire A.C. Trial.

The annual petrol consumption trial was held on Saturday last, the 27th ult., over a course twenty-three miles long, which included three steep hills. Fifteen started, and the winner's mileage caused quite a sensation when announced at tea, which was taken at the Royal Hotel, Sutton Coldfield, the club's headquarters. The results are as follows on formula:

		m.p.g.
1.	T. Pollock (3½ twin James)	334
2.	H. G. Dixon (3½ twin James)	320
3.	S. A. Rowlandson (3½ Rudge)	187
4.	H. E. Perry (3½ Ixion)	110
5.	H. E. Lane (2¾ N.V.)	192
6.	A. Butterfield (2¾ Levis)	192
7.	J. St. John (2¾ Levis)	160

The Levis machines were fitted with 1914 Binks carburetters, and, considering they were only fitted the day of the trial, the mileage was very good.

The sidecar and cycle car result was:

		m.p.g.
1.	Howard Smith (10 Singer)	87
2.	P. W. Hill (5-6 A.C.)	101
3.	R. W. Lovegrove (7 Indian sc.)	87
4.	Mrs. Riley (6 Enfield sc.)	75½
5.	J. H. Brown (6 Rex sc.)	67

SATURDAY'S OPEN TRIAL IN THE MIDLANDS.

There are over eighty entries up to date for the open trial on October 4th, including the following teams: Matchless, Scott, Sunbeam, James, Blackburn, Quadrant, Ariel, Enfield, Rudge, Clyno, and South Birmingham M.C.C. The start will be from the quadrangle of the Midland Wheel Club, Paradise Street. Route: Worcester, Ankerdine Hill, Martley, Abberley Hill, Ludlow (lunch), Whitback Hill (flexibility climb), Norton, Farlow Bank, and finish at club house. By the kindness of the Midland Wheel Club all competitors and officials will be made members of the club for the day.

The course measures 125 miles, and the first man will be started at 8 a.m., and is due back at 4.15 p.m.

CLUB NEWS.

Oxford M.C.C.

A members' hill-climb will be held to-day (Thursday) at 3.30 p.m. at Blowing Stone Hill, Kingston Lisle, near Wantage. There will be four classes.

Colchester and District M.C.C.

A reliability trial was held on the 25th ult. for a cup presented by the borough member (Mr. L. Worthington Evans). Result:

	Rider and machine.	Marks.
1.	T. S. Wilkin (3½ T.T. Rudge)	325
2.	F. E. N. Crosby (3½ Swift)	318
3.	C. L. Gray (3½ T.T. Triumph)	312

Each rider was credited with 400 marks at starting, points being deducted for errors in time of arrival at various checks, of which there were ten, in the course of eighty-six miles.

Walthamstow M.C.C.

The annual speed trials were held last week over a course of sixteen miles, including one turn. The weather was rather misty, which made driving at high speeds tricky. The results on handicap were:

	Rider and machine.	Speed.
1.	G. Bax (3½ Scott)	50½ m.p.h.
2.	J. H. Kerr (3½ N.S.U.)	47 ,,
3.	A. G. Peppercorn (10 Wasp c.c.) ...	36½ ,,

The W. S. Low Cup competition will be held on October 5th over a sporting course of 150 miles in Essex, including several steep hills and hairpin bends.

Middlesex M.C.C.

The annual speed-judging was run off last week-end, and proved a most enjoyable event. The course was of three-tenths of a mile, mainly up hill, and three runs were given—at 14½ m.p.h., 19 m.p.h., and 25½ m.p.h. respectively. The timing was in the hands of H. Karslake, and the results were announced within a few minutes of the finish. They were as follows:

	Rider and machine.	Total error.
1.	Miss May Walker (2¾ Hobart)	10⅗s.
2.	S. A. McCarthy (8 Sabella c.c.)	12s.
3.	A. E. Lloyd (3½ Triumph)	13⅗s.
	H. J. Martin (3½ Rover sc.)...	15⅘s.
	P. Dangerfield (2¾ Douglas)...	16⅗s.
	Miss R. Hammett (2¾ Douglas)	17s.
	H. Boocock (2¾ Douglas)	17⅘s.
	J. A. Hilger (2¾ Douglas)	19⅖s.
	T. J. Heavey (3½ Veriot-Jap)	25⅗s.

By special request the run next Saturday will be to Broxbourne, leaving headquarters at 3 p.m. The route taken will be *viâ* Potter's Bar and Goff's Oak.

Kingston-on-Thames and District M.C.C.

The trial over 100 miles course for the Butler Cup resulted as follows: 1, D. W. Morgan (3½ Rover); 2, F. Woombell (3½ Triumph); 3, F. Dawson (7 Foster-Dawson sc.)

Manchester M.C.C.

The results of the members' hill-climb at Axe Edge, Buxton, on September 20th, were as follows. This was the last event of the year:

Solo Class.—1, F. Knight (3½ Bradbury); 2, H. J. Scale (3½ Scale-Jap) fastest time of the day.

Sidecars and Cycle Cars.—1, G. F. Robson (8 G.W.K.); 2, J. Eastwood (3½ Bradbury sc.)

Motor Cycling Club.

The closing run will take place on October 19th to Burford Bridge. Lunch at 1.30.

The winter run will be held on December 26th and 27th this year, and a committee meeting will be held on December 8th to pass the entries, after which none can be received. All application forms from prospective members, together with their entry forms, must be in the hands of the hon. sec. by the 1st of December.

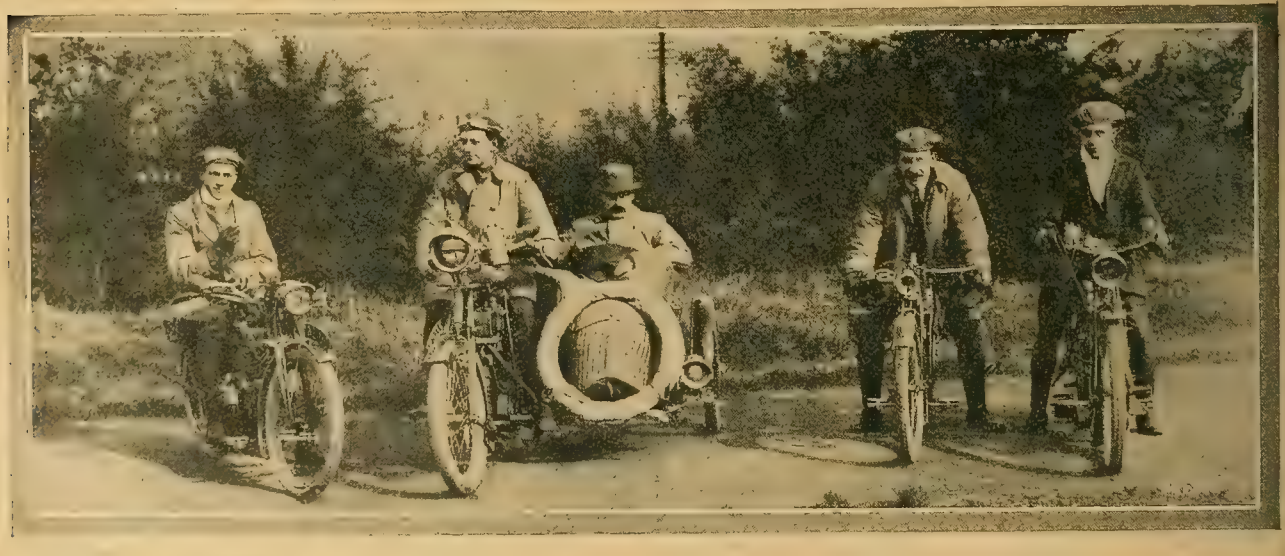
Ipswich and District M.C.C.

On Saturday last an inter-club reliability team trial was held between the Ipswich and District M.C.C. and the Bury and West Suffolk M.C.C. The start was at Stowmarket, and the competitors then proceeded to Thetford *viâ* Bury, where the first stop was made. At this check there was very little difference between the competitors' and the schedule time. The piloting through Thetford was arranged by Mr. J. G. Brown, who enlisted the aid of the Thetford Boy Scouts. After leaving Thetford the members made for Norwich, where the next check was placed, this being practically half-way round the course. After signing the check sheet the competitors made for the Great White Horse Hotel, Ipswich, for tea. The winners were:

		Marks lost.
	V. C. Cook, Ipswich (3½ Rover sc.)	1
	J. H. Marshall, Bury (3½ Bradbury)	3
	Val. Revitt, Ipswich (3½ Rudge)	3
	A. A. Scott, Ipswich (3½ Bradbury)	4
	F. Z. S. Pettitt, Bury (3½ Premier)	4
	E. Scott, Ipswich (2¾ Douglas)	4
	A. J. Simpson, Ipswich (7 Indian)	4
	J. F. Nunn, Bury (2¾ Douglas)	4

Ipswich thus won the trial.

The Ipswich and District M.C.C. hold their closing run on Saturday, October 11th, starting from the Great White Horse Hotel, Ipswich, at two o'clock prompt.



WINNING TEAM IN THE SHEFFIELD AND HALLAMSHIRE M.C.C. TEAM TRIAL OF 80 MILES.

Left to right—E. Thompson (2¾ h.p. Douglas), J. H. Haigh (6 h.p. Enfield sidecar), J. A. Stacey (2¾ h.p. Douglas), and A. Boyd (3½ h.p. Rudge).

Club News.—

Ipswich and District M.C.C.

On September 20th the Ipswich and District Motor Cycle Club held their third club run. The weather was unsettled, and prevented many from taking part. After travelling some distance three competitions were held, the winner of the three being R. Fenn on a 3½ Triumph. The second position in these events was taken by D. W. Popplewell.

Inter-county Hill-climb at Warnell Fell.

The Westmorland and Cumberland M.C.C.'s held a joint hill-climb at Warnell Fell on September 18th. This hill, it will be remembered, was chosen for the flexibility test in the recent Six Days Trial. From base to summit the distance is about 100 yards short of a mile. The surface was in fairly good condition. The best time of the day, 1m. 1s., was done by B. Jeffreys in the 1,000 c.c. class on formula.

TIME RESULTS.

CLASS 350 C.C.

Rider and machine.	m.	s.
H. A. Rhodes (2¾ A.J.S.)	1	37⅕
P. M. Gilbanks (2¾ Douglas)	1	37
S. Barrow (2¾ Humber)	1	42⅖

CLASS 500 C.C.

E. F. Gilbanks (3½ Rover)	1	5⅗
G. W. Braithwaite (3½ Zenith)...	1	12⅕
J. Braithwaite (3½ Braithwaite)	1	15⅗

CLASS 750 C.C.

E. F. Gilbanks (3½ Rover)	1	5⅖
G. W. Braithwaite (5-6 Rudge)...	1	14⅘
P. N. Gilbanks (3½ Triumph)	1	24⅖

CLASS 1,000 C.C.

B. Jeffreys (8 Zenith)	1	2
E. F. Gilbanks (3½ Rover)	1	5⅖
G. B. Biglands (6 Zenith)	1	12

FORMULA RESULTS.

Class 350 c.c.—1, H. A. Rhodes; 2, P. N. Gilbanks; 3, G. Rutherford.

Class 500 c.c.—1, E. F. Gilbanks; 2, J. Braithwaite; 3, E. T. Scott.

Class 750 c.c.—1, G. W. Braithwaite; 2, R. Drinkall.

Class 1,000 c.c.—1, B. Jeffreys; 2, G. B. Biglands.

Sidecar Class.—1, Miss Biglands; 2, R. L. Williamson; 3, E. Burras.

East Essex M.C.C.

The above club are holding a petrol consumption test on Saturday next, from Colchester to Chelmsford, starting at three o'clock.

Bristol B. and M.C.

This club held its fifth reliability trial over a secret circular course of twenty miles. The course had to be ridden three times, each circuit being non-stop, with time check at the end, and one secret check per circuit. The route cards being handed out, the competitors found the course included three exceedingly stiff hills, and ran over twisty country lanes so that to keep up the schedule speed of 20 m.p.h. was no light task, yet eight completed the trial without stop, and the greatest total time error on the six checks was six minutes. So close was the riding that only four seconds divided the first two men. Results:

Rider and machine.	Total time error
1. H. A. Pritchard (3½ Triumph)	84s.
2. A. S. Richards (2¾ A.J.S.)	88s.
3. Eric Butler (2¾ Humber)	145s.
4. E. H. Staples (2½ A.J.S.)	181s.
5. W. H. Goodenough (6 A.J.S. and sc.) ...	201s.

H. A. Pritchard wins the silver cup presented by the Motor Cycle Manufacturers' Union, and A. S. Richards the first club prize, with E. Butler as second, and E. H. Staples as third.

Public Schools M.C.C.

The Public Schools M.C.C. held another of their sporting week-ends recently, meeting at Purley Corner, thence running down to see their team compete in the Streatham and District M.C.C. speed trials. After the racing seven members left the Old Ship, Brighton, at four o'clock for New Romney, and gradually, owing to various causes, shed the slower members of the party, who were, however, enabled to catch up again, owing to the two leaders having such vicissitudes as finding themselves in a coal yard in Hastings instead of on the road to Winchelsea; also going some four miles out of the way and having to return. Browning (Indian) reports that he chased Max Cremetti (Trump-Jap) for four miles to tell him they were on the wrong road before he could catch him. About eight o'clock the party arrived at New Romney, where they had dinner.

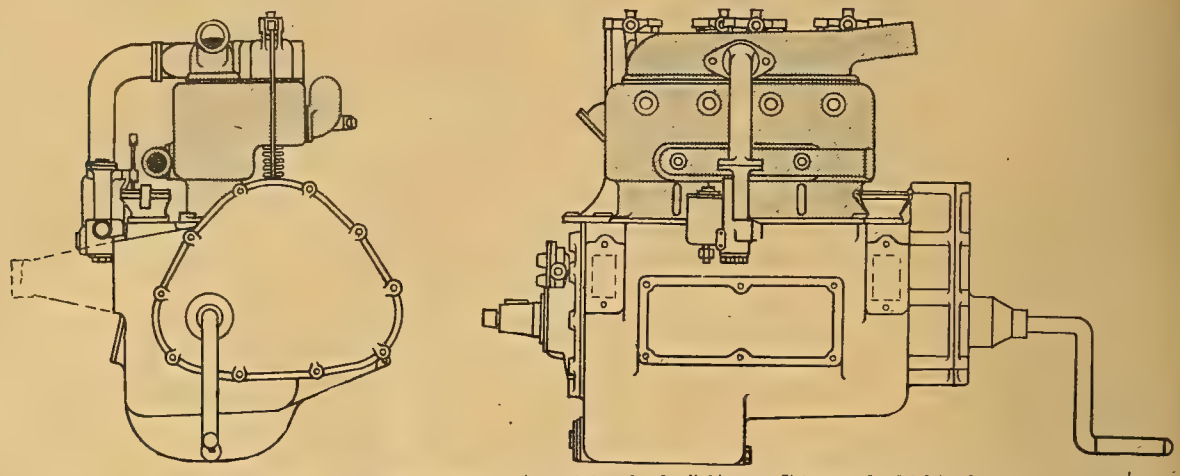
Next day the club set out for Maidstone for lunch, which was reached after a glorious run, in which Keller's Triumph distinguished itself by keeping up with Getting's big Bat and Browning's 7 T.T. Indian. After lunch a run to Sevenoaks, whence the majority returned to London, ended a most amusing and sporting week-end.

Next year it is to be hoped that the little red flag will be seen in increasing numbers.

The club is run on the most thoroughly sporting lines, and there is great *bon camaraderie* among all the members.

The above photographs have been received from an Italian tourist, Robert Bertolotti, and depict the Schlunderbach Pass being climbed by a 3½ h.p. Triumph on the way to the Ursurina Pass, Tyrol. This is believed to be the first ascent of this pass on a motor cycle.

Blumfield Four-cylinder Light Car Engine.



The latest design four-cylinder Blumfield water-cooled engine for light cars. It has overhead inlet valves.

ON August 7th last we briefly referred to the fact that Messrs. Blumfield, Ltd., were about to market a four-cylinder water-cooled engine for small cars and cycle cars. We are now in a position to give detailed particulars of this engine, which is well and substantially built, and for which a brake horse-power of 19.15 h.p. is claimed when running at 2,300 r.p.m. The normal crankshaft speed is 1,750, at which rate of revolutions 9 to 10 h.p. is obtained.

The four cylinders are cast together, and have a bore and stroke of 62 × 90 mm. = 1,088 c.c., the cylinders being offset five millimetres. The cooling is on the thermo-syphon principle. The pistons are fitted with two rings, and the gudgeon pins are a driving fit in the piston lugs, while a V slot cut in the gudgeon hole permits the insertion of a flat spring which prevents the pin from turning round or working loose. The connecting rods are of the usual H section steel; the big ends are lined with anti-friction metal which are provided with excellent bearing surfaces.

The valves, which are all on the near side, are of nickel steel, and the inlets are overhead, carried in a neat box to which is pivoted the valve rocker, the springs and guides being entirely enclosed and a lubricator is fitted to the rocker. The tappets are adjustable. The camshaft and magneto are silent chain-driven, one chain being used to drive both shafts, the chain being adjustable by an eccentric bearing on the magneto drive can be altered in tension in about two minutes without dismantling any parts.

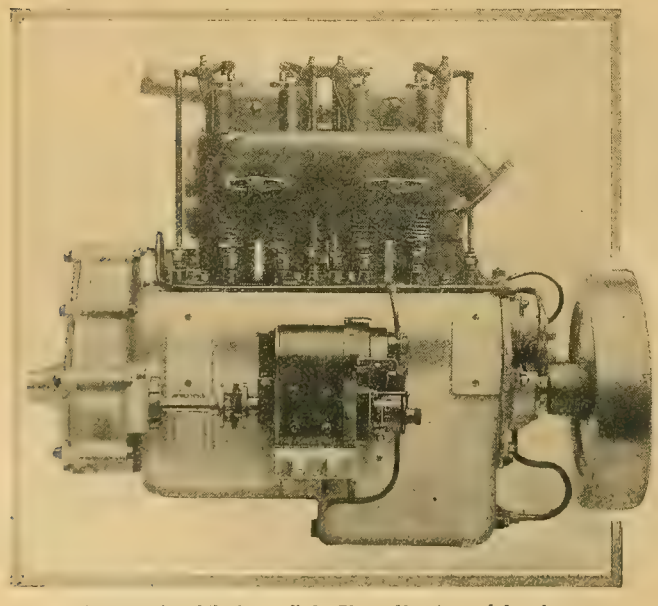
Extreme Accessibility.

One of the special features of this engine is the crank case, which is cast in one piece, only a small end being left open through which the shaft is passed into the case. The big end bearings can be taken up or the pistons and connecting rods withdrawn bodily through an inspection door without dismantling any other part of the engine—an admitted advantage over the horizontally divided chank case, where the bottom half must be removed to get at the big end bearings, etc.

The lubrication is by gear pump with forced feed to the main bearings and splash to big ends, pistons, and other parts. The big ends dip into troughs which are fed by a distributer pipe inside the crank case.

The weight of this engine, complete with flywheel, magneto, and carburetter, is 190 lbs. It is fed from a Zenith or S.U. carburetter attached to the off side, the gas passing through the induction pipe which is carried through the top water jacket and connected to the inlet valve box by a coned Dermatine ring.

The works management at Lower Essex Street, Birmingham, are always careful to see that engines develop on the brake test about double the nominal power at which they are listed, and we were present at the works last week when one of these engines was on test, when with 6in. × 7in. fan blades the speed attained was 2,150, which equals 17.41 b.h.p., while at 2,200 r.p.m. with the same fan blades the power given off was 18.65 h.p. An examination we made of a horse-power chart showed that with the large fan blades fitted in the seventh hole 23.2 h.p. was recorded. The price of the Blumfield four-cylinder engine with flywheel, magneto, and carburetter is £60.



Magneto side of the four-cylinder Blumfield water-cooled engine.

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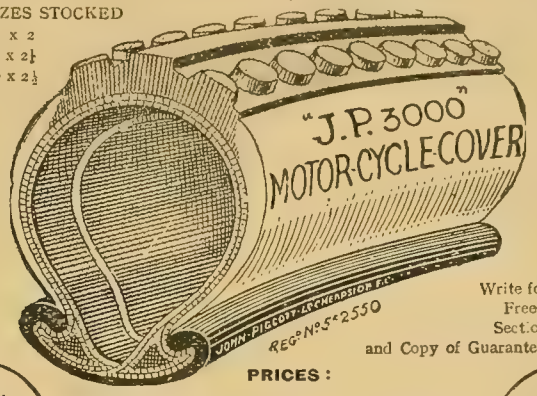

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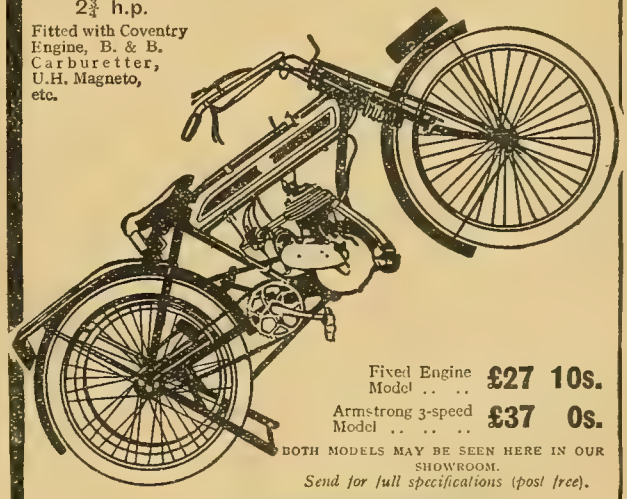

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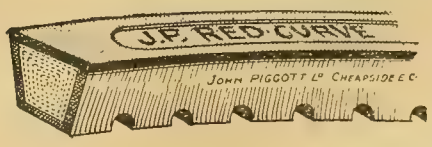

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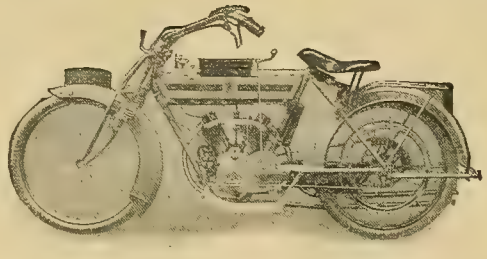

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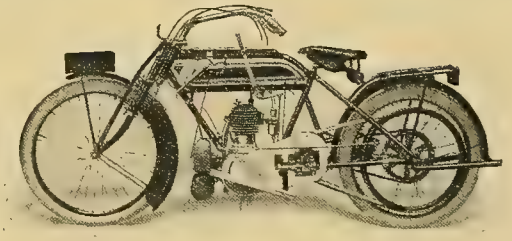

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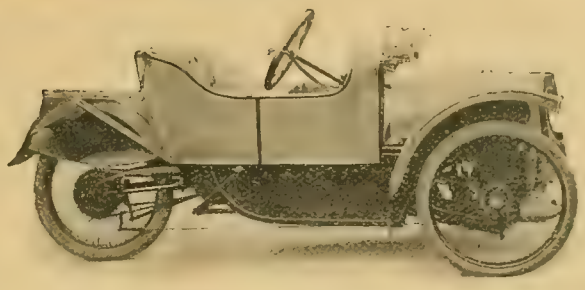

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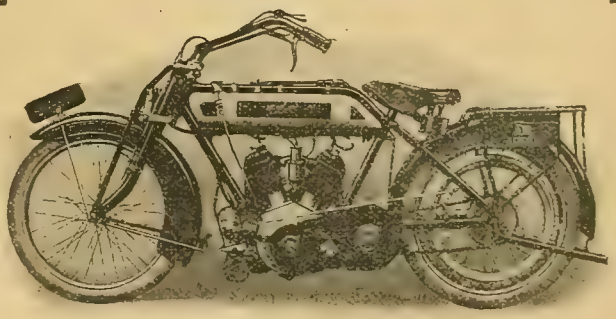

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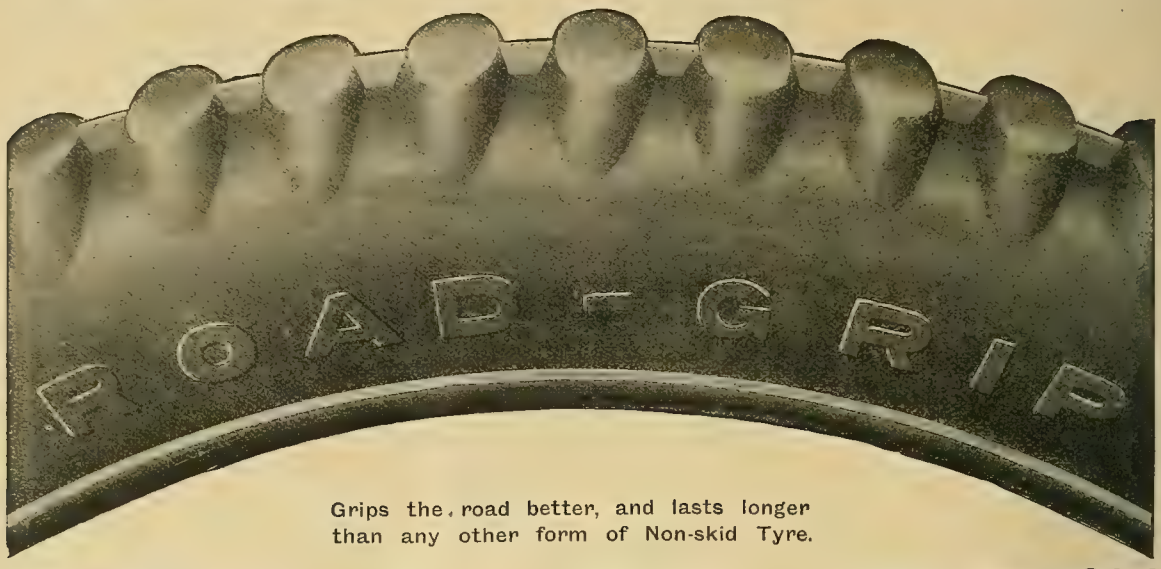

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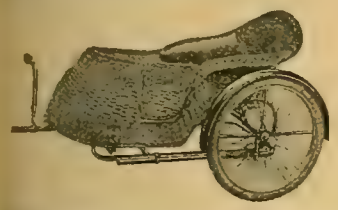
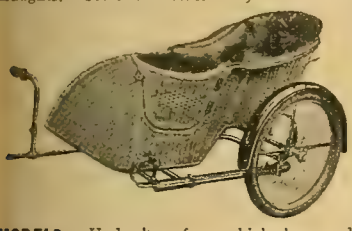
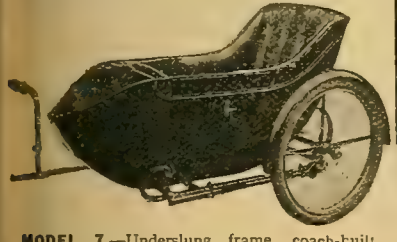


MODEL 9.—Underslung frame, body fitted with side door, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£7 7s.**



MODEL8.—Underslung frame, high-class reed cane body, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£8 17s. 6d.**



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This attachment is particularly suitable for improving the riding position of machines which are too high. It will be noticed that clearance is left for the peak of the saddle, which allows the saddle to be placed well forward.

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REX, 1909, 6½h.p., Roc gear, Bosch, Lukin; £30; exchange Douglas, 2-speed, cash.—Dr. Peacock, Leyburn. [X1614

1911 3½h.p. F.E. Singer, splendid running order, tyres excellent; £28.—Smith, 37, Leicester St., Southport. [X1603

1913 Precision Lightweight, 2½h.p., not ridden 300 miles; £26.—Lewis, 10, Lansdowne Rd., Ashton-on-Mersey. [X1636

1911 Rex, 3½h.p., as new, Bowden 2-speed and kick starter, all spares, etc.—Hurst, Scotland St., Ashton-under-Lyne. [X1526

1913 American Excelsior, 7h.p., chain drive, free engine, not done 100 miles; accept £45.—Sunny Bank, Rawtenstall. [2412

1913 Douglas, models O, P, and R; delivery from stock; end of season prices.—Cordingley, Haslingden. Tel.: 2Y. [2140

1913 Matchless, 6h.p., 2 speeds, F.E., brand new; to clear £62/10; no exchange; all other models for immediate delivery.—Cordingley, Haslingden. Tel.: 2Y. [2141

1913 Scott, just arrived, brand new; clear for £60.—Cordingley, Haslingden. Tel.: 2Y. [2144

1913 Singer, 3½h.p., 3 speeds, F.E., brand new; list £58/15, £48/10.—Cordingley, Haslingden. Tel.: 2Y. [2146

BRADBURY, 3½h.p., T.T., 1911 model, splendid order; £27/10.—Cordingley, Haslingden. Tel.: 2Y. [2147

SCOTT, new October, 1912, in really fine order; £55, or very close offer.—Cordingley, Haslingden. Tel.: 2Y. [2148

1913 Singer, 3½h.p., T.T. model, a real fiver; £37/10.—Cordingley, Haslingden. Tel.: 2Y. [2149

2¾h.p. Torpedo, complete with speedometer, lamp and horn, 1912 model; a bargain, £26.—Cordingley, Haslingden. Tel.: 2Y. [2150

HUMBER, 3½h.p., 2-speed, free engine, handle starting, sidecar complete; a bargain, £25.—Cordingley, Haslingden. Tel.: 2Y. [2151

TRIUMPH, 3½h.p., 1908 standard, Mabon clutch, footboards, good machine; £20.—Cordingley, Haslingden. Tel.: 2Y. [2152

TRIUMPH, 3½h.p., lamp, horn, tools, etc., in good condition; accept £18.—Cordingley, Haslingden. Tel.: 2Y. [2153

PREMIER, 3½h.p., 1910 model, complete with lamp, generator, horn, tools, etc.; £25.—Cordingley, Haslingden. Tel.: 2Y. [2154

HOBART, 1912, 2¾h.p., fixed engine model, only done 1,600 miles, speedometer, lamp, etc., absolutely as brand new; clear for £25.—Cordingley, Haslingden. Tel.: 2Y. [2155

1912 Rudge, 3½h.p., free engine model, complete, and just like new, bought this year; £35.—Cordingley, Haslingden. Tel.: 2Y. [2156

1911 3½h.p. Humber, 2-speed, F.E., and sidecar; clear, £27/10.—Cordingley, Haslingden. Tel.: 2Y. [2157

1912 3½h.p. Free Engine Triumph, splendid condition, just been overhauled; £38.—Tattersall, Linden Grove, Middlesbrough. [X1061

TRIUMPH, 3½h.p., 1913, free engine, 3-speed, little used, in perfect condition; £46.—Rev. H. Pinck, 115, Tweedale St., Rochdale. [X1609

2¾h.p. Royal Enfield, 1911, new Whittle, condition as new; nearest to £25.—F. Hughes, Ellesmere Rd., Lower Walton, Warrington. [X1722

T.T. Douglas, 1913, 2,500 miles, spare cover, lamp, horn, adjustable pulley, new Kempshall back; £39.—Eckersley, Carr Hill, Rochdale. [2301

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£22.—Late 1910 F.N., 5-6h.p., perfect condition, King of the Road lamp, horn, mirror, overalls and goggles; bargain.—43, Lime Grove, Cheadle, Manchester. [X1671

SHOP-SOILED Unused 6h.p. A.J.S. Combination; makers' price £92/10, our price £82/10 cash; guaranteed.—The Motor Mart Co., Old Lancaster Rd., Morecambe. [0338

1910 P. and M., 3½h.p., 2-speed, free engine, excellent condition, Kempshalls, lamp, horn, tools, spare tube and sidecar couplings; £30—29, Blenheim Rd., Bradford. [X1678

ARIEL, 1911, 3½h.p., decompressor, mag., Druid forks, nearly new tyres and belt, complete with lamp and horn; £21 for quick sale.—Greaves, Aysgarth, Broom Rd., Rotherham. [2230

ROYAL Enfield, 2¾h.p., new last year, 1,000 miles, engine, tyres, appearance as new, lamp, horn, tools and spares, perfect; £25, or near offer.—Popplewell, Stanks, Leeds. (Telephone.) [X1736

NOW OR NEVER.

Make up your mind now if you wish to secure a brand new **1913 £52 10s. machine for £35 10s.** Our stock is nearly exhausted, and we cannot offer any more at this price.

We offer a Brand New 1913 Machine at a reduction of £17 off list price, or we will accept **£9 down and 12 Monthly Payments of £2 5s.**

Read the following specification, and secure one of the biggest bargains ever offered.

NEW 1913 3¾ h.p. A.S.L.-PRECISION.

Fitted with 3¾ h.p. Precision engine, Bosch weatherproof magneto, Best and Lloyd drip feed lubricator, Hutchinson rubber-studded tyres, handle-bar control, and complete with stand, carrier, number-plates, toolbag, and spare spring. Limited number only. If you are a cash buyer we will

ALLOW A DISCOUNT.

We will take your present machine in exchange if required. We will supply 2-speed gear and free engine for **£6** extra. Don't miss this bargain.

OFFERS WANTED FOR THE FOLLOWING

New 1913 3-speed 3¾ h.p. **HUMBER.**	
8 h.p. **BAT-J.A.P.,** P. and M. 2-speed	£35 10
3½ h.p. **REX,** 1909 model, magneto	£15 10
4 h.p. Twin **N.S.U.** on Rex frame, magneto	£13 10
3½ h.p. **PREMIER,** 1911½, B.S.A. 2-speed	£32 10
3¾ h.p. **HUMBER,** 1913, 3-speed model, done about 200 miles, complete with sidecar	£46 0
8 h.p. **G.W.K.** 1912 model, not much used	£98 0
3½ h.p. **REX,** 1908, 2-speed, sidecar	£18 10
3¾ h.p. **A.S.L.,** brand new, 1913 model	£35 10
3¾ h.p. **PREMIER,** 1913 model, 3 speeds, only run 500 miles	£46 10
4 h.p. **ROC,** 2 speeds, handle starting	£20 0
3½ h.p. **N.S.U.,** free engine, splendid order	£19 10
3¾ h.p. **QUADRANT,** 1908, magneto	£15 10
TWIN HUMBER, 1912 Lightweight, free engine	£29 10
2 h.p. **MOTOSACOCHE** 1910, magneto	£13 10
3½ h.p. **REX,** 1910 model	£17 10
SCOTT, 1909, 2 speeds, nice condition	£19 10
MORGAN Runabout, 1912, screen, hood, side tool boxes, new 3in. tyre	£67 0
6 h.p. **TWIN REX,** magneto, H.B. control	£12 10
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3¾ h.p. **REX**	£4 15
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New N.S.U. 2-speed Gears, adjustable pulleys, for Bradburys, Rudges, Singers, 1910 and 1912 Triumphs. Cheap to clear.

XL'All Pan Seat Saddle	18 6
Good rigid Sidecar	£2 17 6
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Good Rigid Sidecar	£3 7 6
Nearly new Coronet Sidecar	£4 10 0
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Triumph Pattern Handle-bars, rin. stems	4 0
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New 1913 Armstrong Mark VI 3-speed Gears. Delivery from stock. Trade supplied.	
Nearly-new Mark VI. 3-speed Gear	£5 15 0
New Coach-built Sidecar Body, side door	£3 10 0
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MOTOR MART
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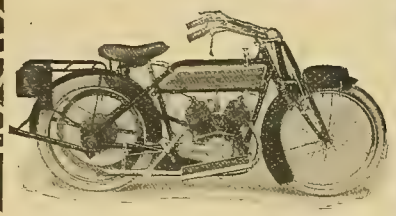

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NEW 1913 MODELS
FOR DELIVERY FROM STOCK.

TRIUMPH, 3½ h.p., 3-speed, "C" **£59 15**
ZENITH, 6 h.p. model, kick start **£78 15**
REX, 3½ h.p. model, 2-speed **£49 0**
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1910 **ENFIELD,** 2¼ h.p., twin-cylinder **£20**
1909 **HUMBER,** 3½ h.p., 2 speeds, Sidecar **£24**
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1909 **REX,** 6 h.p., 2 speeds, handle start .. **£26**
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5 h.p. **REX,** twin, wants repairs **£9**
HUMBER CAR, 15 h.p., 3 speeds and reverse, magneto, gate change, five-seater, hood, screen, Stepney, speedometer, lamps, horn, etc., excellent order. Exchange motor cycle or combination .....Price **£52**
Deferred Payments, 5% extra.

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PHELON and Moore, 3½h.p., 2-speed, chain drive, Bosch, automatic lubrication, grand order, particularly fine engine of this renowned make, does 40; £45.—Aireville House, Harrogate [X1520

REX, 3½h.p., 2-speed, Bosch, B. and B., Watawata belt, Lucas King of Road, handle starting, powerful, splendid condition; £28, or nearest offer.—Richardson, 24, Bank St., Bradford. [2231

TRIUMPH, F.E., 1913, perfect condition throughout, Phillipson pulley, large Lucas lamp and horn, watch, all spares, also Montgomery sidecar; £50, or separate.—9, Monument Park, Wigan. [X1525

1911 T.T. Triumph, Lucas lamp and generator, horn, whistle, extra pair of handle-bars, very fast machine, in perfect condition throughout; any examination; £27/10.—19, Liverpool Rd., Southport. [2208

CLEARANCE Sale.—Few shop-soiled machines, absolutely unused, at under cost; P Douglas £41, R Douglas £45, Scott £57; seen by appointment only.—Motor Mart Co., Old Lancaster Rd., Morecambe. [0357

TO Scott Agents, and to agents in districts where not represented.—We can deliver Scott machines from stock on good trade terms. Write for our wholesale list at once, enclosing trade card.—Hitchens, Ltd., Morecambe. [0333

3½h.p. F.E. Indian, 1911, first cheque for £23 secures, a bargain; 1908 Triumph cylinder, 15/-; 1912 Mabon clutch, adjustable, 25/-; 2¾h.p. Kerry, h.b.c., and in good order, £6; 2h.p. Anvers, less carburetter and belt, £3, or exchange new 810×90 covers, or 815×105 to value.—J. E. Jones, Chorley New Rd., Horwich. [X1065

SALE of 1913 shop-soiled Zeniths, never been on road.—3½h.p., kick starter, listed £63, our price £50; 6h.p., kick starter, listed £78/15, our price £60; 6h.p., standard, listed £71/8, our price £55. There is one each only left, therefore get on the jump quick. No deferred or swaps entertained at these prices.—Hitchens, Ltd., Morecambe. [0334

NORTHERN Depot, Ltd., Everything Motorish, Leece St., Liverpool.—End of season sale. Few special clearance lines: Soiled F.R.S. back rests, 20/- each; Xl'all pan seat (new), £2/5; Xl'all saddles, shop-soiled, 17/6 and 21/6; F.R.S. lamp sets, 15% off list; oil silk coats (to clear), £1/5/6; Jones speedometer, almost new, £2/2; Millers ebony back lamp set (large), £1/17/6; Lucas ebony black horn, 21/-; demonstration 1h.p. auxiliary lightweight, £16/10; 2¾h.p. Douglas, £23; 1913 6h.p. Rex-Jap combination, £77; 1913 4h.p. Rex-Jap, clutch model, £48; exchange depot for D.A. cylinders; N.D.L. oilskin motor cycle suits, with leather belt, 30/6; sold elsewhere for 45/-. For special bargains see under Sidecars. [X1742

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Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

MATLOCK.—1913 T.T. New Hudson and Montgomery sporting sidecar, as new; 60 gns.

MATLOCK.—1913 3½h.p. twin Matchless, 3 speeds, not done 200 miles, perfect; £52.

MATLOCK.—1913 2¾h.p. Sunbeam, slightly shop soiled; £55.—Hall and Co., engineers, Matlock. [X1689

1911 Singer Lightweight, new 1912, condition guaranteed; £19, or offer.—Penny, Boundary Rd., Derby. [X1688

A J.S., 5h.p. twin, new last October, fine condition; value with accessories £69, take 50 gns.—Fisher, Cardiston, Llandudno. [2197

TRIUMPH, exceptional condition, horn, spares, etc., several 1913 fitments; nearest £28.—Mason, Devonia, Lichfield. [X1596

1913½ T.T. Roadster Triumph F.E., decompressor, Lucas, not done 1,500; £45.—Dawson, Cartre, Westminster Park, Chester. [X1721

ROYAL Enfield, 1912, 2 speeds, F.E., excellent condition, tyres perfect; sacrifice, £29.—A. Walker, 193, Landwell St., Walsall. [2307

F.E. Triumph, new November, 1912, perfect condition, not done 2,000 miles; any trial; £38.—Darlow, Bankfield, Winsford, Cheshire. [X1726

TRIUMPH, 1911½, free engine, new Lyso, good tyres, large lamp, horn, tools, many spares, guaranteed; £35.—Thomas, Rossall Farm, Shrewsbury. [X1765

1911 Scott, with sidecar (Montgomery), everything in good order, spares; any trial; with sidecar £40, without £34.—Tagg, Ashfields, Newcastle, Staffs. [X1672

2¾h.p. Elleham, Bosch mag., spring forks, open frame, low, fast, but very quiet, excellent tyres; bargain, £10/10.—S. Chorlton, Kensington St., Hyde. [X1677

2½h.p. A.J.S., 2-speed, chain drive, accessories, tools, spares, overalls, insurance policy; sacrifice nearest £30; having sidecar.—67, Merridale St. West, Wolverhampton. [X1607

1913 3½h.p. Zenith, condition almost new, fitted with kick starter and plate clutch; £48, cost £63, no offers.—4, Sommerfield Rd., Chapel Ash, Wolverhampton. [X1740

TRIUMPH, October, 1907, in splendid condition, new crank case bearings, piston rings, belt, tube, handle-bars, enamelling, etc., very good; £20.—Beevor, c/o Smith, High St., Ripley, Derby. [X1053

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12 amp. 5/11.	15 amp. 6/9.
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SPECIAL.
A few lines, soiled, but otherwise perfect.

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Motor Cycle Toolrolls, canvas 1/3
Patchquick Outfits ..... 10½d. and 1/10½

GET our LIST.
Special prices quoted.

Motor Cycling Caps, with ear rolls 2/6
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Sidecar Lamp Brackets 1/6

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SUITS—Waterproof, double-breasted, high storm collar, dust and windproof, fawn, double texture (worth 25/-) 16/6
LEGGINGS only ..... pair 5/6
SEATLESS TROUSERS only pair 9/6
Exhaust Valves, to suit all engines ... each 2/3
PEDLEY ¾in. BELTS / **PEDLEY 1in. BELTS** / **PEDLEY 1¼in. BELTS** — Wear guaranteed. foot 1/9 / foot 2/3 / foot 2/6
2/6 allowance for old belts.
LEATHER BELTING, 3-ply, ¾in. 10½d., 1in. 1/- ft.
SILENT SILENCERS, the Grose, 2/6.

ARMSTRONG 3-speed and Free Engine Hub, Mark III., complete with levers and controls, and belt rim new. **£5 5**

SPECIAL.
HUTCHINSON 1913 COVERS, soiled, but guaranteed—
Brooklands. 26×2, 12/6; 26×2¼, 15/6.
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Passenger, 26×2¼, 27/9; 26×2½, 28/9.
Cash returned if not satisfied.

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Model R **DOUGLAS** **£52 0**
Model P **DOUGLAS** **£48 0**

SECOND-HAND MOTOR CYCLES.
1913 **DOUGLAS** **£39 0**
1912 **TRIUMPH,** free engine **£35 0**
1909 **TRIUMPH,** bargain **£18 18**
Complete stock of B.S.A. Motor Cycle Parts.
Motors taken in exchange. Est. 1876.
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Ten guineas is all it costs to bring your mount up-to-date by the addition of the

1913½ ROC

SIDECAR PATTERN

Two-speed Gear.

(6 Days' World's Sidecar Record type)

The 1913½ big clutch type has been designed expressly for passenger work.

It solves all gear worries and guarantees you satisfaction.

The 1913 Roc gear was already recognised the last word in motor cycle gears for solo use.

The 1913½ big clutch type is just what thousands of "sidecarists" have awaited and expected.

The Roc gear was the first of all motor cycle gears—it is the first to-day. Nothing could be smoother, easier to operate, or be more reliable.

No better investment for the money is possible than in this 1913½ Roc dependable gear, fitted complete for ten guineas.

Write for particulars, stating make and h.p. of your machine.

No delay in delivery.

ROC GEAR Co.,

HAYMILLS, BIRMINGHAM.

London : Robertson's, 157, Gt. Portland St., W

MOTOR BICYCLES FOR SALE.

BRADBURY, 1911, 4h.p., free engine, excellent condition; £25.—P. J. Evans, 358, Stratford Rd., Birmingham. [X1647

BRADBURY, 1911, 3½h.p., 2 speeds, and wicker sidecar; £26.—P. J. Evans, 358, Stratford Rd., Birmingham. [X1648

ENFIELD 1910 2¼h.p. Twin, good condition throughout; £15.—P. J. Evans, 358, Stratford Rd., Birmingham. [X1649

F.N. 1910 Lightweight, mag., spring forks, good tyres; £12.—P. J. Evans, 358, Stratford Rd., Birmingham. [X1650

LEA-FRANCIS, 1913, 3h.p., 2 speeds, kick starter, hardly soiled; £52.—P. J. Evans, John Bright St., Birmingham. [X1654

SUNBEAM, 1913, 2¾h.p., 2 speeds, had very careful use; £48.—P. J. Evans, John Bright St., Birmingham. [X1655

N.S.U., 1913, 3h.p., 2 speeds, twin, brand new; list £50/15, accept £36.—P. J. Evans, John Bright St., Birmingham. [X1656

ENFIELD, 1913, 2¾h.p., 2 seats, kick starter, excellent condition; £36.—P. J. Evans, John Bright St., Birmingham. [X1657

HUMBER, 1913, 2h.p., brand new; list £35, £26.—P. J. Evans, John Bright St., Birmingham. [X1658

ENFIELD, 1913, 6h.p., coach sidecar, used 150 miles; list £86, accept £68.—P. J. Evans, John Bright St., Birmingham. [X1659

ZENITH, 1912, 3½h.p., variable gear, good tyres and belt; £32.—P. J. Evans, John Bright St., Birmingham. [X1660

ZENITH, 1911, 3½h.p., variable gear, and wicker sidecar, good order; £30.—P. J. Evans, John Bright St., Birmingham. [X1661

SCOUT Motor Cycle, Precision engines, 3¾h.p., delivery from stock; £38/10.—Taylor and Hands, 353a, Coventry Rd., Birmingham. [X9802

1913 2½h.p. Singer, only ridden 700 miles, speedy, new condition throughout, lamp, horn; £26; approval.—Duggan, Ivy Cottage, Berkswell, Coventry. [X1801

FORWARD 1913 Demonstration 2¾h.p. Lightweight, grand machine, 25 gns. to clear; another, with 3-speed, 32 gns.—Forward, Summer Row, Birmingham. [2340

ROVER, new March, 1913, Armstrong 3-speed, carefully used, runs and looks like new, £45; with Millford Corvette coachbuilt 1913, £54.—Player, 134 Earlsdon Av., Coventry. [X1803

1913 Indians, 7h.p., 2-speed, F.E. clutch; advertiser has two; purchaser have choice; absolutely as new; 60 gns., near offer; option sidecar.—Whitaker, contractor, Stockingford, Nuneaton. [X1059

TRIUMPHS, latest 1913 3-speed, free engine, and T.T. roadster models in stock for immediate delivery; cash, exchanges, or easy payments. — Premier Motor Co., Ltd., Aston Rd., Birmingham. [0340

P. and M., latest 1913 model, lamp and horn, Kempshall tyres, unpunctured, sidecar gear ratios, new 2 months ago, and in absolutely perfect condition; £57/10.—M. Sampson, 17, Grosvenor Rd., Coventry. [X723

B.S.A., 1913 model, 2 speeds, kick start, running boards, very fine condition, used for one month only, £43; 2h.p. 1913 Humber lightweight, fully equipped, in fine condition, £22.—Baines, Garage, Oakham. [X1615

ZENITH, 3½h.p., April, 1912, first-class condition, semi T.T. bars, 1913 Senspray, new Kempshall non-skid, and Pedley belt, all engine spares, and spare cover, butted tube, and belt; £39.—36, Haughton Rd., Handsworth. [X1805

3½h.p. 1912 Free Engine Triumph, N.S.U. 2-speed, Bowden magneto control, new back tyre, spare tubes and belt, speedometer, lamp, not done 1,400 miles, just overhauled; trial; £46.—H. Brooks, Whatton, Loughborough. [X1710

ALLDAYS, 1912, 3½h.p., free engine, 2-speed gear, recently overhauled by makers, perfect condition, Lucas lamp and generator, Cowey speedometer; £30; owner going abroad.—Passmore, 39, Pargeter Rd., Bearwood, Birmingham. [X1492

1913 Bradbury, 3-speed gear, £49; 1913 2½h.p. T.T Premier, run 600 miles, £27/10; 1911 Indian, 7h.p., new 1913 clutch, new tyres, £38/10; 1911 Humber lightweight, good condition, £17.—Jas Plastow, Osborne St., Grimsby. [X1728

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

3½h.p. Minerva, rebored, new piston, perfect working order, £10; sidecar, £2. — Cox, Stonea, Cambridgeshire. [2339

8h.p. 2-speed Matchless, 50 gns.; also several other machines with sidecars; cash offers invited.—Young, Newmarket. [2225

TRIUMPH, F.E., nearly new, take £25, and really good 2½h.p. modern single-cyl.—Adams, Gladstone Rd., Woodbridge. [2371

INDIAN (red), 5-6h.p., 1910, fully equipped, in excellent order, all spares, new lamp, horn, etc.; nearest £20 secures.—Willson, Coronation Hotel, Newmarket. [2234

£39 10 1912 3½ Rudge-Multi and New Perfection Side car. First-class order. Ready to ride away. Any trial.

SECOND-HAND. Every one guaranteed.

£29 10	1912 4 Rex	Humber, 3½, F.E.	£10 10
£15 10	2¾ Mag. Rex	Rover, 3½, clutch	£29 10
£12 10	3½ Rex	2 Mag. Minerva	£11 0
£16 10	3½ Mag. Birch	F.N. Lightweight	£9 10
£27 10	5½ 2-sp. N.S.U.	'12 3-sp. Bradbury	£47 10
£17 10	3½ N.S.U.	3½ Light Rex	£10 10
£19 10	3½ F.E. Minerva	1911 6 F.E. J.A.P.	£34 10
£35 10	'12 F.E. Quadrant	5½ Rex	£15 10
£8 10	3 Humber	Twin Moto-Reve	£15 10
£26 0	Humber, 3½, 2-sp.	James, 1910, 3½	£16 10
£16 0	Singer, 3, mag.	4½ Twin Minerva	£15 10
£10 0	P.F., 3½	1912 Rudge Multi	£42 10
£34 10	'11 Rex Twin, 2-sp.	Motosacoche, mag	£15 10
£27 10	'09 Rex Twin, 2-sp	Werner, Twin	£12
£55 0	New Twin REX de Luxe and Sidecar.		
£45 0	1911 Twin REX Sidette, chain drive.		
£58 0	1912 2-speed Twin REX Sidecar, Brand new		
£42 10	1913 2-speed Twin REX, nearly new.		
£47 10	1912 WALL Tricarriage. Cost 90 Guineas.		
£31 0	5½ h.p. 2-speed N.S.U. and Sidecar.		

Easy Payments from one-quarter deposit and Twelve Monthly Payments.

SPECIAL EXCHANGE QUOTATIONS.

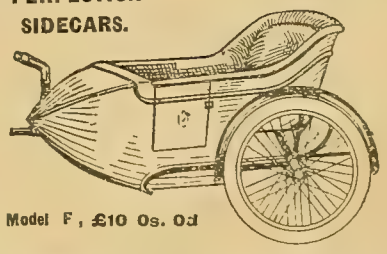
1913	2 or 3-speed BRADBURY	£60 0
1913	REX Sidette	£75 0
1913	6 h.p. 2-speed REX	£62 10
1913	6 h.p. 2-speed REX, chain drive	£67 15
1913	6 h.p. 2-speed REX-J.A.P.	£71 8
1913	8 h.p. REX-J.A.P.	£73 10
1913	W.C. WILLIAMSON, and Sidecar	£98 10
1913	HUMBERETTE, nearly new	£90 0
1912	twin 2-speed REX de Luxe, NEW	£53 0

Easy Payments from one-fourth deposit

84½ £46 for £34 **95**

We offer a Brand New 1912 4 h.p. Tourist **REX, 84½ × 95,** with Bosch magneto, B. and B. carburetter, push pump and feed lubrication, spring forks, Cantilever seat, 26 × 2¼ non-skid tyres stand carrier, toolbag, number-plates, pump, tools, for **£34** Makers' price, **£46.** Cash offers or exchanges considered, as we wish to clear, **regardless of cost.**

"PERFECTION" SIDECARS.



Model F, £10 0s. 0d

We are **Sole Wholesale Agents for PERFECTION Sidecars** (6 models). Trade supplied on liberal terms.

Make your old machine up to date by fitting a 1912 **ARMSTRONG** 3-speed Gear, Brand New, and complete with belt rim and controls.

£5 10

Mark II., **£5 10 0.**
Mark III., **£6 2 6.**
1913 Mark VI., **£10 10 0.**
Usual price, **10 Gns.** and **12 Gns.**

WHY WAIT? Despatch from stock. Trade supplied.

TRADERS should write for our Special Terms for Second-hand Motor Cycles. It's money for nothing.

Collier's Motories,
Westgate, Halifax, England.

ROBERTSONS BARGAINS

SHOP SOILED MOTOR CYCLES

1913 **ALCYON**, 2½ h.p. £32
1913 **ALCYON**, 3½ h.p. £36
1913 **EDMUND-J.A.P.**, 4 h.p., spring frame £42
1913 **ZENITH-GREEN**, water-cooled £54
1913 **B.S.A.**, 3½ h.p., 2-speed £55
1913 **BAT**, 6 h.p., 2-speed, chain drive £66

SHOP-SOILED SIDECARS.

MONTGOMERY No. 5, Edinburgh body £14 0
MONTGOMERY No. 7, Exeter body, hood, screen £17 10
MONTGOMERY standard £6 15
MILLFORD Corvette, storm apron, mat, and luggage board £11 10
MILLFORD spring wheel No. 4 chair £11 0
MILLFORD rigid No. 4 chair £9 0
MILLFORD rigid No. 14 chair £11 0
MILLFORD rigid No. 3 chair £10 10
BRAMBLE No. 6 ..... £10 15

SECOND-HAND MOTOR CYCLES.

1440. 1913 **TRIUMPH**, 3-speed, 14 days old £48
With £13 13 Bramble Sidecar £56
1427. 1913 **RUDGE** Multi, 5 h.p., scarcely used £52
1435. 1913 **DOUGLAS** Model S, one week old £46
1438. 1913 **BAT**, 4 h.p., O.H. valves, No. 1 model, two weeks old £42
1441. 1913 **NEW HUDSON**, 2¾ h.p., 3-speed, practically unused £38
1444. 1913 **DOUGLAS**, Model P, nearly new .....
1445. 1913 **DOUGLAS**, Model R, three weeks old, lamp, generator, and horn.....
1446. 1913 **LEA FRANCIS-J.A.P.**, 3½ h.p., chain drive, F.R.S. lamp, generator, horn, tools, and spares .....
1327. 1912 **BRADBURY**, 3½ h.p. £35
1341. 1912 **ZENITH**, 6 h.p. £48
1283. 1912 **ZENITH**, 3½ h.p. £38
1285. 1912 **CLYNO**, 6 h.p., 2-speed £46
1418. 1912 **BRADBURY**, free engine £36
1362. 1912 **RUDGE**, free engine £35
1395. 1912 **J.A.P.-CHATER**, 6 h.p., free engine, and Sidecar with child's seat £42
1406. 1912 **A.J.S.**, 6 h.p., with a lot of accessories .. £55
1416. 1912 **TRIUMPH**, free engine £42
1412. 1912 **HOBART**, 2¼ h.p. £22
1426. 1912-13 **F.N.**, 4-cylinder, 2-speed £36
1428. 1912 **TRIUMPH**, free engine, Cowey, etc. £39
1430. 1912 **F.N.**, 4-cylinder, 2-speed, and cane Sidecar £45
1432. 1912 **NEW HUDSON**, 2¾ h.p., 3-speed £35
1433. 1912 **REGAL-PRECISION**, 4¼ h.p., 2-speed, and Sidecar £34
1436. 1912 **MATCHLESS**, 6 h.p., 2-speed, twin belt, Turner Sidecar, and numerous accessories £68
1332. 1911 **ZENITH**, 6 h.p. £42
1439. 1911 **F.N.**, 4-cylinder, 2-speed, and racy coach-built Sidecar £34
1442. 1911 **TRIUMPH**, 3½ h.p. £28
1282. **BROUGH**, 5 h.p., twin cylinder £25

SECOND-HAND CYCLE CAR.

1913 **WALL TRICARRIAGE**, 5 h.p., 2-speed, shaft drive, speedometer, watch, horn, hood, luggage carrier, acetylene side lights, tail lamp and full kit of tools. Guaranteed in perfect order £75

'PHONE: MAYFAIR 5767

157, GREAT PORTLAND STREET, W.

MOTOR BICYCLES FOR SALE.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

HUMBER, 3h.p., running order; £4.—Feltan Villa, Wilton Rd., Malvern. [X1055

ENFIELD, 3h.p., excellent condition; trial given; £36.—Twycross, Other Rd., Redditch, Worcestershire. [X1495

F.N. Lightweight, 1913 model, 2½h.p., 2 speeds, clutch, shaft drive, very little used, complete with speedometer, lamp, horn, watch, mud screens, exceptionally easy starter, ideal machine for all weather use; 39 gns.—Robbins, Bretforton Manor, Honeybourne, Worcs. [X1564

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

1910 Humber, 3½h.p., 2-speed, free engine, mag.; £22.—Below.

1909 Motosacoche; £11; accumulator, lightweight; both in perfect order.—C. Coates, Chedworth, Glos. [X1062

P. and M., 1913, little used, good condition; £55.—Baines, 65, Whiteladies Rd., Bristol. [2191

PREMIER 3¾h.p. Twin, late 1910, reliable; £25.—Harrop, 51, Twyford Av., Portsmouth. [X1522

MATCHLESS, 1913 models for immediate delivery.—Sole Oxfordshire agents, The Morris Garage, Oxford. [0313

1913 3½h.p. Twin Matchless, chain, belt, unused; list £63, nearest offer.—Balfours' Motor Works, Banbury. [X1424

PHELON and Moore, 1913 models for immediate delivery.—Sole district agent, The Morris Garages, Oxford. [0203

N.S.U., 3½h.p., mag., good condition, £15; Mabon variable gear, perfect, 52/6.—Rackley, 12, Corn St., Witney. [2268

3½h.p. Bat, Chater-Lea frame, 1912 mag. and carburetter; bargain, £12.—98, Trowbridge Rd., Bradford-on-Avon. [2326

1913 B.S.A., chain driven, 2-speed, perfect condition.—Apply to A. Bonham Carter, Salamanca Barracks, Aldershot. [X9396

1913 4¼h.p. Rex, 2-speed, F.E., done 3,000 miles, splendid condition; £42.—Henderson, 203, Oxford Rd., Reading. [2290

RUDGE Multi.—Deliveries from stock; trial runs given; exchanges entertained; trade supplied.—Official agent, Barnes, Slough. [9139

LEVIS, 1912¾, 2-stroke, 2¼h.p., T.T., condition perfect, ridden only 500 miles; £24.—Box 4,205, *The Motor Cycle* Offices, Coventry. [X1698

DOUGLAS, 1913, 2 speeds, T.T., 2 weeks old, perfect as new; sacrifice £40, cost £50; first cheque secures.—Philpott, 8, Horsefair, Bristol. [X1528

£7/10.—Rex, 3¼h.p., B.B., h.b.c., new 40 amp. accumulator, tyre, tube, pulley, pedals, partly re-bushed, long, low.—F., 61, Silver St., Salisbury. [2362

FOR Sale, sacrifice, 3½h.p. T.T. 3-speed (Armstrong) 1913 Singer, a real flier, unscratched; £47.—Organ, 4, Long St., Wotton-under-Edge, Glos. [X1064

HARTWELLS' Garage, Chipping Norton.—Triumph and Douglas agents; also agents for Swift cycle car for Banbury, Burford, and Chipping Norton.

TRIUMPH, 3-speed, 3½h.p., free engine, clutch; in stock; £59/15.—Hartwells'.

DOUGLAS model O, £48; in stock model R, £52.—Hartwells'.

ENFIELD Autolette in stock, £138.—Oxfordshire agents, Hartwells'.

TRIUMPH, 1912, free engine, in fine order throughout, new 1in. Dunlop belt, lamp, horn, and tools; £39.—Hartwells'. [1786

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford [0314

TWIN Rex, 5h.p., good condition, £15; Minerva, m.o.i.v., 2¾h.p., running order, £4/10; Peugeot engine, 5h.p., £4/10.—Timms, 82, Walton St., Oxford [2293

A.J.S., 2¾h.p., 3-speed, 1913, new April, ridden 550, Lucas lamp, speedometer, horn, tools, excellent condition; cost £61, take £45.—Pool, Kanawha, Fleet, Hants. [2249

SCOTT, 2-speed, F.E., late 1911, with or without metal torpedo sidecar, very knutty, lamp, horn, spares, perfect; offers or exchange.—Fleetwood, R.N. Hospital, Haslar, Gosport. [2387

FOR Sale, a T.T. Douglas motor cycle, in first-class running order, similar to the one used in this year's Tourist Trophy race; £34.—Apply, W. Rossiter, 23, South Rd., Kingswood, Bristol. [X269

N.S.U. Twin, 2¾h.p., mag., fast, splendid climber; any examination; perfect order and appearance; buying sidecar combination; £22, or offer.—Mansbridge, 2, Hadleigh Villas, Tower St., Winchester. [2360

HUNTS LTD.,

The City & West End Motor House,

117, Long Acre, London, W.C.

GREAT ANNUAL SALE

For 28 days. **Commencing Oct. 1st.**

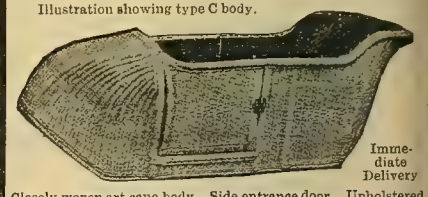
THE HUNT "MODEL DE LUXE" SIDECAR.

Carr. Extra.

CHASSIS—Fitted with quick detachable joints for attaching to motor cycle; these allow the wheel to keep in line with the wheel of the motor cycle. C springs, with latest shackle attachment—giving a low position. Standard 26 x 2¼ tyre. Width detached, 38in. BODY—Handsome art cane, luxuriously upholstered in dark green Pegamoid. Side entrance door. Roomy, light and comfortable. Complete with cushion, mat, spanner and storm apron. Price **£10**. Body only £3 19s. 6d.

The Hunt "Model de Luxe" Sidecar Body,
the acme of comfort and perfection—strength combined with lightness.

Illustration showing type C body.



Immediate Delivery

Closely woven art cane body. Side entrance door. Upholstered in dark green Pegamoid. Lined inside to exclude draught. Sale price, **£4 10s.**, usual price £6 6s. Carr. Extra.

THE HUNT BROOKLANDS OUTFIT.

Coat—manufactured of double texture fawn Paramatta, storm collar, throat tab, storm sleeves, two outside pockets with flaps, ventilated under arms, proofing guaranteed. Stock sizes: Coat, length, 36in., chest 40, 42, 44in. (size taken over coat).

Leggings to match the above, fitted with straps for attaching to brace buttons, spat feet, patent press buttons at side. Stocked in two sizes, *i.e.*—
Men's No. 1 length over all 31in., length inside leg 28in.
Men's No. 2, length over all 33in., length inside leg 29in.

Sale Price, quality A1—

Coat single-breasted..	18	6
„ doubted-breasted	24	6
Leggings .... per pair	9	6

Postage 6d.

The Hunt North Road Overall Leggings.

Manufactured of Double Texture Fawn Waterproof Paramatta. Worn over the ordinary trousers, fastening round waist with leather strap and buckle. The construction affords great protection to the stomach. Impossible for rain dust and dirt to drive in on the rider's trousers as with the ordinary leggings. Strengthened at for, spat feet, fastening at sides with patent clips. Stocked in three sizes, *i.e.*,
No. 1. Men's length over all 43ins., inside leg 31ins.
No. 2. Men's length over all 45ins., inside leg 33ins
No. 3. Men's length over all 47ins., ins de leg 35ins.

Sale Price, quality No. 1 14/3 per pair, postage 6d.
Sale Price, quality No. 2 11/6 per pair, postage 6d.

SALE CATALOGUE POST FREE.

MOTOR BICYCLES FOR SALE.

HERE'S a Bargain.—Triumph, 1911, overhauled, splendid condition, excellent tyres, Dunlop, Pedley lugs, tools, spares, horn, 26 gns.; also Cowey speedometer, 45/-.—Vickers, Wychwood, Bournemouth. [2350

EXCELSIOR, 1904, M.M.C. 3h.p. engine, only run 10,000 miles, surface carburetter, Lithanode accumulators, running perfectly till last year; on view anywhere; highest offer or week will purchase.—Moody, London St., Basingstoke. [2202

3h.p. Matchless, Bosch mag., Dunlop tyres, adjustable pulley, 26in. wheels, B and B. carburetter, 1913, in splendid condition enamel and plating as well; any trial or expert examination of same here; fly last and powerful machine and easy to control; £32, or will take good make 3½h.p. or good make push cycle and cash.—Proprietor, Wheatsheaf, Privett, Alton, Hants [2310

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

COTTENHAM.—1913 3-speed Humber, shop-soiled; £52/10.

COTTENHAM.—1913 8h.p. Zenith, kick start, all on, with Millford coachbuilt sidecar; £70.

COTTENHAM.—1912 F.E. Triumph, overhauled; £40.

COTTENHAM.—1912 3½h.p. 2-speed Humber; £40.

COTTENHAM.—1912 3½h.p. Bradbury, N.S.U. 2-speed and clutch in back wheel; £41.

COTTENHAM.—1911 F.E. Singer; £33.

COTTENHAM.—1911 Triumph, good machine; £32.

COTTENHAM.—1911 4-cyl. F.N., perfect; £28.

COTTENHAM.—1909 8h.p. Bat-Jap; £25

COTTENHAM.—1906 3h.p. Triumph; £12.

COTTENHAM.—6½h.p. Rover Car, lamps, horn, mirror, speedometer, hood, screen, Stepney, dual ignition; £50, or exchange.

COTTENHAM.—Millford sidecars, Michelin tyres, accessories, repairs, benzol; open on Sundays.—The Stamford Hill Motor Co., 128, High Rd., South Tottenham, N. 'Phone: 1982. [X1762

1912 5-7h.p. V.S. Twin, perfect; bargain, £25.—188, Wellesley Rd., Ilford. [X1067

1913 P. and M., practically new, spares; £50.—Potter, 33, Bigwood Av., Hove. [X1756

P. and M., new, uncrated; must realise; £59.—B., 3, Queen's Av., Winchmore Hill. [1415

EAGLES.—Douglas, 1913 model R, new June, 2 speeds, kick starter, foot clutch, Lucas lamp and trn. speedometer; £41; new condition

EAGLES.—Rover, late 1912, 3-speed model, Sturmey-Archer gear, new condition; £39.

EAGLES.—Enfield 1913 6h.p. combination, all accessories, new condition; £65.

EAGLES.—N.S.U., 3½h.p. Popular, low-built, 2 speeds, free engine, Cowey speedometer, fine condition; £21.

EAGLES.—Rudge, 1912 T.T. model, exceptionally fast, perfect condition; £28.

EAGLES.—N.S.U., 4h.p. twin, Bosch, m.o.v., 1911, spring forks, 2 speeds, free engine; £22.

EAGLES.—Bat-Jap, 1912, 3½h.p., spring frame, T.T. handle-bar, very fast; £27.

EAGLES.—Bradbury, 1912, N.S.U. 2-speed gear, free engine, had little use; £35.

EAGLES.—N.S.U., 3½h.p., T.T. model, 85×88, Bosch mag., enamelled grey; £19/10.

EAGLES.—Enfield 2¾h.p. twin, late 1912, 2 speeds, free engine, chain drive, footboards, nearly new; £29.

EAGLES.—L.M.C., 3½h.p., Bosch mag., spring forks, nearly new tyres and belt; £18/10.

EAGLES.—N.S.U., 3½h.p., 1908, mag., B. and B. carburetter, Dunlop studded tyres; £12/10.

EAGLES.—Any of the above can be had on approval, "The Motor Cycle" deposit system, or deferred payments arranged.

EAGLES.—N.S.U. 2-speed gears to fit Triumph, Bradbury, J.A.P., B.S.A., Precision, Rudge, T.D.C., and other makes, the easiest gear on the market to fit, no alteration to motor cycle necessary; trade enquiries invited.

EAGLES and Co., High St., Acton, N.S.U. West London District Agency. Tel.: 556 Chiswick. [X1597

2¾h.p. Triumph, good running order; £10.—Shea, 229, Caledonian Rd., London. [2319

2¾h.p. Royal Enfield, late 1911, 2-speed, free engine; £28.—Grinsted, Slinfold, Sussex. [X1426

B.S.A., 1913, August, 2-speed, 2½in. tyres, £46; sidecar, £5/10.—Digby, Mersea, Essex. [2348

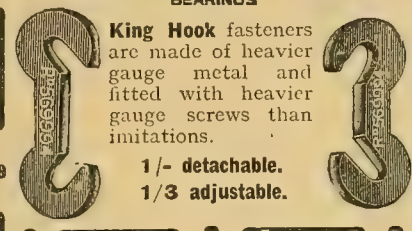
6h.p. Bat, new Armstrong gear; £48, or offers.—Kershaw, 10, Old Park Av., Balham. [2220

IT IS A FAR BETTER WAY

to pay a few pence extra for

The ORIGINAL KING HOOK Fastener with FLANGED ROLLER BEARINGS

than buy a cheap imitation with fixed bearings which soon wear out.



King Hook fasteners are made of heavier gauge metal and fitted with heavier gauge screws than imitations.

1/- detachable.
1/3 adjustable.

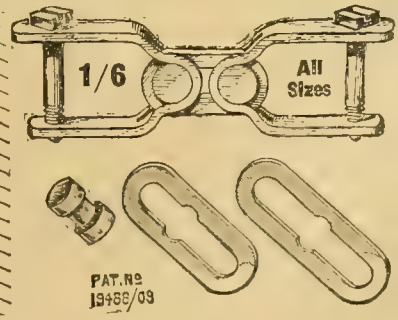
Note the Name "FORWARD" the leading BRITISH PLUGS.

FORWARD T.T. 3/6
As used in the T.T. races. A plug that will not overheat under any conditions.

Forward Ejector.
Thepopular plug that will not soil up on any engine.
3/-

FROM ALL AGENTS AND SERVICE CO., LONDON.

"THE 'FORWARD' FASTENER OF COURSE NEVER BREAKS"—writes "IXON," September 11th.



THE WORLD'S BEST FASTENER.

Forward Motor Co., Summer Row, Birmingham.

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PALMER'S Garage, Tooting.—4h.p. Mauser, twin-cyl., mag., kick starter, h.b.c., spring forks, as new, £30.

PALMER'S Garage, Tooting.—3½h.p. 1912 Triumph, F.E., grand condition; clearance, £35.

PALMER'S Garage, Tooting.—6h.p. 1912 Zenith and sidecar, very fine; £45.

PALMER'S Garage, Tooting.—3¾h.p. N.S.U., 2-speed, will take sidecar; £14/10.

PALMER'S Garage, Tooting.—2¼h.p. J.A.P., £6; 2¾h.p. Pebock, £5, clearance.

PALMER'S Garage, Tooting.—1¾h.p. Motosacoche lightweight, £12; 2¼h.p. Werner, £6/10; 2h.p. Pebok, £5; 2h.p. Minerva, £5.

PALMER'S Garage, Tooting.—3½h.p. Kerry-Abingdon, very fine modern machine, £17/10.

PALMER'S Garage, Tooting.—4-5h.p. F.N., nice order, with sidecar; clearance £22/10.

PALMER'S Garage, Tooting.—3½h.p. Minerva, very fine machine; great bargain, £10.

PALMER'S Garage, Tooting.—3h.p. belt-driven 3-wheeler, running order; £8.

PALMER'S Garage, Tooting.—3½h.p. Humber, 1911¾, grand solo mount, bargain, £25; also 4¼h.p. Fafnir Unecar, as new, £30.

PALMER'S Garage, Tooting.—4-5h.p. F.N., 2-speed, and sidecar; £25.

PALMER'S Garage, Tooting.—4h.p. Stevens, Bat, and sidecar, powerful lot; £12/10.

PALMER'S Garage, Tooting.—3½h.p. 1913 Rudge, T.T., grand machine; bargain, £35.

PALMER'S Garage, Tooting.—4½h.p. Kelecom and sidecar; cheap, great bargain, £9.

PALMER'S Garage, Tooting.—Sole address, L. N. Palmer's Garage, Merton Tram Terminus, Tooting (20 mins. Victoria, 10 mins. Wimbledon). Motor 'buses 48, 49, and 66.—'Phone: 208 Streatham. [2421

ROVER, 1913, 3½h.p., 3-speed model, shop-soiled; £52, or easy terms.—Below.

MOTOSACOCHE, 1912, 2½h.p., free engine, splendid condition throughout; £20, or easy terms.

BRADBURY, 1912½, 2-speed, free engine, grand condition, with all accessories; £35, or easy terms.

SCOTT, 1912, 3¾h.p., 2-speed, kick starter, a splendid machine, with all accessories; £38 cash, or easy terms.

ELCE and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [2429

1912 Free Engine Rudge; £28, near offer.—Clapham, King George St., Greenwich. [X1774

B.S.A., 1913, free engine, extra good condition; 38 gns.—69 Greenside Rd., Croydon. [2363

1912 F.N., 5-6h.p., 2 speeds, almost new; £31/10.—26, Parsons Green Lane, Fulham. [2413

NEW Hudson, 1912, new; listed 47 gns., accept £37.—Holmewood, Capel Rd., E. Barnet, N. [2222

VINDEC Special, 3½h.p., 2-speed, F.E.; £20, no reasonable offer refused.—Lamb's (below).

HUMBER, 2¾h.p., twin, 3-speed, quite new, 1913 model; usual price £52/10, offer wanted.—Lamb's (below).

ENFIELD, 1912½, 2¾h.p., 2-speed, French grey, scarcely used; £36, offers wanted.—Lamb's (below).

BROWN Lightweight, 2½h.p., F.E., lightweight, quite new; £39, offers wanted.—Lamb's (below).

MOTO-REVE, 1913, 2½h.p., 3-speed, ridden under 500 miles; £35, or offers.—Lamb's (below).

DOUGLAS, 2¾h.p., fixed engine, beautiful order; £25. Any reasonable offer for cash or deferred payments accepted for above.—Lamb's, 151, High St., Walthamstow. [2427

DOUGLAS, latest 1911-12 twin, mag., 2 speeds; sacrifice £28/10.—1, Ebner St., Wandsworth. [X1599

1912 Clutch Triumph, excellent condition, all accessories; £35.—76, Herongate, Manor Park. [X1679

QUADRANT, 3½h.p., new mag., new Avon; £22, offers.—Jennings, Greenwich Workhouse, S.E. [X1676

ENFIELD Lightweight, 2½h.p., splendid condition; what cash offers?—C/o 19, Alston Rd., Barnet. [2352

MOTOR BICYCLES FOR SALE.

GLADDEN.—Triumph, 3½h.p., fixed engine, perfect condition, King Road lamp set; £25.

GLADDEN.—Moto-Reve, 2¾h.p., twin, mag., re-enamelled, spare belt, lamp, horn; £14.

GLADDEN.—Ariel, 2¾h.p., mag., very low, smart, up to date; £12/10.

GLADDEN.—Kerry, 2¾h.p., footboards, low, up to date, accumulator ignition; £9/10.

GLADDEN.—All the above and many others must be cleared; no reasonable offer refused.—91, Pimlico Rd. 'Phone: 3066 Victoria. [2400

MOTO-REVE, 1910, twin, lightweight, mag., Druid forks; first caller, £12.—1, Townley Rd., Dulwich. [2358

REX, 5h.p. twin, 1909, F.E., tyres and belt almost new; £25.—45, South Croxted Rd., Dulwich. [2393

RED Indian Cycle, 3½h.p., 2-speed, kick starter, as new; £40.—Bishop, School House, Eastchurch. [2405

5h.p. V.S., splendid condition, re-bushed throughout, tyres, belt, as new.—King, Station Rd., Bexhill-on-Sea. [X1554

TRIUMPH, 1910-11, Tourist model, splendid working order; must sell, £25.—55, Aytoun Rd., Stockwell. [X1725

F.N., 4-cyl., 2 speeds, magneto, good tyres, ready for road; £16/10.—Scrase's, 381, Battersea Park Rd., S.W. [X1703

PREMIER, 2½h.p., 1912, good condition, just overhauled; £16/10.—K., Hillview, Dunton Green, Kent. [X1675

2h.p. Minerva Lightweight, in perfect condition, very fast machine; £8.—Apply, 107, Wakefield St., East Ham. [2241

2-SPEED Douglas, model H, spares, perfect; £32/10; appointment.—P. C. Bridge, 18, Pinfold Rd., Streatham. [2322

1913 3½h.p. 2-speed Countershaft Premier, condition as new; £45.—Boyce, 275, Archway Rd., Highgate. [2272

ZENITH, 3½h.p., 1912, absolutely perfect; bargain, £36; not Sundays.—72, Shakespeare Rd., Herne Hill. [2422

P. and M., late 1911, 3½h.p., 2-speed, splendid condition; £38, or near.—41, Ashford Rd., Cricklewood. [2327

3½h.p. Centaur, good condition; any reasonable offer; must sell.—24, Lawford Rd., Kentish Town Rd., N.W. [2377

TRIUMPH, 1908, splendid condition, lamp, generator, horn, etc.; £24.—Kelly, 34, Nightingale Lane, Balham. [2303

MOTOSACOCHE, 1911, 2½h.p., adjustable pulley, good tyres, capital order; £16.—21, Gilmore Rd., Lewisham. [X1548

F.N., 2¼h.p., 1909, Bosch, new tyres, belt, splendid condition, accessories; £14.—Hines, tobacconist, East Sheen. [2195

TRIUMPH, 1911, 3½h.p., everything in perfect condition; £26/10.—Mainwaring, The Haven, Goudhurst, Kent. [2266

IF You Want Bargains in 2nd-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet St., London. [X9705

TRIUMPH, F.E., 1911¾, Jones trip speedometer, all accessories, spares; £35.—H., 48, Fortismere Av., Muswell Hill. [X1732

KERRY-ABINGDON, 1911, 3½h.p., 2-speed gear, handle starting, nearly new tyres; £26.—Tilke, Horsmonden, Kent. [2242

PREMIER, 2½h.p., clutch model, 1912½, almost as new; reasonable offer.—R.J.F., Ranmore, Park Rd., Norbiton, S.W. [X1782

TRIUMPH, 1910, perfect condition, new 26×2¼ wheel; £26/10; good push bike part.—129, High St., Croydon. [2329

ZENITH-GRADUA, 3½h.p., 1911, perfect order; £25.—73, Loughboro' Park, S.W. 'Phone: Brixton 2042. [2184

CLYNO, complete, 1913 outfit; cost £115 in July; run 1,500; £90, or offers; any trial.—22, Lewes Crescent, Brighton. [X1497

DOUGLAS, 1913, model O, absolutely as new, done 500; any trial; £40.—Dr. Gibbons, Southern Hospital, Dartford. [2283

DOUGLAS, all models, for immediate delivery; trade supplied.—Rey, 5, Heath St., Hampstead, and 173, Gt. Portland St., W. [9668

MOTOSACOCHE, lady's, 2½h.p., variable gear, free engine, perfect order; £25.—Hill, 9, Knighton Villas, Buckhurst Hill. [X1491

TRIUMPH, 1911½, 3½h.p., free engine, spring forks, tyres and condition perfect; £28, lowest.—275, Kensal Rd., London, W. [2205

MATCHLESS, 2½h.p. J.A.P., 2-speed, free engine, splendid condition; £26.—Ross, Ingleside, Newstead Rd., Lee, Kent. [2399

TRIUMPH, 1912¾, clutch model, not done 600 miles, as new; £38, genuine bargain.—228, Pentonville Rd., King's Cross, London, N. [2163

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MOTOR BICYCLES FOR SALE.

CASS'S.—Trump-Japs, 1913, special bargain, 6h.p., 3-speed, kick starter, decompressor, best frame in market; 60 gns., list £69/10.

CASS'S.—Zenith, 1913, 8h.p., clutch and kick starter, superb cane sidecar, complete with finest accessories, 2 months old, in perfect order; £75.

CASS'S.—Indian, 7h.p., 1913, Millford sidecar, 2 lamps, tyres all as new, 6 weeks old; exceptional bargain, £72/10.

CASS'S.—Indian, 7h.p., 1912, cane sidecar, perfect condition, very fast; £50.

CASS'S.—Quadrant, 1912, 4½h.p., 3-speed Armstrong, climb anything; list price £59/10, bargain, £49/10.

CASS'S.—F.N., 1912, as new, 5-6h.p., clutch model, special sale price £38; also 1910 model, £22.

CASS'S.—All makes, new and second-hand, motor cycles and cycle cars supplied, sidecars, tyres, accessories; deferred payments.—Cass's Motor Mart, 5, Warren St., W. (opposite Tube Station). Tel.: 3624 Mayfair. [2437

QUADRANT, 2¾h.p., in good order, just overhauled, h.b.c.; £8/10.—Box L2,784, *The Motor Cycle* Offices, 20, Tudor St., E.C. [2281

3½h.p. Fafnir, mag., B. and B., good tyres, spare Whittle; sell £16, or push bike and cash.—Trewern, Vigo, Lancing, Sussex. [2376

4-CYL. F.N., 1913, 2 speeds, clutch, footboards; £50 or deferred terms.—Phipps, c/o Purcells, Ltd., 78 Charlotts St., Fitzroy Sq., W. [2386

ARNO, 3½h.p., late 1912, Sturmey 3-speed, excellent condition; price complete £40, or near offer.—Randall, Shalford, Guildford. [2284

CHATER-DE DION, B. and B., countershaft, low lamp, horn, accumulator, perfect condition; £10.—95, Chariton Rd., Folkestone. [2371

MORGAN and Maxwell, The Motories, 80, High Rd., Streatham, London.—Keen prices, quick deliveries, better terms than you can obtain elsewhere.

MORGAN and Maxwell.—A.J.S., 1912, 2½h.p., 2 speeds; £30.

MORGAN and Maxwell.—Bat, 2¾h.p. De Dion, spring frame; £10.

MORGAN and Maxwell.—Bat, 7-9h.p., 1913, 2 speeds, all accessories; £60.

MORGAN and Maxwell.—Bat, 8h.p., and sidecar, 1913; £60.

MORGAN and Maxwell.—Bradbury, late 1912, accessories; £33.

MORGAN and Maxwell.—Clyno, 5-6h.p., late 1912, 2 speeds, Binks, and coachbuilt sidecar; £45.

MORGAN and Maxwell.—Enfield, 6h.p., 1913, 2 speeds, and sidecar, as new; £68.

MORGAN and Maxwell.—Humber, 1913, 3½h.p., and folding sidecar, 3 speeds; £62.

MORGAN and Maxwell.—Indian, 1913, 7-8h.p., as new, and sidecar; £75.

MORGAN and Maxwell.—Lincoln Elk, 4¼h.p., 1913, 2 speeds; £32.

MORGAN and Maxwell.—Matchless, 8h.p., 1912, 2 speeds, and Canoelet; £70.

MORGAN and Maxwell.—Minervas from £5 each.

MORGAN and Maxwell.—Motosacoche, 2½h.p., 1912 £22.

MORGAN and Maxwell.—N.S.U., 1910, 6h.p., 2 speed, and sidecar; £32.

MORGAN and Maxwell.—P. and M., late 1911, 2 speeds, Kempshalls, accessories; £42.

MORGAN and Maxwell.—Premier, 2½h.p., 1912; £2

MORGAN and Maxwell.—Rex, 5-6h.p., and Chater Lea sidecar, 1909; £32.

MORGAN and Maxwell.—Rudge, 3½h.p., free engine £27.

MORGAN and Maxwell.—Singer, 2½h.p., T.T., 1913 3 speeds, Bosch; £35.

MORGAN and Maxwell. Triumph, T.T., 1911, d compressor, special engine and fittings; £32.

MORGAN and Maxwell.—Triumph, 1911, Tourist, fi condition; £30.

MORGAN and Maxwell.—Triumph, 3½h.p., late 1913, 3 speeds, brand new; offers invited; sho soiled.

MORGAN and Maxwell.—Zenith, 6-8h.p., 1913, bar soiled, Gradua gear, Hutchinsons, Bosch, he light, speedometer, complete with Gloria new Project £30 sidecar, all tools, lamps, fittings; price £100, wi insurance policy.

MORGAN and Maxwell.—De Dion car, 8h.p., Lo screen; £50.

MORGAN and Maxwell's Miscellany.—A.S.L. se pillar, as new, 21/-; Binks 2-jet carburetter, 21 Triumph back wheel, 10/-; free engine back wheel, £ N.S.U. 2-speed gear, £6; Albion pulley, 5/-; Rushmo lamp and automatic generator, £2; decompressor, 5 Lodge plugs; Shamrock and leather belts, cheap; Cow and Smith speedometers, almost new lamps, etc.; wr us.—Morgan and Maxwell, 80, High Rd., Streatha London. [X17

OCTOBER 9TH, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME.

FIVE HUNDRED AND FIFTIETH CONSECUTIVE ISSUE.

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ADDRESS: 20, TUDOR STREET, LONDON, E.C.

Colonial Prices.

WE publish a letter this week from a correspondent in New Zealand who puts forward in a concise way a matter which affects motor cyclists across the seas in a very vital manner, and in a very vital spot—their pockets. He refers to the prices asked and obtained for English machines in our colonies. The instance he quotes is, we hardly think, an isolated case, judging from the frequency with which the matter is touched upon by many of our colonial correspondents.

The New Zealander in question asks, pertinently enough, why the retail price of a machine in the colonies should be any more than it is at home, plus the duty and freight. But in actual fact in the instance he gives, the price asked is some £13 in excess of this. Some of this must, of course, go toward the higher wages paid in a protectionist country, and the interest on the agent's money paid months in advance. It is a simple matter to arrive at the corresponding price in New Zealand to that obtaining in Great Britain. Assume a machine to cost £50 at home, the import duty on a British motor cycle is 20% *ad valorem*, or £10. To pack in case, dock dues, shipping and freights cost £3 3s., thus bringing the retail price of the machine landed in New Zealand to £63 3s., but £76 is the price the agent asks.

Now the agent gets his trading commission on the English price of £50, and even assuming that he has to put his orders through a shipping house in London, there is no reason why this should increase the retail cost by more than twenty shillings in New Zealand.

Therefore, it is pretty obvious that the lot of the colonial agent is exceedingly rosy when he is handling a free selling line of goods. No one can blame him for making hay while the sun shines, but it is for the manufacturer at home to consider whether this system of dealing is in the long run good for the home trade.

American competition is increasingly severe all the world over, particularly so in most of our colonies. To sell cheaply is the motto of the American manufacturer, and he is not as a rule likely to let such golden opportunities as this slip by, and if he drops his prices 10% below the corresponding price of the British manufacturer, as he easily can, by direct dealing with his customer, or at any rate by insisting upon a maximum price, as well as a minimum, being charged by his agent, he is going far to secure the bulk of the market.

The course which appears to us to be the most equitable would be for the manufacturers, after consultation with their colonial agents, to fix a settled selling price for their goods for each particular locality after taking into careful consideration cost of labour, establishment charges, etc., in those localities. By this means the buyer would be assured that the price he pays is the true one, instead of sometimes, as is now undoubtedly the case, a price which is flexible and decided upon by the seller on the spot.

The Modern Reliability Trial.

IS there a wrong idea abroad as to the organisation of reliability trials, we wonder, or do the different clubs who organise trials with freak hills included consider that their object is served if only a small minority succeed? We are again moved to draw attention to this subject by the recent trial of the Liverpool Club, included in which was a hill which unseated all but two competitors. Can it be truly said that the two machines which succeeded did so by any inherent advantage in design? We would not like to suggest that it was a matter of pure luck, because we have a great respect for the abilities of the two successful riders and their mounts.

Now it is almost as bad to arrange so easy a course that practically all obtain the maximum award as to weed nearly all out of the non-stop list, but we must confess to incline to the opinion that more care could be exercised in the choice of a route. It is all very well to take riders in ordinary sporting club events over side paths and by-lanes used only by farmers' carts: it may be all right to include a watersplash or two, and a boulder jumping section, but when it comes to a serious trial under trade support, the primary object of which is to demonstrate to the general public who read the description of the events, and the spectators who line the course, that motor cycles have reached a stage approaching perfection, then the freakish trial is quite out of place.

We hope these few remarks will have a sobering influence upon those who undertake the important duty of selecting a course for a reliability event; it is too serious to the trade to be treated so lightheartedly as it has been of late. Finally, the tendency to include unrideable hills has already to our knowledge disgusted a large section of the trade, and we can give this early hint that trade-supported events will not be so numerous next year.

The Power of Sidecar Combinations.

FOR all ordinary purposes a 3½ h.p. with two or three-speed gear is sufficient, provided, of course, the combination is used in only moderately hilly districts and is not overloaded. Moreover, the sidecar body should not be a heavy one. A wicker or cane body is infinitely more suitable than a heavy coach-built body. It is not only lighter—a good point when the power is limited—but is very much more comfortable.

Against cane and wicker sidecar bodies it may be said that they are hard to clean, and after a few weeks' use in dusty weather look very dirty, but one cannot do much to them except brush them down thoroughly with a stiff brush. A coach-built sidecar, even if covered with mud, can be swilled over with a hose in a very short time, and amply repays its owner for his trouble in cleaning it by looking like new. At the same time, it is necessary to clean up such a sidecar frequently or the varnish will soon deteriorate, and rain spots especially should be washed off with plenty of water.

The modern 3½ h.p. with belt drive and three-speed gear is ideal for use with a sidecar in the manner in which the sidecar was originally intended to be used, that is, as a passenger attachment. It is all right for touring if the weight of passengers and luggage is kept down and if single-figure gradients are avoided, but for serious touring in Scotland or the Lakes a totally different kind of machine is required. This is the more powerful 6 or 8 h.p. twin chain-driven machine, specially designed for permanent sidecar work and almost too heavy for solo riding. To this class belong such machines as the Clyno, Chater-Lea, Enfield, Indian, etc., many of which have special lugs brazed on to the frames for the sidecar fittings. These machines are capable of taking two people anywhere in the British Isles at a cost of upkeep considerably less than the smallest car.

MOTOR CYCLISTS AND THE ARMY.

The use of the motor cycle in the army is continually on the increase. The latest innovation is the addition of a motor cycle section to the 9th Hants Cyclist Battalion (Territorials). The photographs reproduced show the new section with their up-to-date mounts. A rifle is an unusual item in the equipment of a military motor cyclist.

Hub and Counter-shaft Gears.

I have received a long letter from Mr. E. C. Paskell, of the Armstrong Co., in which he makes a point of undeniable weight. "Two very powerful and influential companies," he says, "with plenty of money and splendidly equipped factories, have devoted all their energies to producing this type of gear, while the counter-shaft gear has only had divided attention at its back, owing to its being manufactured in factories devoted to other products." This one fact would suffice to account for the superior vogue of the hub gear, and suggests that for the last year or two the hub gear has appealed to both engineers and capitalists as the superior proposition. However, when projected into the future, this fact rebounds against the hub gear: for, despite the fact that counter-shaft gears are later in the field, and are produced under admittedly inferior conditions, they are already formidable rivals of the hubs. Personally, I would adventure the guess that when the counter-shaft gear really booms, the Armstrong and Sturmey factories will be making two of the best counter-shaft gears in the world. Mr. Paskell then repeats his challenge to me, and suggests that each of us should nominate a champion back wheel remover: that our champions shall be publicly timed at the Olympia Show, his representative being provided with an Armstrong geared machine, and mine with a T.T. The spectators shall be charged 6d., and the profits shall go to the trade benevolent fund. The sportsman latent in me nibbles at the bait, but I fear me that the 1914 Armstrong hub is going to be of a new patent drop-out variety. And I do not see why I should lose money over an innovation, the advent of which I have done something to foster. If there is to be no novel drop-out notion in the 1914 hubs, I am still "off" the challenge. Trained mechanics can effect miracles—did not a Michelin mechanic once fit and inflate a brand new 120 mm. cover in less than ten minutes? What I have clamoured for is a hub gear which the average amateur can remove in approximately the same time as a T.T. wheel. But I hope that drop-out three-speed hub is really on the *tapis*: if it is, the counter-shaft gear which is going to supplant it would have to be very very good. In the meantime, may I repeat one of my original queries—have the Armstrong and Sturmey-Archer people included a first rate light twin engine in their experiments with two-step drives and counter-shaft gears?

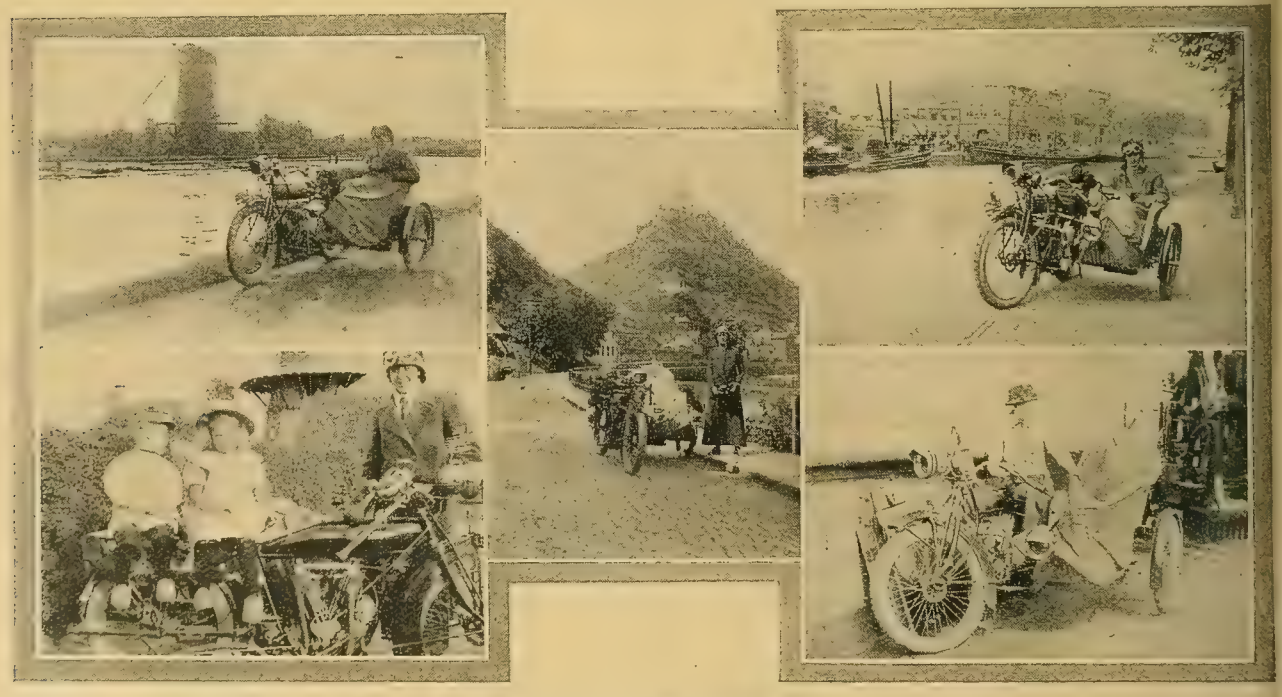
Mrs M. Smith, of Clapham, an enthusiastic driver of an A.C. Sociable

"Getting There."

I see Mr. D. K. Hall, the well-known timekeeper, objects to my dogma that the get-there type of rider must carry a spare inner tube, and gives very convincing experiences of his own for my refutation. His letter does not disprove a word of my contention, but indicates how carefully the premises should be defined at the commencement of an argument. Mr. Hall is not a fair test of my theory for two reasons: the one is that he does not compete in the mountainous trials which figure in the annual experience of every leading competition rider, and in the touring routes of a growing percentage of amateurs: the other is that he habitually uses tyres far more substantial and expensive than the average machine possesses. I believe I am right in saying that his back wheel is always decorated by a Kempshall non-skid. I use these tyres on my own mount, and though I have never got 6,000 miles (much less the 7,000 and 8,000 which he can claim) out of one of these covers, I must admit that in ordinary English touring work, I have never sustained such damage with one of them that a spare tube was needed to get me there. But, as Mr. Hall knows, few riders habitually fit such thick and costly covers, and at least once in each of the last eight years a spare tube has saved me a railway ticket when I have been out on thinner and cheaper tyres. Further than this, as soon as I go outside the normal South and Midland touring *régime*, I find that even the heavy and costly covers of which a Kempshall is a notable example fail to provide absolutely dependable insurance. In Wales and Scotland and the North of England, and in one instance down West, I have damaged inner tubes protected by Kempshalls to such an extent that a new tube was required to get me home. So I think I may fairly say that the really hard rider ought to carry a spare inner tube.

"Twin-Jap's" Problem.

The information given in "Twin-Jap's" letter in *The Motor Cycle* of September 25th is as meagre and vague as frequently happens when diagnoses per post are requested. He does not give his gear ratio, nor does he explain at all precisely what he means by saying that the engine will neither "climb" nor "pick up." But it is fairly evident, as the machine occasionally does 50 m.p.h. on the flat, that he cannot get a high rate of r.p.m. except under the most favourable circumstances. It would be helpful to know whether the engine is new or old, and whether it has ever behaved better than it is doing now or not. These details may help other worriers of our special medical department to frame their queries better. I was interested in his letter because I am similarly afflicted with an engine of quite another type. In my case there were three responsible causes. First, the gear ratio was a great deal too high. Second, all the moving parts of the engine were much too tight a fit. Third, the carburetter was fitted with so huge a choke tube that the engine could not suck out enough petrol at low engine speeds. These three defects are all common on newly delivered machines, especially if they are of the semi-racing type. Makers almost invariably fit high gear ratios, presumably because they feel bound to supply a full-length belt; new machines often come down with gears of 3½, 4, or 4¼ to 1, whereas most engines will run best on a gear of 5 or 5¼ or even 5½ until they have worked themselves loose and free. There are many engines, especially in the light twin class, which ought never to be geared more than 5 to 1 at the outside. I commented last week on the muscle-bound condition in which some makers deliver their engines—a foolish policy to my mind. A clever mechanic can soon make them "sloppy" enough to get high r.p.m., as the T.T. riders have to do in the Isle of Man; but the poor amateur duffer has no alternative but to ride them in a unroadworthy condition until all the parts are run in. Finally we touch on the amazing habit of delivering some machines intended for road work with a carburetter adjusted for Brooklands, and so huge an orifice round the jet that the engine cannot fire unless the unlucky owner is sprinting alongside at a speed which would break records if he could keep it up for 100 yards. As "Twin-Jap" has tried several carburetters (a wasteful plan, seeing that any good carburetter will give decent results if it is adjusted to suit its engine and the owner's particular needs), it is unlikely that carburation is the main cause of his trouble. But I suppose he realises that air leakages are perhaps the commonest cause of an engine refusing to rev. except under the most favourable circumstances. If an engine is being supplied with a weak mixture it can hardly be expected to bound away after a baulk, or to pull like a demon up Sutton Bank. These symptoms arise whenever the jet is too small, or the choke tube too large, or the inlet pipe is a loose fit on its stub, or if any other mode of permitting excessive air to penetrate the mixture is in existence; and the test is easy, for the engine should get away nicely if part of the fixed air intake is temporarily covered by the hand or a rag. Finally, we must not forget that some youthful enthusiasts expect to romp up Sutton Bank on a 500 c.c. engine in no special tune, geared 4 to 1, with about fifteen stone of dead weight on board.



WITH A SIDECAR IN HOLLAND.

The above reproductions are from photographs taken by Mr. W. B. Ellis, junr., Newcastle-on-Tyne, who has recently completed a tour on a 7 h.p. Indian and sidecar through Holland and part of the Moselle district. (1) In the canal district near the Zuyder Zee. (2) A view on the quay at Rotterdam. (3) A chateau on the banks of the Moselle. (4) Two Dutch children in wooden clogs snapped on the Indian. (5) The Indian crossing the North Sea. It travelled on the passenger deck lashed to the ship's side.

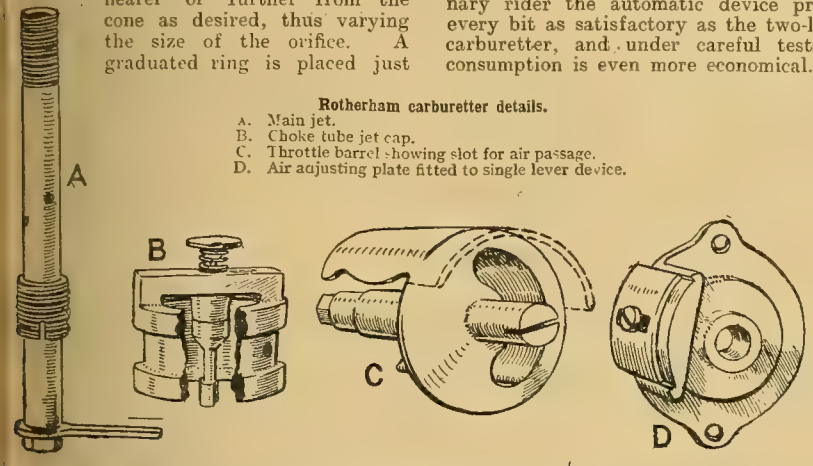
IMPROVED ROTHERHAM PILOT JET CARBURETTER.

THE Rotherham pilot jet carburetter has undergone a few alterations in design, though the principle remains unaltered. The pilot jet lies on the engine side of the throttle, and is carried on a casting projecting from below the main jet, an air adjustment being provided by a sleeve which may be screwed up and down, thus varying the size of two air holes. The main jet A is screwed into the body of the carburetter and has a conical seating formed in its mouth. Into this seating fits the cone inside the choke tube B, which is loosely held in the casting by a spring, so that the cone may be easily centred, the projection below assisting it in this direction.

Petrol leaks below the jet are prevented by a small packing gland, and the main jet is provided with a lever by means of which it can be screwed nearer or further from the cone as desired, thus varying the size of the orifice. A graduated ring is placed just above the lever, so that the jet settings may be checked. The throttle is of the barrel type, and the air is of a similar type, lying at the side and opening a long slot (clearly visible in the sketch). The float chamber is on standard lines, and is fitted with a snap-on lid.

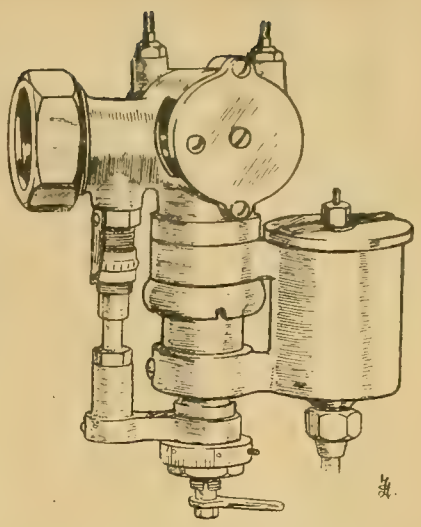
An Automatic Type.

A single-lever form of the same device will also be marketed, the only difference being that the throttle barrel is extended as shown by dotted lines C to cover the air port, and the plate D replaces the usual end cap on the air side. This cap carries a sliding plate by means of which the size of the air orifice may be varied, and once this is correctly set a movement of the throttle lever controls both the amount and quality of the mixture. Both throttle and air barrels are returned to the shut position by clock springs. We are told that in the hands of the ordinary rider the automatic device proves every bit as satisfactory as the two-lever carburetter, and under careful tests of consumption is even more economical.



Rotherham carburetter details.

A. Main jet.
B. Choke tube jet cap.
C. Throttle barrel showing slot for air passage.
D. Air adjusting plate fitted to single lever device.



The Rotherham pilot jet carburetter in its latest form.

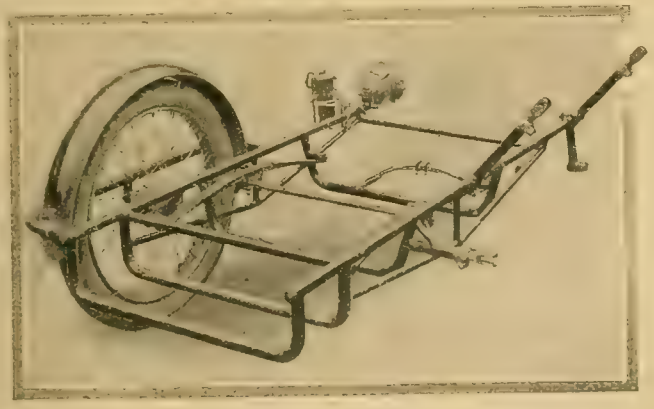
NEW PRECISION 500 c.c. TWIN.

A new model 500 c.c. twin Precision is about to be put on the market. The engine has a bore and stroke of 60×88 mm., and is fitted with side by side valves and a neat internal exhaust lift. In all details it follows the well-tried Precision lines, but a neat innovation is the flange joint for inlet and exhaust pipes, which are arranged in such a way that the cylinders are interchangeable. A feature for the next season will be the re-design of the water-cooled twin cycle car engine, which will have a bevel-driven magneto across the front of the engine.

The new Precision works at King's Norton are likely to be one of the finest engine plants in the country.

WILLIAMSON SIDECAR IMPROVEMENTS.

An illustration appears herewith of the 1914 Williamson sidecar chassis, the chief features of which are the four point fixings and the leaf spring suspension which provides most comfortable riding. The strong construction of the frame is visible at a glance A feature is the use of detachable wheels. The outside frame tube is fitted with a lamp bracket, a fitting which should be standard on all sidecars. The body is very roomy and comfortable. The Williamson Company have a most interesting collection of sidecar bodies, including a miniature three-seated cabriolet, which has frequently been seen in Coventry. A side-by-side two-seater body will probably be standardised for 1914. While at the works we noticed a forerunner of the next season motor cycle, which has several interesting experiments being tried out, including the kick-starter, which we illustrate. These ideas, however, have not yet been definitely adopted at present.

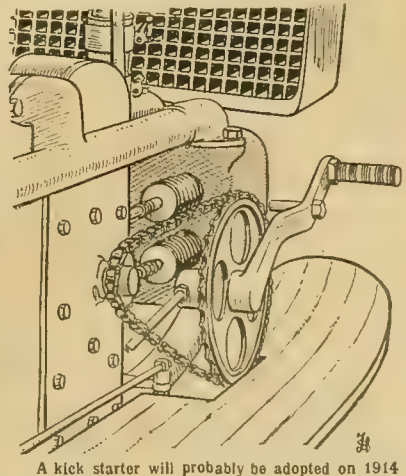


A strongly constructed Williamson sidecar chassis, which will be the standard Williamson frame for 1914.

It will be seen that the kick starter consists of a chain sprocket and foot starter fitted well to the front of the footboard; this is connected to a sprocket on the crankshaft, fitted internally with a free wheel. Further alterations on the new models will consist of neater pipe arrangements.

A.S.L. 1914 PROGRAMME.

Air Springs, Ltd., are not contemplating many alterations to their already well-known air sprung motor cycles. They will market the 3½ h.p. single-cylinder and the 5-6 h.p. twin, and will probably stage at Olympia a new twin of 3½ h.p. This will most likely be fitted with a twin Precision engine. The general construction remains unaltered.



A kick starter will probably be adopted on 1914 pattern Williamsons The first of the type is illustrated above.

Motor Cycle and Cycle Car Records at Brooklands.

564 Miles in Nine Hours.

THE 10 h.p. Singer cycle car went for records up to nine hours on 30th September. The car was driven by B. Haywood and G. Baker in turns, and they got among the records at 250 miles, which were covered in 3h. 58m. 37s. Thereafter the Singer ran with extraordinary regularity, an average speed of over sixty-two miles an hour being maintained right to the end of the nine hours. The actual distance covered in that time was 564 miles 1,524 yards, giving an average speed of 62.76 m.p.h.

The following table gives the new records set up by the Singer and shows very clearly the extreme evenness of running:

The Official Figures.

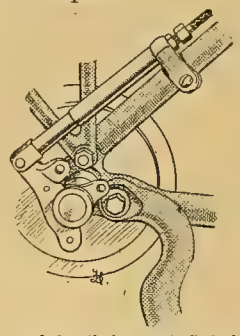
Miles.	Time. h. m. s.	Speed m.p.h.
250	3 58 37	62.86
300	4 45 50 3/5	62.97
350	5 38 3 4/5	62.11
400	6 24 32 2/5	62.41
450	7 13 48 3/5	62.24
500	7 56 50 4/5	62.91
550	8 46 19 4/5	62.70
Hours.	**m. yds.**	**m.p.h.**
4	251 813	62.86
5	315 282	63.03
6	373 621	62.22
7	438 1,384	62 68
8	502 1.353	62.85
9	564 1,524	62.76

The Speed of the Norton.

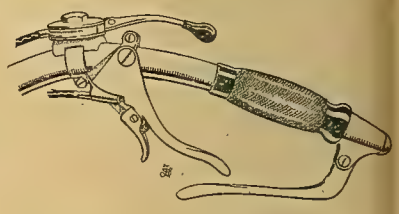
On September 30th, D. R. O'Donovan, riding a single-cylinder 3½ h.p. Norton (79 × 100 mm.), broke the five miles flying start and the ten miles standing start records in classes C and D.

In the five miles with flying start, O'Donovan covered the distance in 4m. 11 3/5s., which is equal to an average speed of 71.54 m.p.h., beating the previous best in both class C and D for motor cycles fitted with motors not exceeding 500 c.c. and 750 c.c. respectively. The previous records were held by G. E. Stanley on a 3½ h.p. Singer, who covered the distance at a speed of 70.75 m.p.h.

In the ten miles standing start, O'Donovan's time was 8m. 48 4/5s., equal to an average speed of 68.08 m.p.h.



HANDLEBAR CONTROLLED CLUTCHES.

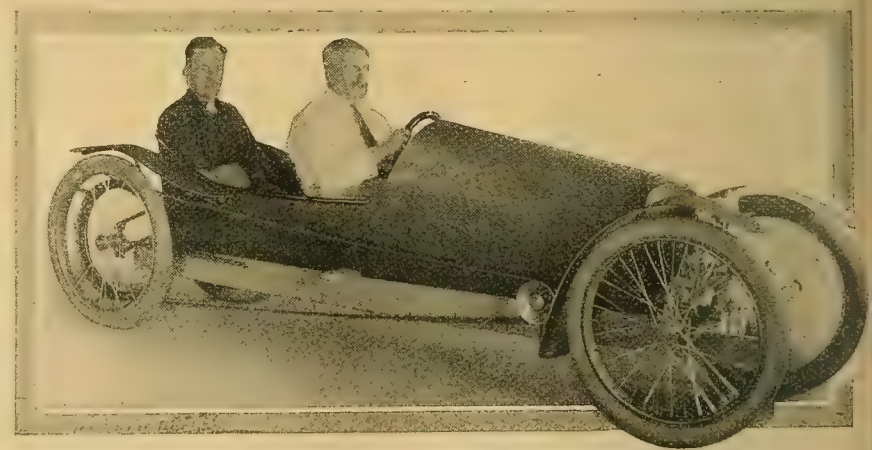


A handle-bar controlled clutch is fitted to the Sturmey-Archer gears on the Blackburne machines. The method of actuation is shown above; both handle and pedal control may be fitted if desired.

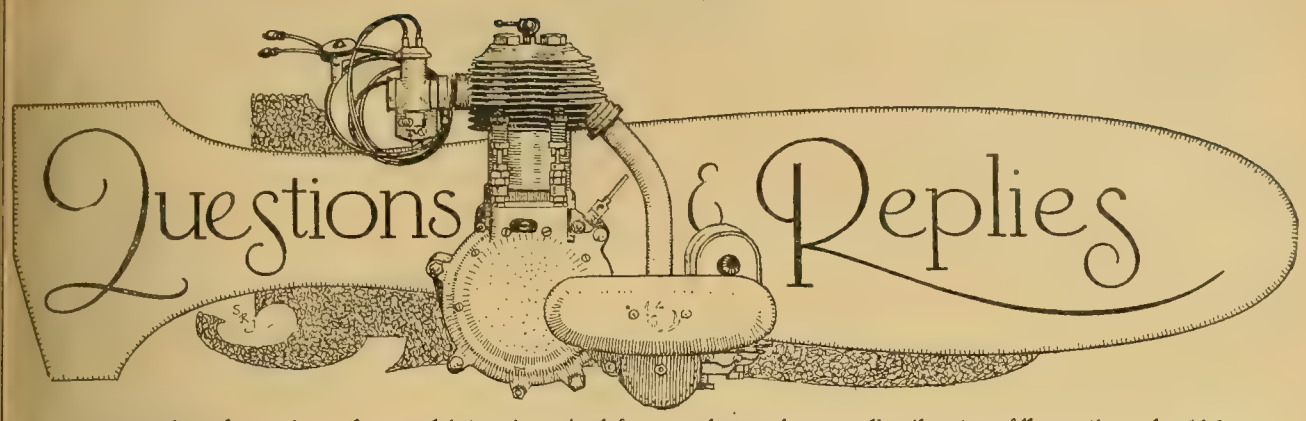
The Imp, an American Cycle Car.

THE Imp cycle car, which is made by the W. H. McIntyre Co., Auburn, Indiana, U.S.A., possesses a number of interesting details in construction, and is remarkable also for the moderate price asked for it, £75. The machine is built on the tandem-seated principle, and is fitted with a two-cylinder air-cooled motor of 10-12 h.p. nominal. The drive is by friction disc to a counter-shaft which is connected to the rear wheels by long side belts, much the same as on the racing Bedelia. Four forward speeds are provided, and the wheelbase is 8ft. 4in. A speed up to 50 m.p.h. is claimed, at which it is said that the little vehicle is perfectly steady and safe. The springing is highly reminiscent of the Cycar produced by Mr. Parnacott. One of the outstanding features is the provision of means for starting the engine from the driver's seat. The motor is started by turning a detachable handle which is inserted in the centre of the steering wheel. This crank connects with a shaft through the steering column with a ratchet on crankshaft through a gear spinning the motor three times faster than when turned by hand. Compression in the motor is automatically released when the crank is inserted and applied as soon as turning ceases. It is said that in starting it is simply necessary to turn the crank at the rate of 100 times per minute and then stop; the momentum attained by the crankshaft carries the motor over compression.

This is an undoubted advance in design provided it can be relied upon to work satisfactorily. It may be mentioned that there appears to be quite a rush in America to market cycle cars of a cheap and simple variety, but whereas in England the tendency in design is inclining towards the miniature car type of machine, the Americans are generally following the pattern originated in the Bedelia.



The Imp, a light belt driven cycle car, the driver of which occupies the front seat.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

A Tour Through North Devon.

I propose going for a tour on my Douglas to Newquay in Cornwall. Will you kindly give me the best route from Bath to Weston-super-Mare, Weston-super-Mare to Ilfracombe, and Ilfracombe to Newquay round the coast?—E.W.B.

Your best route would be as follows: Bath, Marksbury, Stowey, Blagdon, Sandford, Banwell, Locking, to Weston-super-Mare. Weston-super-Mare, Highbridge, Bridgwater, Williton, Dunster, to Porlock. At the foot of Porlock Hill pay the toll and go through a private road to Lynton. The roads in this district are in a disgraceful condition, and the ascent from Lynmouth to Lynton is very steep and abominably rough. From Ilfracombe proceed to Barnstaple and then along the coast *viâ* Bideford, Hartland, Stratton, Boscastle, Trevena, Wadebridge, St. Columb, Newquay.

Questions of Design.

I should be obliged if you would answer the following questions: (1.) What is the proper ratio between wheelbase and track in a three-wheel cycle car? (2.) Is there any objection to a 7ft. wheelbase on a tricar with 4ft. 2in. track? (3.) What is the proper manner of weight distribution on same? Should it be on front or back wheel? (4.) Is friction drive satisfactory on a four-wheel cycle car? (5.) Is 1¼in. tube, gauge 10, strong enough for the frame?—J.B.

(1 and 2.) There is no fixed ratio for the wheelbase and track of a three-wheeled cycle car, nor should there be any objection to a 7ft. wheelbase and 4ft. 2in. track (3.) With regard to weight distribution, this should be arranged so that the weight is divided as evenly as possible, the maximum weight being on the rear wheel if it is the driver. (4.) Friction drive, if properly designed and made, is perfectly satisfactory on a four-wheeled cycle car, but great care must be exercised in the design. (5.) We have no idea what size engine or how much weight you propose to carry, but 1¼in. 10 gauge tubing would be strong enough for most ordinary purposes.

Adjusting for Benzole.

I ride a 1912 Bradbury with sidecar, and am desirious to run upon benzole, but each time I have tried to do so I have found it impossible to get enough air. This has been with a 22 jet, the smallest I could fit. The engine had been recently taken to pieces and thoroughly cleaned, the little ends being re-bushed. The benzole was a strongly recommended brand. I might add that though I sooted my plug every time, the different "feel" of the running of the engine was very noticeable when using benzole—it had more life and flexibility in it.—C.E. 1902.

There is only one thing to do, and that is to try fitting an extra air inlet in the induction pipe, which should be quite satisfactory provided it does not leak when closed. Most carburetters will run on benzole without the slightest alteration, though occasionally more air is needed. You might get some improvement by lowering slightly the level of the petrol in the jet.

L. W. Adams, of Sturminster Newton, whose recent successes include first in the lightweight class at Bournemouth Speed Trials and fastest time of the day at the Dorset A.C. hill-climb held recently at Shaftesbury. In both events he rode his 2¾ h.p. Douglas and in the latter event beat several cars and 3½ h.p. motor cycles.

Wear in an 8 h.p. Twin.

(1.) What is the horse-power of a V twin, bore 84 mm., stroke 90 mm.? (2.) Would water cooling increase power of above (3.) Where would above engine first show signs of wear? (4.) How many miles (approx.) should above engine run before the big ends would require re-bushing?—MOREDUN.

(1.) About 8 h.p., or rather more. (2.) Water-cooling would not necessarily increase the power but would enable the power to be maintained for a longer time. (3.) In the various moving parts, such as the connecting rod, big and small end bearings, main shaft bearings, etc. (4.) It is impossible to say. This depends upon the system of lubrication, whether the engine is air-cooled or water-cooled, etc., but, say, 5,000 miles. With water-cooling the wear would be slower than with air cooling.

Exhaust Valve Burning.

I should be obliged if you could explain the trouble I am having with my engine. For the last few months the engine has run very hot, causing the head of the exhaust valve to break off. I tried to get over the trouble by having the stem made thicker at the head. This has stopped the breaking, but the stem lengthens and burns away at the head. The timing seems to be right and the tappets move freely.—S.J.

The burning of the valve may be due to several causes: (1) The raising of the valve partially while the engine is still firing, which causes the flame of the exhaust to pass direct round the stem; (2) driving with the spark too much retarded; (3) using too strong a mixture; or (4) having the engine wrongly timed. Check over your timing carefully and see if it compares with that recommended by the makers.

London to Barnstaple.

I should be much obliged if you would inform me the best way from Muswell Hill to Barnstaple, and distance, avoiding London if possible. I had thought of starting *viâ* Hendon, Harrow, Uxbridge, and Slough. Where is it best to join the Basingstoke Road?—J.E.T.

If you go *viâ* Hendon, Harrow, Uxbridge, and Slough, this will be the best way out. You then join the Basingstoke Road *viâ* Windsor, Ascot, and Bagshot, continuing through Basingstoke, Whitchurch, Andover, Salisbury, Shaftesbury, Sherborne, Yeovil, Ilminster, Taunton, Bampton, South Molton, and Barnstaple.

Misfiring at Slow Speeds.

Recently I took to pieces my 1912 2¾ Enfield (including the magneto). After re-assembling, the machine misfired badly at slow speeds, but improved at high speeds. I have examined all parts, but cannot find out the cause. The carburetter floods and the jet is clear. It is an Amac carburetter, and does not seem to be adjustable. The valves shut closely and compression is fair. The plugs both show good sparks when tested on the cylinder. Can you suggest a reason for this misfiring? I might possibly be using some unsuitable spirit.—A.A.

You do not appear to have examined the amount of break in the platinum points of your magneto. See if they are breaking sufficiently, and also look to your plug points and see that they are not too close together. In putting back your carburetter you may have caused an air leak in the carburetter itself or the induction pipes. It is also quite possible that, in taking the magneto to pieces, you have destroyed the magnetism in the magnets; in this case they must be re-magnetised.

Overheating and Timing Difficulties.

I should be pleased to have your opinion on the following matter in regard to my 1912 Bradbury: (1.) I am much troubled with my cylinder and crank case heating up excessively. I have good compression, use good oil, cylinder and piston are both free from carbon deposit, I use a 32-jet, and ride with ignition well advanced. My cylinder is just new, and when fitting same I had to take fully ⅛in. off valve stems to allow them to sit on their seats. In connection with this I wondered if combustion chamber was too small, thus causing the overheating. When this overheating takes place the engine knocks when I am mounting, and also when picking up. (2.) I notice that in your answers on ignition timing you state that with the points breaking and piston at top of compression stroke, the ignition lever should be fully retarded. I have my timing as above but with lever half way advanced.—J.K.

From your letter it seems that a different type of cylinder has been fitted, with the result that the compression is very much higher than standard practice. From the dimensions you give, it would be impossible accurately to calculate the exact pressure, but we think that you would be advised to refer the matter to the makers of the machine, who would be able to give you the compressions from their mechanical drawings, and to substitute another cylinder, if such be necessary. Another plan would be to try a lower pressure by inserting a few strips of metal between the cylinder and the crank case until the engine runs smoothly. As regards the ignition timing. This varies very much with the particular machine to be timed, some taking very much more advance than others, and, in any case, the timing alters according to the use to which the machine is put.

Newcastle-on-Tyne to Twickenham.

I intend going to Twickenham from Newcastle-on-Tyne on my Clyno and sidecar. I shall be glad if you will kindly give me the best way off the Great North Road, avoiding as much traffic as possible. I presume there is no possible way of avoiding the shockingly bad road between Gateshead, Birtley, and Chester-le-Street to Durham, which must be about the worst piece of road in the kingdom. The last time I went over this road, even my magneto was loosened from its platform.—However, if you can let me know the best route from Newcastle to Twickenham, avoiding the London traffic, I shall be greatly obliged.—H.F.

You cannot well avoid the bad road between Newcastle and Neville's Cross. Of course, it is not necessary to go into Durham. You can vary the route a little after Durham by going through Bishop Auckland and West Auckland, then right down Leeming Lane to Boroughbridge. This is a very fast road. As regards the London part of the journey. Your best plan is to purchase a copy of the R.A.C. Official Map of Recommended Routes Round London (obtainable from these offices price 1s. 7d. post free), and follow the road marked in blue from Barnet to Fulwell Park, where turn left for Twickenham.

The Utility of Nail Catchers.

I have just taken delivery of an 8 h.p. Rex-Jap and sidecar, and regret to say that, although I have only done 500 miles I have had six punctures caused by nails, etc. I shall be glad if you will tell me (1) whether tyre liners will prevent this trouble, and (2) whether you can recommend a good make of nail catcher, which can be fitted to the back wheel of my machine.—F.A.N.

We should think that the best way out of the difficulty would be to fit a nail catcher. These may be obtained from most accessory dealers, or could be made by fixing a piece of wire close to the tyre, or by leaving a piece of chair hanging loosely on the tyre. Either of these devices should be effective.

EXPERIENCES WANTED.

"Foxall" (London).—8 h.p. Henderson, four-cylinder, air-cooled, reliability.

"J.O.L." (Bristol). — 3 h.p. Enfield 2¾ h.p. Humber.

"H.B." (Putney). — F.R.S. electric headlight. Do accumulators stand the vibration of back carrier?

"J.F.T." (Manchester). — Carburetter for 2¼ h.p. F.N.

"S.G.F." (Catford).—Williamson and sidecar, water-cooled, especially as to how much work done on top gear.

"O.W." (Leicester).—5-6 long stroke Rudge Multi.

"A.L.B." (Mansfield).—Experiences of amateur motor cyclists with Scott machines as regards petrol consumption with Scott, Lukin, and Binks carburetters, and life of chains.

"F.C.O." (Stourbridge).—Best wearing and thoroughly waterproof motor cycle clothing, mackintosh or oilskins. Names of dealers.

"H.T." (Aughton).—2¼ Baby Levis single gear, hill-climbing, speed and m.p.g.

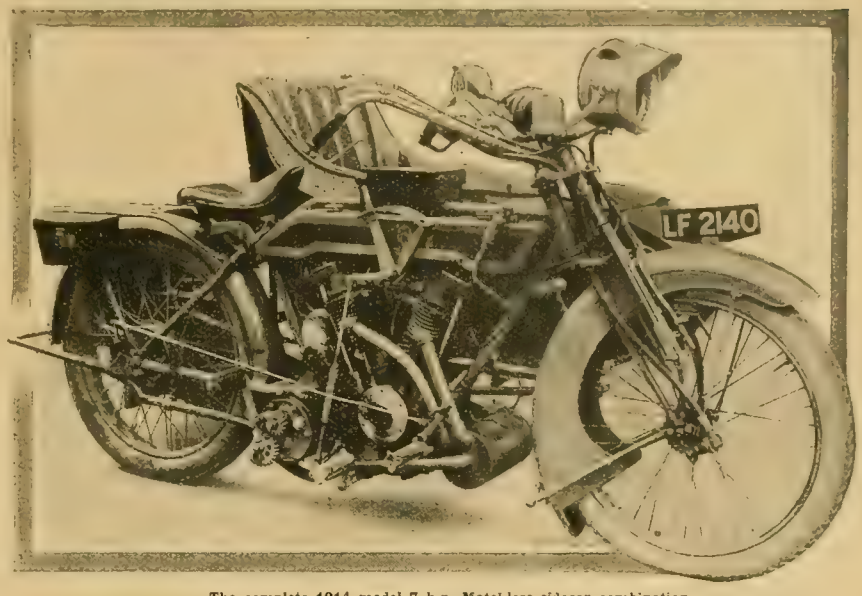
"J.B.B." (Purley).—Brampton variable gear for lightweights, especially as regards belt wear.

THE TRIAL IN NORTH WALES. V. Busby (2¾ h.p. Sunbeam) in the watersplash near Llansannan.

THE MATCHLESS 1914 MODELS.

FEATURES: New 7 h.p. Sidecar, Car Type Gear Box, Extreme Silence and Comfort.

WE recently spent a very interesting afternoon with Messrs. H. Collier and Sons, Ltd., going thoroughly over the latest pattern Matchless models. We made a brief announcement of these models in our issue of 8th May last. First of all, as regards the solo models, there will not be any serious alteration. The speciality for 1914 will be a 3½ h.p. twin with J.A.P. engine, fitted with enclosed chain drive to the counter-shaft and thence by belt to the back wheel which is fitted with a three-speed Armstrong gear. This is an exceedingly handy little mount, capable of going anywhere. The chain case will be of sheet metal instead of aluminium, and the spring forks will have a bigger range of action.

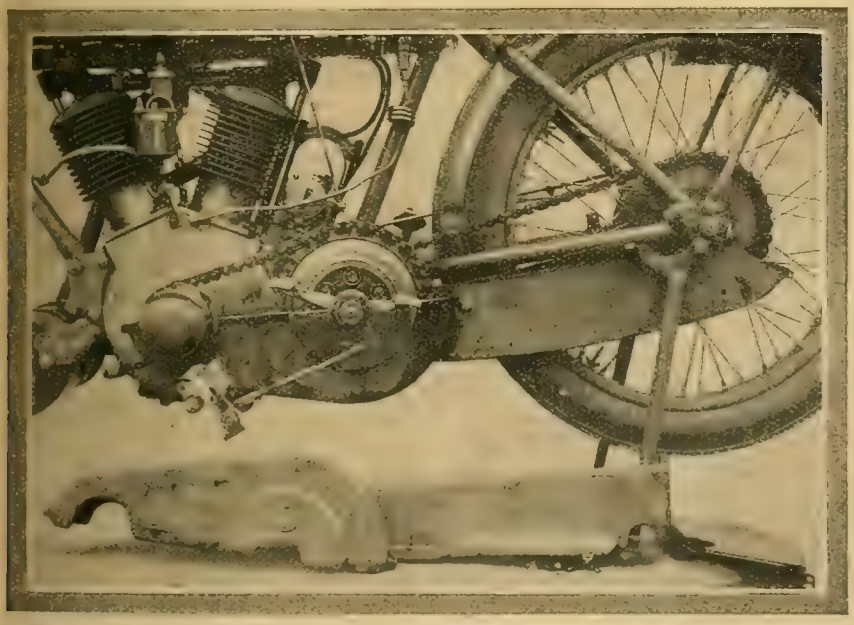


The complete 1914 model 7 h.p. Matchless sidecar combination.

The 7 h.p. Passenger Machine.

The chief item of interest, however, which we inspected was the 7 h.p. sidecar combination, fitted with a totally new engine. This engine is one of the most attractive points of the machine. It has a bore of 92 and a stroke of 94 mm. The inlet valves are worked on the overhead system, and the mechanism operating them is entirely enclosed. Even the tappet rods are enclosed in tubes, while the rockers are also entirely closed in, and the lubricant is admitted to these from the engine. With this system air leaks are practically impossible, and this enables the engine to be run at very slow speeds. There is also a total absence of valve clatter, and the chief noise noticeable when one is running at moderate speeds is the air rushing into the carburetter. The engine is beautifully finished throughout, and its exterior is quite remarkable in this respect. Moreover, even after long runs, the crank case is wonderfully clean. The magneto is situated behind the rear cylinder, well out of the way of the elements, and the extremely neat method of fitting is clearly shown in the accompanying illustration. The exhaust pipes are led into a spacious exhaust box, and the final exit is through a long pipe.

From engine to counter-shaft the transmission is by means of a silent chain, and thence by an ordinary roller chain to the rear wheel. Both the chains are entirely enclosed. Since we last saw the machine the latter feature has been added.



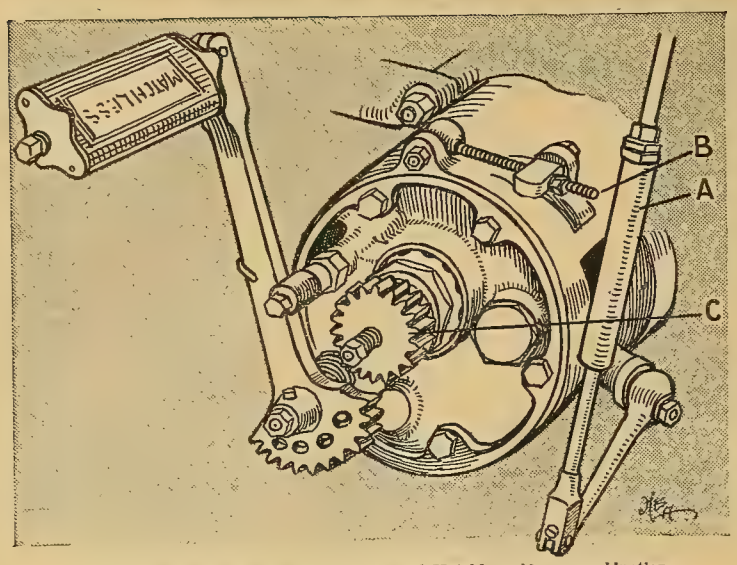
System of transmission employed on the 7 h.p. Matchless sidecar combination showing the counter-shaft gear clutch and chain cases.

On the counter-shaft a metal to metal clutch is carried, which is particularly sweet in action. The gear box now contains three speeds and is cylindrical in shape, being carried on special lugs on the bottom bracket. Dog clutches are provided for the first and top speeds, while the second speed is of the sliding type. The gears slide on a castellated shaft. Both the space between the castellations and also the interior of the sliding gear wheel are accurately ground, thus ensuring a perfect fit, absolute truth, and preventing any noise on the intermediate speeds. The kick starter, which is carried on the gear box, is most substantial, and the bush on to which the ratchet wheel is fitted is provided with a gland to prevent any leakage of oil; in fact, the whole gear box is absolutely oiltight, so that engine oil may be used therein.

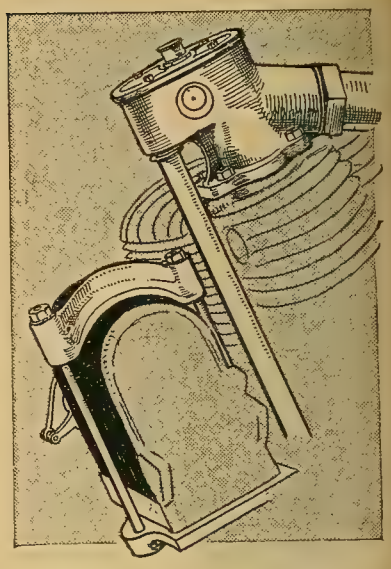
Easy Chain Adjustment.

The method of adjustment is interesting, an adjusting bolt and screw being fitted to one end of the gear box, and the other end fastened to the special lug which carries it, so that, if the adjusting screw be turned the whole gear box may be rotated slightly, thus taking up the slack in the front chain. That portion of the kick starter carrying the pedal in its "off" position comes up against a rubber buffer, so that the pedal flies back without noise on being released. A neat form of gate change is provided, which was sketched in our issue describing the mechanical fitments in the A.C.U. Six Days Trials. The operating rod is provided with a buffer, and when the lever is placed in the first speed notch, if the dogs do not engage at once through the action of the spring, they will fly into engagement on the first movement of the gearshaft. The rear brake is of the internal expanding type, and is very powerful in action.

It is interesting to note that the oil when fed through the pump is divided



Gear box and kick-starter of the latest model Matchless sidecar combination,
A. Gear operating rod fitted with spring buffer.
B. Front chain adjuster. C. Oil tank gland.



Enclosed overhead valve mechanism and method of carrying the magneto on the 7 h.p. Matchless.

into two portions by means of a branch pipe, one portion going to the engine and the other to the clutch, from which any excess is thrown by centrifugal force on to the silent chain. The mudguards are wider, and to the front wheel most efficient side shields have been fitted. The range of action of the spring forks has been increased, and grease cups are now provided to the movable joints so that efficient lubrication in these parts is ensured.

A Luxurious Sidecar.

The sidecar chassis is a particularly fine piece of design. It is composed entirely of straight tubes. The long member running parallel with the frame is now strengthened by a girder. The chassis is dropped, and the bar supporting the body runs right through the latter, passing right underneath the seat. Incorporated in the design of the chassis is a place for carrying a spare petrol can, and provided with springs to prevent the latter from rattling about.

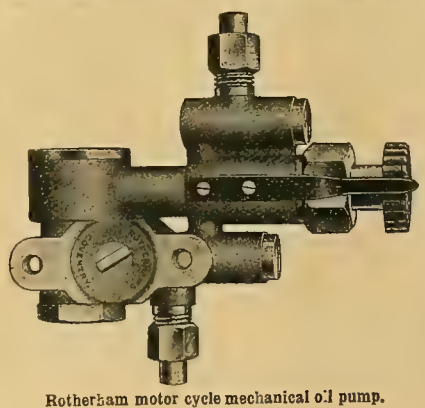
The body is a very nice piece of work, being constructed of three-ply mahogany, which is guaranteed to stand a tropical climate. A small locker is placed underneath the top portion of the body and an ample locker underneath the seat. The cushion is properly sprung, following motor car practice. In future models the well-known Matchless khaki finish will be extended to the sidecar upholstery. The sample which we saw was particularly handsome. Messrs. Collier and Sons are also considering the fitting of a luggage platform to the sidecar body, so that by this means the luggage is carried on the sprung portion of the combination.

Impressions of a Trial Run.

After our examination Mr. Harry Collier took us for a trial run for a considerable distance in the machine, which impressed us particularly by its extraordinarily sweet running; in fact, the engine was dead quiet in every respect. There was an entire absence of valve noise, and a particularly silent exhaust, so that conversation could be carried on without the slightest difficulty. The district round Woolwich abounds in hills, and we were given ample opportunities of seeing the wonderful power provided by the machine on heavy gradients. We were also particularly impressed by the power of the foot-brake, which was really quite remarkable. On Shooters Hill, and on another gradient, which was certainly not easier than 1 in 8, the combination was turned round and made to re-start on second speed, on several occasions, which, owing to the efficacy of the clutch, it was able to do without much trouble. During the long ascent of Shooters Hill, Mr. Collier allowed the machine to come almost to rest, and while still on second speed let in the clutch by no means gently, with the result that the engine took up the load without a falter. From stem to stern the combination is a magnificent piece of work, and is absolutely in the front rank of passenger vehicles.

A MECHANICAL LUBRICATOR.

A small mechanical oil pump for attachment to the side of a crank case has been introduced by Messrs. Rotherham and Sons, Ltd., Coventry. The pump is of the plunger type, and is connected to one of the timing wheels by means of a screwdriver joint, the slot on the end of the shaft fitting into the screwdriver blade formed on the end of the pump gearshaft. A small worm gear is employed to transfer the motion to the plunger, which is forced in and out by a cam and roller. The supply pipe from the usual oil reservoir in the tank is connected to the upper union shown in the photograph, and the delivery pipe to the engine to the lower one. A small wheel indicator is employed to show the quantity of oil pumped; there is also an adjuster shown on the right of the illustration. This, when "full on," is screwed down to a stop, and in this position pumps one pint of oil for 26,660 revolutions of the worm spindle. If the half-time wheel revolves 1,145 times in a mile a pint of oil is pumped with the adjuster set full on, and a gallon in about 122 miles. The adjustment from this point can be graduated until no oil is pumped. This adjuster can be arranged to work by Bowden cable from the handle-bar.



Rotherham motor cycle mechanical oil pump.

"Motor Ways in Lakeland"

Mr. George D. Abraham, whose articles on sensational motor climbs among the mountains in the Lake District, have often appeared in our columns, has lately published, through Methuen and Co., Ltd., London, a very fascinating volume under the above title. It deals in chatty manner with all roads possible for motors in the English Lakes, and is illustrated copiously with superb photographs by the author, who is quite unsurpassed in this art. The price of the book is 7s. 6d.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Compressing Valve Spring.

Sir,—The following is a good tip for compressing stiff valve springs preparatory to tying them up with string. Unscrew the large spanner (always supplied with modern machines) to its maximum, compress the spring by hand, and put it between the jaws of the spanner. Then, taking the spanner with its head resting in the palm, and the fingers over the other jaw, draw the jaws together, at the same time, with the other hand, screwing up the slack of the small milled screw. I quite appreciate "Ixion's" remarks about not being able to turn the screw under ordinary conditions, but I think that if anyone tries my suggestion he will find it easy to manage even a 50 lb. spring.

K. J. KIRKPATRICK.

A Problem.

Sir,—I may say that I had just the same trouble as your correspondent writes of, only with a different engine. However, I discovered that, although the exhaust valves were theoretically timed right, they were the cause of the trouble, and by timing them to close slightly later, I got excellent hill-climbing powers and fifty-five miles per hour on the level, whereas, formerly, the machine would only do thirty-five on the level and refused to look at anything in the way of a hill. Hoping this letter may be of some use in the present case.

PHILIP BAILEY.

Sir,—I was much interested by your correspondent "Twin Jap's" letter, headed "A Problem." I have a standard free engine, 3½ h.p. 1912 Bradbury, which has only been 2,500 miles. I can get 50 m.p.h. out of it easily on the flat, but I suffer from knocking when the engine picks up after slowing down, or on a hill. The gear is 4½ to 1.

I have had the cylinder down lately and compression and valves seem to be all right. I have oiled the engine very freely, but cannot even get it to smoke at all. I have tried a 30 jet but it made matters worse, and so have gone back to the standard 32. I might add that the engine hardly ever knocked when I first had the bicycle, and the retarding of the spark always stopped it at once, which it fails to do now.

JOHN CROWDER.

Sidecars and Cycle Cars in Singapore.

Sir,—I enclose a photograph which may be of interest to you from an overseas point of view. The machines represented are an 8 h.p. Humberette, an 8 h.p. G.N. chassis with J.A.P. engine, and a 3½ h.p. Rudge-Multi, the last named being the property of the writer, who along with the others shown all live together in the same "mess"; we may therefore be said to constitute a small motor club of our own.

There are over two hundred motor bicycles in Singapore now, and as the roads are excellent and there is no speed limit, one has plenty of chances of "letting it out" once clear of the town.

Cycle cars are only just being imported here in any numbers, but will soon, I think, become extremely popular, as they afford the protection from tropical rainstorms which a motor cycle cannot give.

I would add that we are all regular readers of your interesting paper.

T. A. POWELL.

Singapore.

An Undesirable Practice.

Sir,—Being a regular reader of your paper, which I have always looked upon as the chief organ of motor cycling, I was somewhat astonished to read your leading article on "Carrier-riding" in *The Motor Cycle* of September 25th. In my opinion, it is more of the type one would expect from a lay contributor than from the pen of the leader writer of a paper devoted to the sport. The writer is no doubt perfectly entitled to give his views in regard to the safety or otherwise of this practice, but to hint at legislation is going too far. I do not agree with the writer's contention, but if there be danger, as he alleges, in this practice, it is only danger to those who indulge in it, not to the general public—[See letter from "Maxime"—Ed.]—and I submit that anyone has a right to take risks with his (or her) own life if he so chooses. If not, why not pass laws to forbid flying, motor racing, or hunting, or for that matter any sport in which there is an element of risk? The writer of the article implies that the chief objection to the practice is that girls are more often than not the passengers carried. Perhaps he also disapproves of lady motor cyclists and "air women"!

MOTORING IN SINGAPORE.

A Humberette, G.N., and 3½ h.p. Rudge Multi sidecar in Singapore. Photograph accompanying T. A. Powell's letter.

If we are to imitate the grandmotherly legislation of some of the American States, where pillion riding is forbidden, the traditional liberty of the British subject will become rather a doubtful quantity. For instance, in some States women are not allowed to wear slit skirts or to bathe without stockings, etc. I do not think any English Government is likely to legislate in this absurd way, at present.

I must also contest the assertion that the average carrier is not strong enough for the work. With nearly all machines of 3½ h.p. and over, the carrier is a very solid affair, and the makers know it will be used to carry a passenger; indeed, the B.S.A. Co., in their book, say, "Do not take a sidecar *and* a carrier passenger."

If pillion riding strains the back tyre, what about sidecaring? I have taken passengers on the carrier for years both on singles and on big twins, but the only two spills I have had were in no way attributable to the fact of having a passenger carried in this way.

Even supposing I were one of the "rash youths," the writer speaks of—though several years' riding in all conditions without any serious spills should disprove it—I should still assert my right to ride as I pleased, even to the extent of rashness if I so wished, so long as I did not become a danger to the public. Being entirely a matter between driver and passenger I fail to see that it is anybody's business to interfere.

I am confident that I shall find support amongst all those motor cyclists who wish to retain their liberty to put their machines to what use they please, and especially amongst those who cannot afford a sidecar, or who prefer solo riding.

With apologies for the length of this letter,

LESLIE J. MANN.

Sir,—It was very forcibly pointed out to me on Sunday, Sept. 28th, what a truly undesirable practice carrier riding is.

A friend and myself were riding leisurely along a road near Royston when another machine with passenger (male) on the carrier was coming round a slight bend. My friend was in front and well on his proper side of the road, yet the other driver could not manœuvre his machine round the bend. The result was that after a few spasmodic efforts to get past, both on the right and left side of the road, he gave a "death yell" and charged my friend. The sides were ripped off each other's machines, but the drivers were fortunately more or less unhurt. I myself met one of the falling machines.

Now, I am certain that had there been no passenger on the carrier the driver of that machine would easily have avoided an accident. It is hopeless to argue that a machine steers well with a passenger on the carrier. I speak from the experience of both passenger and driver. It is still more dangerous if the driver is not thoroughly used to driving a motor cycle, not only for the riders themselves, but for all users of the highway. Anyway, it is an altogether undesirable practice.

MAXIME.

Tyres for Heavy Sidecars.

Sir,—I see the question of tyre wear cropping up occasionally in *The Motor Cycle*. Surely the remedy for all tyre troubles is to "over tyre" the machine.

Acting on this principle the following is my experience of 12,000 miles odd in seven months, commencing with a new machine, a Chater-Lea No. 7 and sidecar.

Tyres: Front wheel, 650 × 65 Michelin; back wheel, 700 × 80 Dunlop Grooved and liner; sidecar, 650 × 65 Michelin.

After about 2,500 miles the back tyre was down almost to the canvas, showing even wear everywhere. I had done a lot of high speed riding on the road up to and above forty-five miles per hour. Front tyre worn evenly all round, only slightly, but to one side, owing to different diameters of back and sidecar tyres. No signs of wear on sidecar tyre.

I then fitted new 700 × 80 to back with old liner (quite good), reversed front tyre to equalise wear, and had new tread on old 700 × 80 cover.

After about 6,000 more miles I discarded front tyre, nearly down to canvas, put sidecar tyre on front wheel, and retreaded cover on sidecar with a liner.

Back tyre still in good condition. As I was going touring with a fourteen stone passenger and luggage I fitted a new 700 × 80 and carried the old one and discarded 650 × 65 as spares.

After about 3,000 to 3,500 miles more, including 1,230 tour round England and Scotland in November, these tyres were on the machine when I sold it. I had no puncture nor any form of tyre trouble in about 12,000 miles, though at Fort William, after running up from Glasgow, I found seven pieces of iron in my back tyre.

I should point out that the cost of a 700 × 80 Dunlop grooved is only a few shillings more than a heavy 26in. × 2½in., and about six times as strong.

I've been told heavy tyres slow a machine, but I could get fifty miles per hour with a passenger, which is more than I ever want. I have been told, also, that a liner "heats up the tyre." Perhaps it does; if so, it seems to make it very reliable. Personally, I've never found it to do so.

Incidentally, I should like to mention I used petrol and paraffin in equal parts and any oil that came along. During the time I had the machine, barring a collision, I never had a moment's trouble with any part of it, and I rode in all weathers and over all kinds of roads. I consider that this machine, with the tyres mentioned, has reached the limit of reliability. Of course, we all have our own ideas of "improving" any machine, but the only improvement I can think of for this machine is a waterproof chain case for wet weather riding.

Need I add that I am not interested in either the machine or tyres mentioned?

SURGEON, R.N.

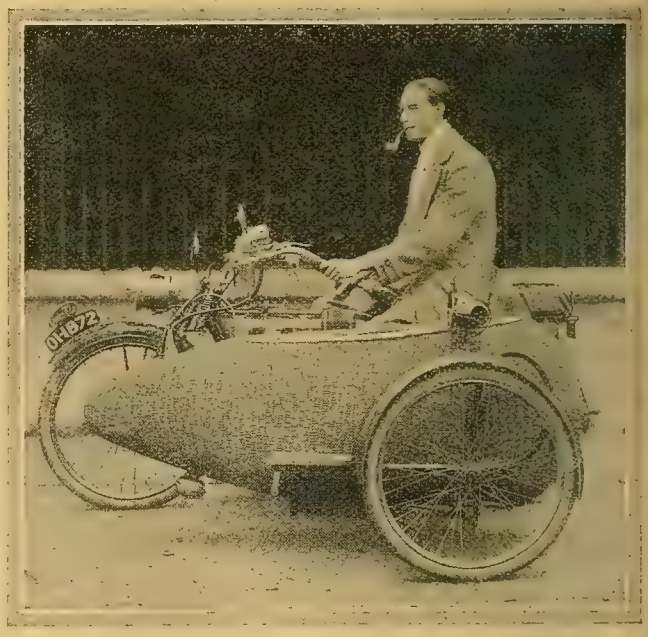
Changsha, Hunan, China.

A Sidecar for a Douglas.

Sir,—I send you herewith a photograph of the sidecar which I attached to my 1913 Douglas last Easter. It is unique and offers little wind resistance. At the rear, the body is suspended from saddle springs attached to the tubing, which is carried upwards (C shape) from the hub centres, doing away entirely with the usual heavy C springs. The fore part is swung on shackles only.

The chassis is dropped six inches in front and seven inches at the back, the axle being reinforced. Driving tyre, 2¼ inches, and Service leather belt used.

The body is lined throughout with bright pink imitation leather, the seat and back upholstering are both detachable



A neatly designed wicker sidecar on a 2¾ h.p. Douglas. (See letter.)

and a surprising quantity of clothes, etc., can be stowed away at the back—of course, out of sight. When seated the passenger's head and shoulders only are visible.

The combination pulls well, but the chain stretches constantly—which is only to be expected.

During August I started from the pier at Eastbourne for a run up to the top of Beachy Head (with lady passenger, nine stone). This I accomplished, changing into low (8¾ to 1) at the foot of Beachy Head proper.

KNUTS EGG.

HUTCHINSON

MOTOR CYCLE TYRES.

IMPORTANT ANNOUNCEMENT.

WE beg to call the attention of all motor cyclists to the new qualities and important reductions in prices of Hutchinson Motor Cycle Tyres in force from October 1st, full particulars of which can now be obtained from any Agent, or by writing direct to the Company.

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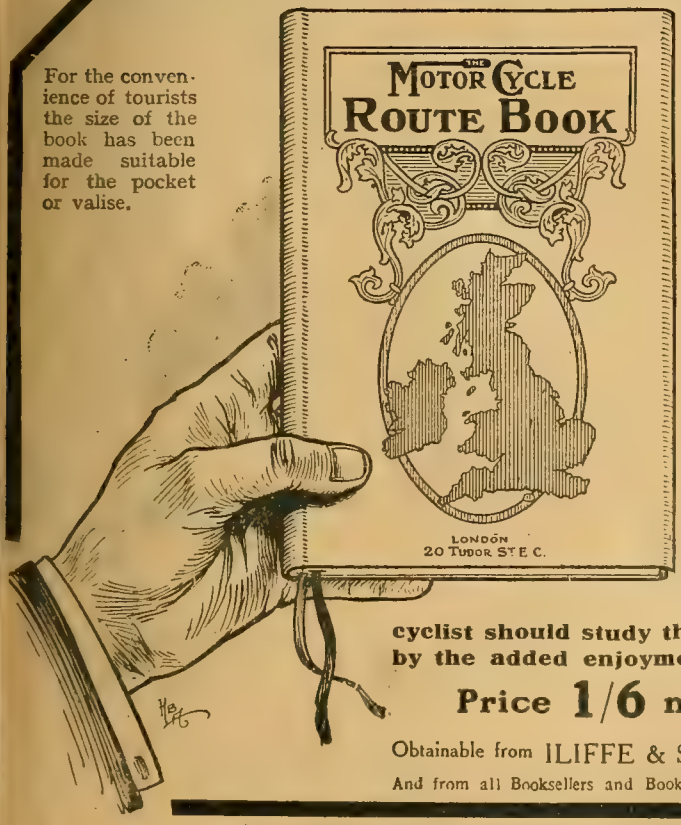

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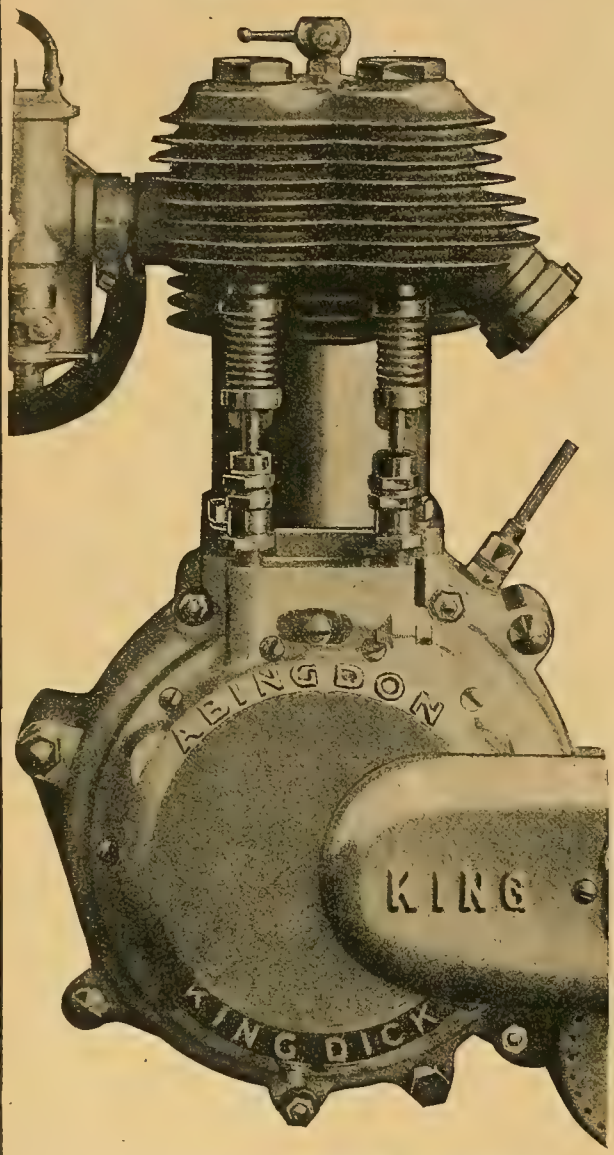

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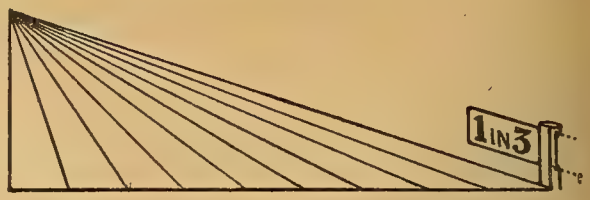


Climb 1,750 feet in a mile, and you

will want to have motor-cycle tyres which grip any surface—which will stand frightful bumps and shocks, and sharp stones. At least that is what Messrs. W. B. Little, Raymond Drinkall and T. B. Westmorland found on their recent famous climbs of redoubtable Skiddaw and Helvelyn.

¶ All three of these daring riders used Stelastic tyres. Skiddaw is 3,058 feet high. There is a rise of 1,750 feet in less than a mile—an average gradient of one in three. At many places the grade is almost one in two.

¶ There is no road or pathway. For a long distance the surface is covered with loose stones of shapes and sizes calculated to strike terror into the heart of any rider —or tyre!

¶ But, as is now motor-cycling history, all three of these Stelastic users accomplished this marvellous climb with flying colours. On Mr. Little's machine were the same Stelastic tyres which he used in the Six Days Trial.

¶ Do you know the unique construction of Stelastic tyres which makes such almost unbelievable wear possible? Let us send you printed matter which tells about the wonderful Stelastic Tread, in which woven steel "meshes" "give and take" in perfect harmony with the purest Para rubber. Stelastic tyres are absolutely cut-proof, and almost impossible to puncture. If you do not know the address of the Stelastic Depôt nearest to you, we shall be glad to advise you.

STELASTIC TYRES, LTD.,
76, York Street, Buckingham Gate, London, S.W.

Stelastic Tyres

How to Test Benzole.

Sir,—I have been much interested in the letters and "Replies to Correspondents" which have appeared in your columns of late. I shall be glad to know if you think there is any likelihood of benzole clogging up the gauzes which are fitted in the ports on a Scott motor cycle. I have used it intermittently for the last three months, and on changing the gauzes a few days ago I found that some had clogged up with what appeared to be a sooty deposit.

I certainly obtained greater power, an increased mileage per gallon, and altogether more satisfactory running when using benzole, but I should like some information as to the fouling of the gauzes referred to. ROUNDLAY.

Sir,—Your contributor of the article "How to Test Benzole" has made an important omission, which may mean serious burns to the novice. It is usual when testing benzole to use a water-cooled condenser. In the first place the apparatus, as illustrated and described, would fail to give accurate results except in the hands of an expert manipulator. In the second place many novices will, in all probability, use a gas ring or something equally unsuitable, and begin to distil at such a rate that practically no condensation would take place and the vapours would ignite through their proximity to the flame. I may add that I am using benzole and would not return to petrol whilst benzole is to be obtained. TECHNICAL CHEMIST.

Sir,—I have read with considerable interest the article in your issue of September 25th on "How to Test Benzole," but should like to take exception to your contributor's statement that there is no quick and accurate method for the estimation of sulphur in benzole. It is true that the only way to determine the total sulphur in benzole is to burn it and weigh the subsequently produced barium sulphate. Carbon disulphide and thiophene are, however, the chief sulphur compounds present, and these can be quickly and easily estimated with accuracy with the aid of a good balance. Moreover, it is possible, with a little experience, to say, without weighing, whether a sample of benzole is high or low in sulphur content.

Carbon disulphide is estimated by the amount of precipitate produced on addition to the benzole of phenyl-hydrazine, and thiophene by the amount of precipitate produced on the addition of a solution of basic mercuric sulphate to the benzole, dissolved in methyl alcohol.

Anyone can obtain the chemicals and the necessary apparatus (a few test tubes) at a very small cost from almost any chemist.

After all it is the amount of sulphur present in the benzole which is of chief interest to the motorist, as the specific gravity and boiling points of most brands of benzole now on the market can be depended upon to be fairly right.

With regard to the alleged test for sulphur by the immersing of a copper strip, I may say I have purposely performed experiments with samples of benzene known to contain as much as 600 grains of sulphur per gallon, and have been unable to obtain any discolouration.

It may be of interest to your Scotch readers to know that benzole from Scottish coal or shale contains remarkably little sulphur. CHEMIST.

Petrol Consumption.

Sir,—In view of your remarks on the Sutton Coldfield and Mid-Warwickshire Club's petrol consumption trial, I, as a competitor, should be glad if you will publish this letter. My machine is a 1913 A.C. Sociable, bought in the ordinary course last May. Before the trial the tank was filled on the weighing machine and then weighed, together with myself and passenger. I then drove round the course, on which there were numerous official observers. On returning, the tank was again filled from a glass measure, graduated in ounces. To make sure that the tank would not hold a drop more the tricar was swayed sideways, and it was even insisted on being in the same position on the scales as when first filled. I also believe that all competitors were treated the same in the above respects. My tank would not take a fraction more than 38 ozs., and all speedometers registered at least twenty-four miles. The trial was a non-stop, and it is impossible to remove the filler cap on an A.C. with hood on. Nothing whatever was consumed except the fuel in the tank and the usual amount of lubricating oil in the engine (about three pints for 600 miles). Further, my test was under unfavourable conditions, owing to brake trouble, and any representative of yours who may "require some amount of convincing that such remarkably economical results are possible" can be given a reasonable opportunity to see the "impossible" accomplished easily. PERCY W. HILL, F.C.S.

Sir,—It would be of interest to myself and to the many readers of your valuable paper to know how it is possible to get such an enormous mileage as 334 miles to the gallon (petrol) as was done recently by Mr. T. Pollock in the Sutton Coldfield trial, riding a twin James. A few hints from this rider would, I am sure, be very acceptable. Personally, I should be very pleased to get half this distance to the gallon on a give and take road, be it single or twin. I have often heard it said that the modern motor cycle would fire on a whiff of petrol, and will soon be able to go simply by smelling it. There seems to be some truth in this statement. W. S. BACON.

Sir,—In reading the short paragraph in the last issue of *The Motor Cycle* it seems to me some doubt is entertained as to the validity of the official results of the fuel consumption trial recently held by the Sutton Coldfield and Mid-Warwickshire A.C.

The figures no doubt seem remarkable, but as I both tuned up and drove the 10 h.p. Singer in the competition, I am perfectly satisfied that the mileage registered was quite correct, as I obtained nearly the same result whilst testing my final adjustments two days previous to the event.

Perhaps when I tell you the weight of the car with driver, passenger, and accessories was as much as 13½ cwts. you will be even more surprised at the mileage, and especially when I state that the automatic features of the Claudel-Hobson carburetter were retained exactly as turned out by the makers and no such extras as additional air used.

However, in order to clear away any possible doubts, I offer to repeat the same performance over the same course, and under the same climatic conditions, with one of your staff as a passenger, who can also satisfy himself that the measuring of the fuel is correct.

The results were obtained only after repeated tests on the road after each adjustment and results carefully noted. This coupled with careful driving and watching every possible point is my explanation of my own performance.

I can only speak for myself, but I think the other competitors who obtained the high mileages would be quite ready again to turn out, and I invite you, Mr. Editor, to witness another test, when I hope the other competitors will be prepared to demonstrate what is possible after careful tuning up and studying carburation.

Hoping it will be possible to arrange this demonstration,
HOWARD SMITH.

[We shall be pleased to accept these offers.—ED.]

C, G. Fullin (3½ h.p. Rudge), winner of the Seventeenth Short Motor Cycle Handicap at Brooklands on Saturday last. The second race was postponed.

Stolen Machines.

Sir,—In the last issue, on page 1288, we note that Mr. Bird, of Queenstown, has been the victim of a thief.

With regard to the new Skew non-skid cover we would like to advise you that each cover has a certain number on it, and this would perhaps help in tracing the machine. If Mr. Bird does not know the number of the cover, if he could tell us from whom it was purchased we may be able to supply the number. OYLERS', LIMITED.

A.C.U. Official Records.

Sir,—I should like to draw your attention to the curious anomaly existing at present with regard to A.C.U. records.

The present one hour sidecar record is held by S. F. Garrett on a 3½ Regal-Green-Precision, at a speed of 50.99 m.p.h. This should cover all records up to one hour unless faster time is accomplished, whereas the record speed was only 50.56 m.p.h. for five miles in the same class. I think it would be of general interest to comment on this in *The Motor Cycle*. ERNEST SMITH.

[The matter is to be considered at the next Competitions Committee of the Auto Cycle Union. It is probable that the A.C.U. will decide that the larger record covers the smaller, but it must be borne in mind that during an hour record the five-mile times are not taken, and it is therefore impossible to say when the five-mile record was broken.—ED.]

The Price of Motor Cycles.

Sir,—I am glad to note the letter of your correspondent, "Mancunian," on the above subject and heartily endorse his remarks thereon.

Messrs. Humber, Ltd., have certainly done a very good thing for the motor cycling world, and I believe that so soon as the other firms bring themselves into line with this enterprising firm, the sooner will the membership of the A.C.U., A.A., etc., increase by leaps and bounds.

Like "Mancunian," I am not yet a motor cyclist, though I hope to be one shortly (at present I am seeking and, I hope, gaining valuable experience), and I also greatly enjoy reading your journal and send my best wishes for its continued success.

Whilst writing you please let me strongly endorse your remarks on the dangerous practice of carrier riding, which was the subject of your leading article in a recent issue.

G. GORDON G. FRANCIS.

Speedometer Drives.

Sir,—With regard to "Ixion's" remarks concerning speedometer drives, I, in common, no doubt, with many other users of the front wheel type of drive, have experienced just the troubles to which "Ixion" refers. Consequently, I should welcome any device which would obviate this annoyance, and in this respect "Ixion's" idea of a speedometer drive from the counter-shaft when there is a rigid drive to the back wheel seems to me an excellent suggestion.

His latest note on this subject has left me wondering, however. I do not see how any speedometer maker is going to "standardise an instrument" which will be guaranteed to register miles per hour if it is to be driven from the magneto transmission, *i.e.*, to run in proportion to the speed of the engine. It seems to me that the instrument will have to be re-calibrated every time the unfortunate owner changes his gear ratio. Then again, what about the vagaries of slipping belts and clutches? "Ixion" calls attention to the fact that the trip recorder would have a busy time during a period of free engine work. In this respect it seems to me that people using the free engine a good deal—as one does with a heavy sidecar combination—would have a marvellous story to tell of the number of miles per gallon they had accomplished, since the engine running lightweight would make the trip recorder buzz on very little petrol.

However, I am always ready and anxious to learn, and if there is a solution to this mystery I shall be interested to hear it. L. A. McDOUGALD.

[Unfortunately, there is not.—ED.]

Sir,—I could not but smile as I read "Ixion's" comments under the above heading, particularly where he suggests that the speedometer be driven off a portion of the engine mechanism. What a magnificent mileage the rider of a variable geared and free engine machine would put up each month! Imagine the surprise of the novice with his speedometer fitted in the manner suggested, when riding up a hill a mile long on his lowest gear, to find his speed about sixty miles an hour and the hill four miles long. Probably the opposite effect would take place when driving all out on top gear. Anyhow, it would be particularly interesting if "Ixion" would explain just how he would render his suggestion practical.

The point, however, which I have in mind, and which I wish to criticise seriously, is the question of rear *versus* front wheel drive. As long as rigid forks were used front wheel drive was entirely satisfactory, but now that spring forks have become a regular thing, the whip of the transmission caused by the action of the front forks is very detrimental to the driving mechanism. For the past eight months I have been using on my own machine a rear driven Corbin-Brown speedometer; I find that the recording is accurate and there is practically no whip even with the Indian rear spring frame, and the mechanism is so attached that the rear wheel can be removed without disturbing the speed indicator in any way. If it become necessary to adjust the rear wheel in and out in the back fork ends, it is only a question of loosening up a screw and sliding a small pinion or spur wheel slightly up and down the chain stays.

I am very pleased indeed to see that Mr. George Wray, of Southport, has designed fittings for driving a speedometer off the rear wheel, and he is certainly to be congratulated. I would only suggest, however, that he endeavour to attach his mechanism so that the transmission shaft takes a more horizontal position rather than a vertical one where it leaves the rear wheel. Personally, I find the top frame tube position for the dial the ideal one.

W. H. WELLS.

The Price of Motor Cycles in New Zealand.

Sir,—The question of the prices charged for motor cycles in New Zealand is a matter I desire to bring under your notice in the hope that representations will be made in your journal to manufacturers to see that residents in the Dominion have a chance of securing machines at, say, English prices plus importing charges. I cannot see why we in New Zealand should have to pay £87 10s. for a three-speed Triumph when the same make can be bought in the retail shops in England for £59 10s. Most of the principal makes cost in New Zealand anything over £27 above English retail prices. An emphatic protest must be made against the operations of the so-called "sole agency" system, or rather, the evident results of the system. I believe there are many retail houses in New Zealand of assured financial standing who would be prepared to sell motor cycles of well-known makes at English retail prices plus landing charges if they were permitted to deal with manufacturers direct. But what are the actual facts? "Sole agencies" are held by two or three big firms, and controlling practically the best English makes, the selling prices are fixed at a scale which a very large number of motor cyclists and would-be motor cyclists consider excessive. But possibly the "sole agencies" are not altogether responsible. It is said, and I believe the statement to be correct, that the home manufacturers sell their output to the "sole agencies" through London agents. If such is the case it is quite evident that the poor New Zealand motor cyclist has to contribute quite a large sum for the support of a system which the manufacturers have in their power to abolish, almost, if not entirely.

Could not the Manufacturers' Union consider the question with a view to further popularising the pastime in the Dominion by arranging for the elimination of unnecessary agency charges from the prices which we in New Zealand have to pay for motor cycles at the present time?

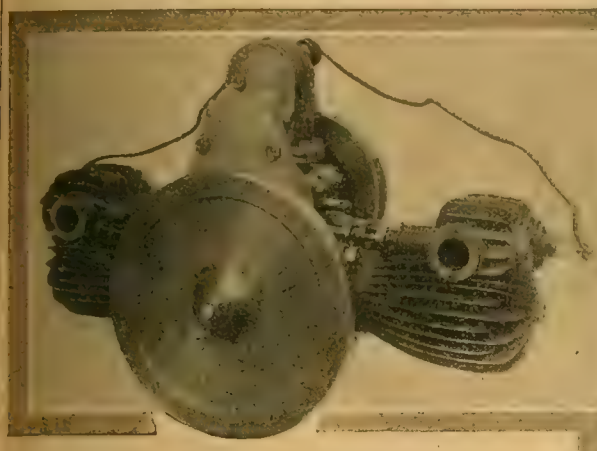
The inevitable disclaimer. I have no connection whatever with the trade. NORMAN R. WILLIAMS.

Clothing for Doctors.

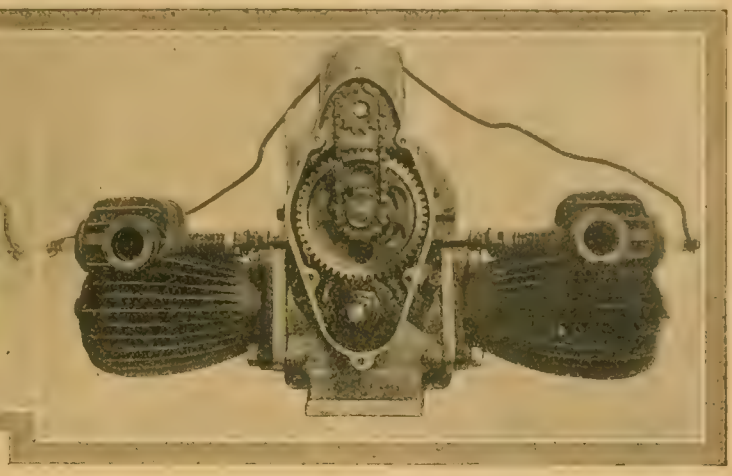
Sir,—Let Dr. Gaskell try a College mudshield and leave all gaiters alone as I do. He will then be able to ride dry and clean, with no need to dirty hands, etc. I had some spring leggings made twelve months ago, and much prefer a mudshield. Of course, I must admit that when touring or going for a long ride I use overalls, but where there is time for the engine to cool I always use the shield. I find the engine heats up slightly, but never to do harm. With a clutch model I fail to see the necessity for any outrageous garb. I wear the ordinary threequarter coat and never feel unprofessionally dressed. YORKSHIRE.

A New Horizontal Twin.

Features: 688 c.c. Valves over Engine, Camshaft Drive, and Half Compression Device.

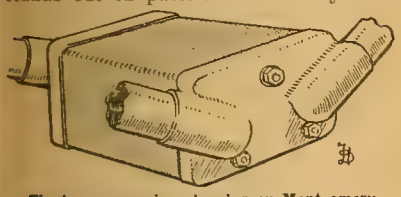


Flywheel side of Montgomery engine.



Timing gear and magneto drive with casing removed.

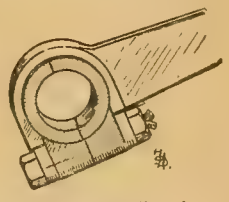
IT will come as news to most of our readers that W. Montgomery and Co., of sidecar fame, are shortly to market a motor cycle fitted with a horizontally opposed engine of 688 c.c. The machine has several features of considerable interest, among which the 7in. belt pulley, fitted on the camshaft, stands out in particular. The cylinders



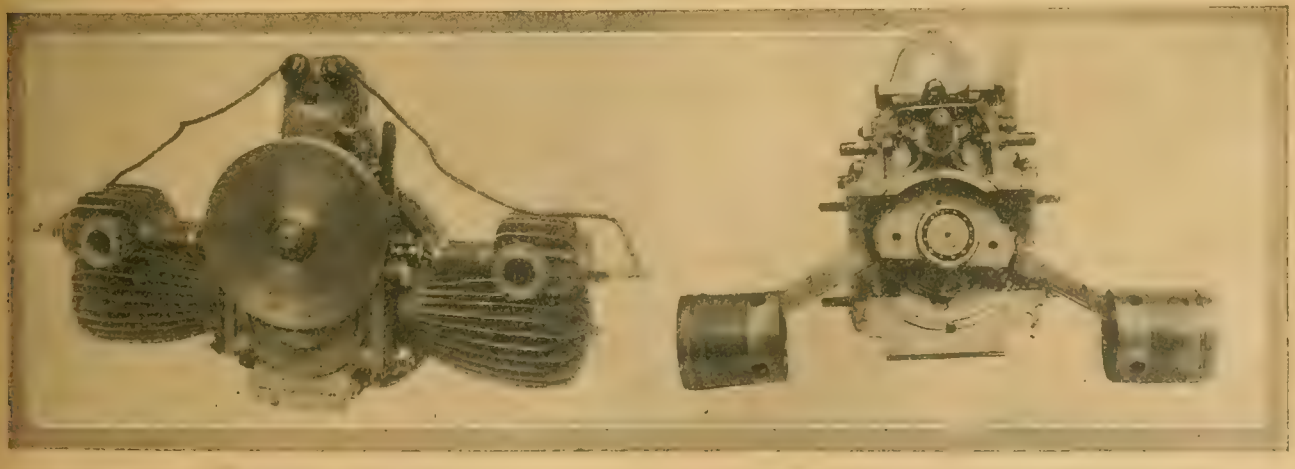
The large expansion chamber on Montgomery engine.

are placed directly opposite to one another, and have a bore and stroke of 75×78 mm. The cooling ribs are longitudinal, and are pear shaped. Each piston has two stepped rings, the gudgeon pin being held in position by brass end cages. The design of the big end bearings is unusual, as only one bolt is used to secure the two halves of the split bush (the construction may be clearly seen from the accompanying sketch). Lubrication is by splash, a certain amount of oil finding its way into the camshaft casing and being led down by ducts to the pistons. An outside flywheel is fitted on the off side of the engine, while on the near side a pair of very substantial gear wheels drives the solid camshaft. Both crank and camshaft run on Skeffko ball bearings, and, as before mentioned, the final drive is taken from the camshaft. The valves are placed above the cylinders and lie horizontally, and are operated by a simple arrangement of rockers. These rockers have a very large contact surface, and are suspended from a bar which crosses at right angles to the camshaft slightly above it, thus by partially rotating the bar the rockers are shifted sideways on to special half compression cams. The magneto lies directly above the camshaft, and is driven from it by a short roller chain.

The suspension of the engine is novel, the base chamber being carried on two short horizontal tubes which are bolted to the main frame, two bolts only being necessary for fixing or removal. The down tubes from both steering head and saddle pillar are forked and pass round the cylinders, the heads of which thus project somewhat. The frame has a dropped top tube, and the tank is held from below. As regards equipment, the machine is still in the experimental stage, so that it is not yet safe to give further details, except that an Armstrong Mark VII. gear will most probably be fitted. The machine has been designed for sidecar work, and will have a top gear ratio of approximately 5—1. It is constructed on sound lines, and we are looking forward to a road trial at no very distant date.



Unusual construction of split big end bearing.



The complete Montgomery engine, pulley side.

The engine dismantled. Note the solid camshaft and valve rockers

THE MIDLAND RELIABILITY TRIAL.

Sutton Coldfield Club unseat many Competitors on Newly-discovered Test Hills.

ONE of the last of this year's busy competition programme was the Sutton Coldfield and Mid-Warwickshire Automobile Club's open non-stop reliability trial last Saturday. Several special awards were offered, and the entry list totalled 102, including many T.T. riders, though Jack Marshall, the old Triumph rider, whose name appeared on the entry list, failed to put in an appearance. This event was not under the Manufacturers' Union support, and consequently the trade was only partly represented. A Sunbeam team was entered inadvertently, but was subsequently scratched, as the members of the Manufacturers' Union, it may be remembered, formed a compact to support only those events specially selected. The start was made at 8 a.m. in dull weather from the Midland Wheel Club's quadrangle in Swallow Street, Birmingham.

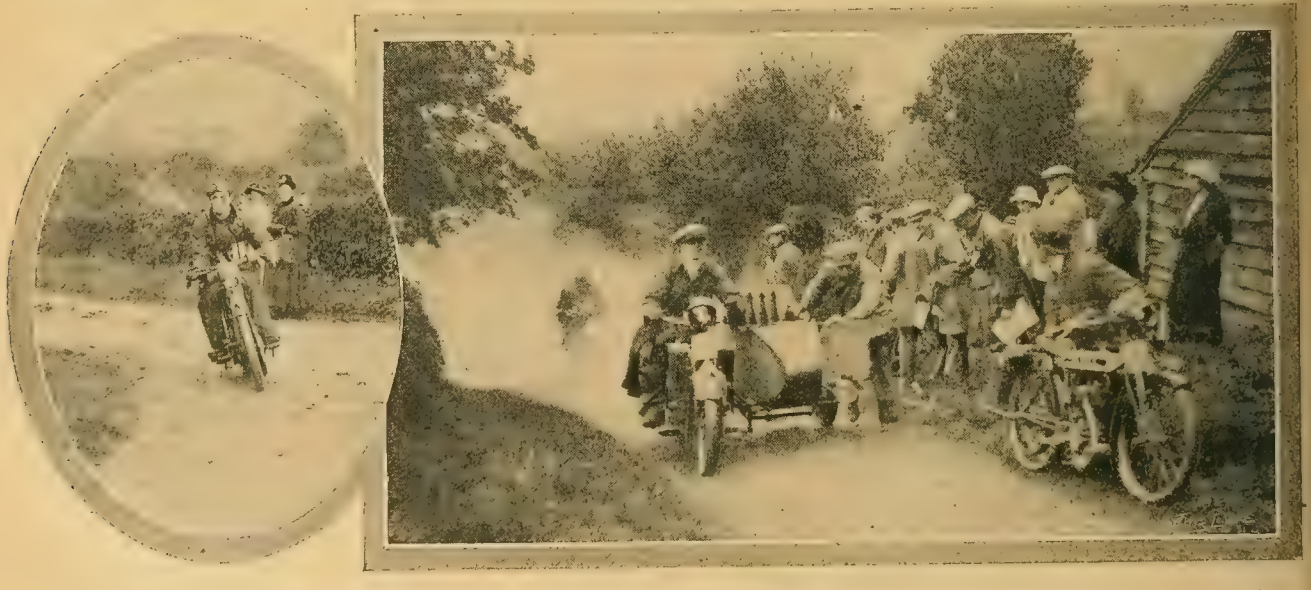
Beacon Hill, the first rise of note on the 125 miles course, was nine miles away. The gradient does not exceed 1 in 8, but the thick clayey surface rendered riding tricky at times, though the failures could hardly be excused. However, a dozen thus early lost any chance of an award. It may here be interpolated that a long standing rule of the Sutton Club is a blank sheet for any rider who stops from whatever cause, consequently most ripped their numbers off as soon as they were out of it. T. C. A. Wright (Douglas) stopped alongside us, his flapping coat having been sucked over the air inlet of the carburetter and upset the mixture. Kerr (N.S.U.) was overgeared, Jones (Morgan) stopped near the top, Macdonald (Norton) came up with his gear making weird noises and then skidded completely round. Reg Holloway, who was making his first appearance on a Morgan runabout, almost collided with a milk-cart which was being trotted round a blind corner. Hands (Calthorpe c.c.) evidently believes in rushing a hill, for he dashed up to the corners and tore up the gradient passing motor cyclists on his way. Mortimer, on a similar light car, passed with the water of his radiator boiling and the number plate trailing.

The Performances on Flagstaff Hill.

In Bromsgrove, Whitworth (Douglas) retired with engine trouble, Francis (Lea-Francis) and R. W. Duke (Rover) punctured, and so the ranks were gradually thinned.

Ankerdine was the second test hill, but again it was not sufficient to worry the experienced riders, though ten miles further on a real surprise in Flagstaff Hill, Abberley, was encountered. This ascent is narrow and twisty with an indifferent surface, sometimes rather grassy, but in no sense too difficult for a modern touring motor cycle. A surprising number failed on this climb, though, of course, the extremely slippery surface had much to do with this result. J. St. John, the trials honorary secretary, on a Scott, skidded. Burney (Blackburne) slewed from one side to the other, but neatly recovered. Applebee (B.S.A.) fell and thereby slightly impeded T. Silver's Quadrant sidecar, though the latter avoided the obstacle very neatly. Charlie Collier's only trouble was to keep the back wheel of his 1914 7 h.p. Matchless sidecar down; he had any amount of power. Good climbs were made by H. A. Collier (Matchless), L. W. Guy (Scott), H. Greaves (Enfield sidecar), and Bird and Barrett on Rudges. Dudley's little Hobart came over the steepest pitch of about 1 in 5 at a surprisingly fast speed, then his front wheel caught a big stone projecting through the ground and he skidded completely round. Littledale (Ariel) touched with his foot simply to keep his machine upright, H. Silver (Quadrant)

The trials hon. sec., James St. John (3¾ h.p. Scott), being started by Mr. Alec Ross.



L. A. Bees (L.M.C.) on the lower portion of Flagstaff Hill. An idea of the melee on the steepest stretch of Flagstaff Hill, which was in a very greasy state.

H. Greaves (6 h.p. Enfield sidecar) crossing the tape which denoted the finish of the slow section and start of the fast in the flexibility test.

suddenly found himself in the ditch, whilst Moss (B.S.A.) and Lovegrove (Ivy) came to a standstill. Mundy and Noble (his passenger) ran alongside the Williamson of London-Edinburgh fame, due, it was subsequently discovered, to the wrong type gear box with high ratios having been fitted. Busby's Williamson sidecar got up well. Glassey (Quadrant sidecar) was baulked, so turned round to have another ascent, when his machine got out of hand, and only after an exciting wrestle was its mad career checked. Then followed quite a crop of failures, so many, in fact, that one had no time to study why they occurred, as the remarkable thing is all had successfully accounted for the steepest stretch. We formed the opinion that it was due to using too much power on the greasy surface instead of closing the throttle as soon as the easier section was reached. J. S. Watson (Sunbeam), A. H. Johnson (Allday), L. Hadley (Enfield), Cuffe (Premier), and Dixon (Singer) were among those who, having sailed merrily past the observers, suddenly found their back wheels shoot from under them. One or two went through the hedge, Rowlandson (Rudge) among them, whilst Waddington (Campion) was bunkered in a ditch a foot deep; the "Sutton Slide," Mr. Holroyd, of the Rudge Co., christened it.

Most of the older hands were more ready for emergencies and snapped up their valve lifters immediately there was a suspicion of a skid. North (Ariel) did particularly well, also Ball (Triumph), Taylor (Connaught), and D. M. Brown (Rover). Davies (Diamond) and Lee (B.S.A.) were baulked by a Calthorpe and a Clyno stuck side by side on the hill, but made no mistake when they got a clear course. The same remarks apply to R. E. Guest (Matchless sc.). The 10 h.p. Calthorpe, driven by Hands, again impressed the spectators, though Mortimer's car had much less power in reserve. Nott seemed to have no control over the steering wheel of his Clyno and skidded into the ditch. A piece of smart driving was when T. Stevens (3½ James sc.) came up and carefully crept his way around a cycle car with only inches to spare, and got up comfortably.

The course thereafter was rather twisty to Newnham and Cowley, and included three watersplashes. (*En passant*, we desire to contradict the rumour that clubs have secretly put their heads together under the *ægis* of the A.C.U., to develop a motor cycle waterplane for trips to the Isle of Man.) Ludlow was the luncheon stop. Here, F. Smith told us he had konked out on the level and drew our attention to a patch of lubricating oil of doubtful colour and with black streaks he had drained out of his crank case.

The chief event of the afternoon was the flexibility test on Whitback Hill. Competitors could select the gear they would use for both slow and fast tests, officials sealing the gear lever at the hill foot. It was much the same as in the Six Days Trials on Warnell Fell, except that the length of the slow test was as long as the fast stretch, the result being determined by dividing the slow speed into the fast, which formula favoured those who could run very slowly. Coursing from one side of the road to the other was permitted and thus somewhat destroyed the value of the test. It was clear that the riders were not willing to run the risk of losing an award by travelling too slowly, Lea (Lea-Francis) appearing as slow as anybody. Newey's Ariel showed remarkable flexibility, also the two 7 h.p. silent running Indians. Rem Fowler's long stroke Norton was both slow and fast, Lane (Rex-Jap), Lovegrove (Ivy), and Close (Triumph sc.) stopped altogether, whilst Egginton (Enfield sc.) must have made his passenger almost seasick,

R. Holloway (8 h.p. water-cooled Morgan) on the sharp bend on Farlow Bank.

Two competitors rounding the acute bend on Farlow Bank. There were comparatively few failures here.

as he twisted from one side to the other. Gibb (Douglas) was another who wormed his way up the hill.

The 4¼ h.p. Star sidecar handled by J. L. Bradford showed really wonderful flexibility in the slow test; it was possible to count the explosions of the engine. Dudley made amends for his fall by demonstrating the controllability of his 290 c.c. Hobart, accelerating better than many 3½ h.p. riders.

An Old Favourite.

The only real hill of the afternoon trip was Farlow Bank, the hill included in the A.C.U. Autumn Quarterly Trial of 1910, and which caused a big percentage of failures. On Saturday, however, there was naturally a most marked improvement, failures being the exception. There was excitement for the crowd of spectators, however, right from the first. Davison (2¾ Sunbeam) and C. Allison (Scott) were approaching the hairpin bend together, when the latter decided to shoot ahead, but, over-estimating his speed on the bend, skidded, and shot up a 1 in 2 bank, scattering a crowd of boys at that point. Mrs. Riley was clapped for the masterly manner in which she handled her Enfield. Bollack (Singer) and Gregson (Bat) were slow but sure. Gibb (Douglas) good. Greaves (Enfield sc.) fast. Fowler (Norton) eased his clutch but got up well. Bird (Rudge) again showed up well. Roberts (Blackburne) cut in too near the corner and his back wheel dropped into the ditch; he kept his engine running, however, and restarted. Cocks coolly stepped off his Connaught and walked alongside for a dozen yards and then just as coolly remounted. Proctor, who was similarly mounted, got almost to the top. Mortimer (Calthorpe) stopped after the corner with his water boiling, which left Hands winner of the P. J. Evans cycle car trophy. The Clynos all showed up very conspicuously, which, incidentally, is becoming quite a stock phrase. Milner (Levis) stopped on the crest of the hill. Hands dashed up to the corner rather recklessly, skated about, but got up in fine style. Macdonald (Norton) caused amusement by hugging the outside of the corner and picking his way up very coolly, whilst H. G. Dixon and Pollock, on the twin Jameses, both made very neat climbs along with Longton (Alldays).

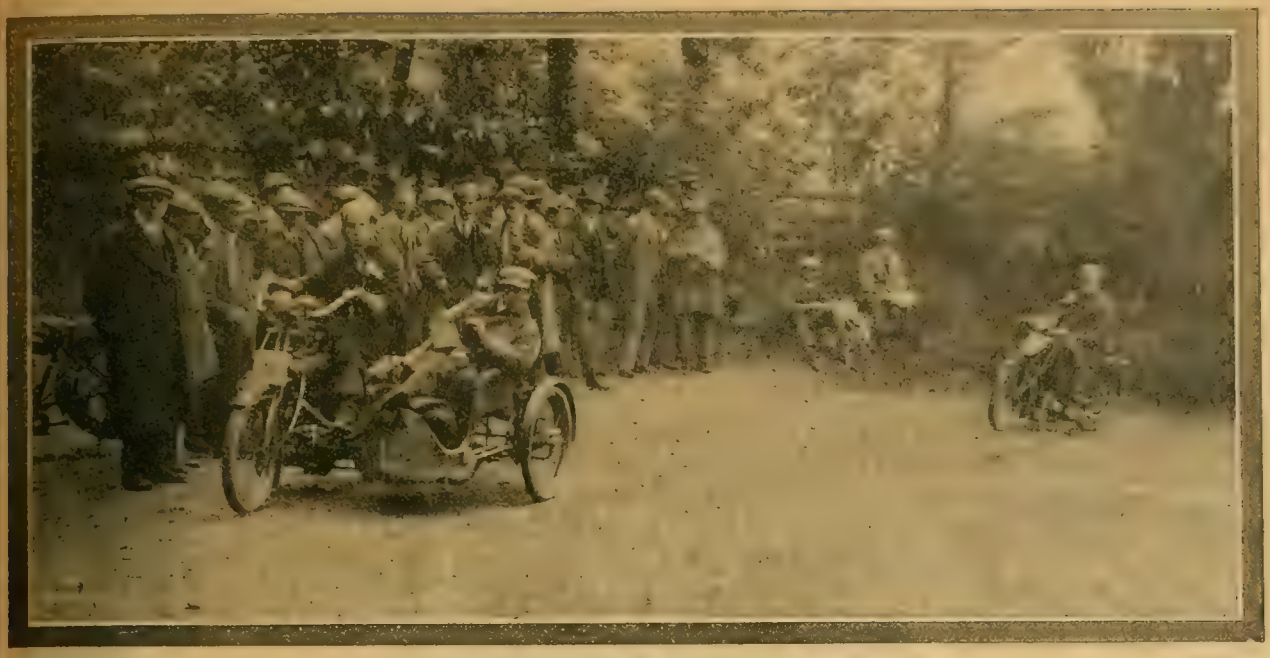
Thereafter the route lay through Bewdley and Kidderminster over easy roads to the finish, where a goodly crowd had assembled. A piece of hard luck was when Bollack stopped for the first time through shortage of petrol but three miles from home.

Analysis of the Trial.

There was no delay in announcing the provisional results, thanks to complete arrangements, characteristic of the Sutton Coldfield Club. Each test hill was in charge of a chief observer, whose duty it was to collect all the other reports and condense them for the committee.

An interesting analysis of the trial is given below:

	Motor cycles.	Sidecars.	Cycle cars.
101 entries ...	70	23	8
94 started ...	66	22	6
33 non-stops ...	23	8	2
17 gold medals ...	10	6	1
16 silver medals ...	12	3	1



THE FLEXIBILITY TEST ON WHITBACK, NEAR LUDLOW.
J. L. Bradford (4½ h.p. Star sidecar) and J. S. Watson (3½ h.p. Sunbeam) finishing the slow section. The last named made the best performance in this test.

The Probable Winners.

L. W. Guy (3¾ Scott) is the most likely winner of the Levis Cup. He was third in order of merit in the flexibility test, with 1m. 26⅖s. slow and 44⅖s. fast, giving a formula result of 1.94. The two riders who beat him do not qualify for gold medals, as they were late at Ludlow. The best performance of all in the flexibility test was by J. S. Watson on a Sunbeam, who took 1m. 50⅕s. slow and 49⅕s. for fast stretch = formula 2.24. W. B. Gibb was second on a Douglas, with 1m. 34⅕s. slow and 48s. fast = formula 1.96.

The P. J. Evans cycle car trophy will go to G. W. Hands (Calthorpe), who was the only cycle car driver to gain a gold medal.

Although Norman Lea (Lea-Francis) does not appear on the provisional list of gold medal winners, his name will no doubt be included, as he was wrongly reported by an official as stopping in the flexibility test.

GOLD MEDALS.

G. S. Davison (2¾ Sunbeam)	G. W. Hands (10 Calthorpe c.c.)
Mrs. Riley (6 Enfield sc.)	C. Taylor (2½ Connaught)
C. R Collier (7 Matchless sc.)	J. W. Woodhouse (5-6 Clyno)
L. A. Bees (4 L.M.C.)	W. H. Longton (3½ Alldays)
W. H. Egginton (6 Enfield sc.)	R. E. Guest (8 Matchless sc.)
L. Newey (3½ Ariel)	G. Featherstonehaugh (3½ Rover)
L. W. Guy (3¾ Scott)	E. V. Pratt (3½ O.K.-Precision)
R. Pearson (5-6 Clyno sc.)	T. Stevens (3½ James sc.)
H. G. Dixon (3½ James)	

SILVER MEDALS.

G. A. Gregson (6 Bat)	R. Holloway (8 Morgan runabout)
R. Haddock (5 Clyno sc.)	J. S. Watson (2¾ Sunbeam)
C. S Burney (3½ Blackburne)	T. Pollock (3½ James)
H. A. Collier (3½ Matchless)	C. Freeman (5 Clyno sc.)
H. Greaves (6 Enfield sc.)	F. C. North (3½ Ariel)
H. V. Colver (3 Enfield)	H. Ball (3½ Triumph)
W. B. Gibb (2¾ Douglas)	B. W. Lee (3½ B.S.A.)
L. L. Sealey (3½ B.S.A.)	D. M. Brown (3½ Rover)

A.C.U. BROOKLANDS CHAMPIONSHIPS.

The B.M.C.R.C. will have a busy programme next Saturday at Brooklands. Before lunch there will be the Third 1913 Time Trials, followed by the One Hour Cycle Car Race and the One Hour Sidecar Race. In the afternoon there will be held the Junior One Hour A.C.U. Championship Race for machines up to 350 c.c. for the Auto Challenge Cup and A.C.U. Gold Medal. Event V. will be the A.C.U. Championship Race for machines up to 1,000 c.c. for *The Motor Car Journal* Challenge Cup, and the Senior One Hour Championship Race for machines up to 500 c.c. for *The Motor Cycle* Challenge Cup. These three Challenge Cups were presented to R.A.C. before the founding of the A.C.U. in 1900. The One Hour 500 c.c. race for *The Motor Cycle* Cup has received the largest support with twenty-five entrants. The sidecar race, too, has drawn a fine field. The new 3½ Douglas and a special Douglas with overhead valves are among the new machines entered.

THE NORTH WALES TRIAL RESULTS.

The Liverpool Auto Cycle Club at the beginning of this week issued the results in connection with the above event, held on the 27th ult. They appear below :

SPECIAL AWARDS.

The Reliance Cup and the club gold medal.—J. B. Sproston (2¾ Sunbeam).

Best single-geared performance.—C. T. Newsome (3½ Rover).

Best amateur solo performance.—R. P. Ravenhill (3½ Rover).

Best amateur sidecar performance.—W. Court (6 A.J.S. sc.)

Best amateur lightweight performance.—J. B. Sproston (2¾ Sunbeam).

Club team and Manufacturers' team.—No team complied with the requirements.

GOLD MEDALS.

W. Heaton (2¾ A.J.S.)	Hugh Gibson (6 Bradbury sc.)
W. Court (6 A.J.S. sc.)	H. C. Marston (3½ Triumph sc.)
J. B. Sproston (2¾ Sunbeam)	

SILVER MEDALS.

G. Wray (5-6 Clyno sc.)	R. Pearson (Clyno sc.)
F. G. Edmund (3½ Humber)	V. Busby (3½ Sunbeam)
O. Wade (6 A.J.S. sc.)	W. H. Longton (3½ Alldays)
T. C. de la Hay (6 Sunbeam sc.)	L. A. Bees (4 L.M.C.
D. H. Noble (3½ Rover)	C. Freeman Clyno sc.)
C. E. Nokes (3½ Sunbeam)	A. J. Stevens (A.J.S. sc.)
G. Featherstonehaugh (3½ Rover)	

BRONZE MEDALS.

E. F. Baxter (6 Rex.	S. Sawer (3½ Premier)
C. T. Newsome (3½ Rover, s.c.)	S. T. Tessier (6 Bat
A. J. Dixon (3½ Singer)	H. Newey (2½ Levis
L. Guy (Scott)	A. W. Brittain (3½ Bradbury)
D. Bradbury (4 Norton sc.)	J. S. Watson (2¾ Sunbeam)
J. A. Dudley (2½ Hobart)	G. A. Gregson (5-6 Bat
V. E. Horsman (3½ Singer)	R. P. Ravenhill (3½ Rover)
Frank Smith (Clyno sc.)	L. Mogridge (2¾ Mead)
L. Park (2¾ Douglas)	S. Wright (8 Humberette)
Rex G. Mundy (3½ Triumph)	H. F. S. Morgan (8 Morgan)

Motor Cycle Racing at Brooklands.

THERE was some excellent racing at Brooklands last Saturday, one of the cars, the twelve-cylinder Sunbeam, averaging no less than 118.58 miles an hour during one lap. We wonder when a motor bicycle will be made which will equal this speed, and who would be found to ride it. The two motor cycle races in the excellent programme were spaced far apart. The first, at 2.25 p.m., was the Seventeenth Short Handicap, for which thirty-nine entries had been received. Prizes: First, £10 or cup; second, £5 or cup; third, £3 or cup. There were only six non-starters. Among the machines ranged up by Mr. H. P. Beasley in the paddock in two rows we noticed Allen's Douglas, which was fitted with two microscopic tanks, one for petrol and the other for oil. D. C. Bolton was riding a Douglas for the first time, which was brand new. Among the absentees was Emerson's A.B.C., the performance of which many people were looking forward to see. At the start by the fork Cocker (Singer) arrived at the last minute owing to having suffered from a sooted plug after leaving the paddock. All the men got away well except O'Donovan, whose Norton, which he has been showing to such good advantage lately, was decidedly off colour. In the course of the race the competitors had to pass the fork once and then enter the straight. The order of the leaders past the fork was as follows: Elwell, Bolton, Buckeridge, E. C. Stanley, Williams, Newman, Jacobs, Le Grand, Edmond, Heaton, Miller, Haswell, Buchanan, Hellaby, Pullin, Cocker, P. Fletcher, Openshaw, etc. Williams (A.J.S.) led at the beginning of the straight, and was then passed by Pullin and Hellaby, who had a struggle for first place. Pullin won by about a dozen yards, Williams being about 156 yards behind Hellaby. Williams was followed by a long procession in close order. Pullin's speed was 68¾ m.p.h. Results:

		Bore and stroke.	c.c.	Start. m. s.
1.	C. G. Pullin (1-cyl. Rudge) ...	85 ×88	499	26
2.	J. A. B. Hellaby (2 Indian) ...	82.5 ×93	994	26
3.	C. Williams (1 A.J.S.)	74 ×81	348	1 16
	H. C. Newman (1 Ivy) ...	70 ×90	346	1 6
	J. Cocker (1 Singer)	85 ×88	499	34
	E. L. Buchanan (2 Imperial) ...	70 ×64.5	496	54
	J. R. Haswell (1 Triumph) ...	85 ×88	499	54
	A. G. Miller (1 Martin) ...	90 ×77.5	493	54
	E. E. Elwell (2 Douglas) ...	61 ×60	350	1 26
	L. Hill (1 Rudge)	85 ×88	499	26
	D. C. Bolton (2 Douglas) ...	61 ×60	350	1 36
	F. G. Edmond (2 Humber) ...	60.75 ×60	348	1 16
	W. D. Hawkes (1 Ixion) ...	85 ×88	499	40
	A. L. Pullin (1 Rudge) ...	85 ×88	499	40
	W. H. Buckeridge (2 Douglas)	61 ×60	350	1 36
	E. C. Stanley (2 Douglas) ...	61 ×60	350	1 36
	S. Wright (1 Humber)	84 ×90	499	40
	E. N. Openshaw (1 Triumph) ...	85 ×88	499	54
	J. P. Le Grand (1 Singer) ...	69 ×93	348	1 16
	P. Fletcher (1 Indian)	82.5 ×93	497	40
	W. R. Jacobs (1 Singer) ...	69 ×93	348	1 16
	W. Heaton (1 A.J.S.)	74 ×81	348	1 16
	J. Scoffield (2 Blumfield) ...	67 ×95	670	6
	J. E. Bird (1 Singer)	85 ×88	499	54
	A. J. Luce (2 Zenith)	90 ×77.5	986	scr.
	A. L. Monger (1 Rudge) ...	85 ×88	499	40

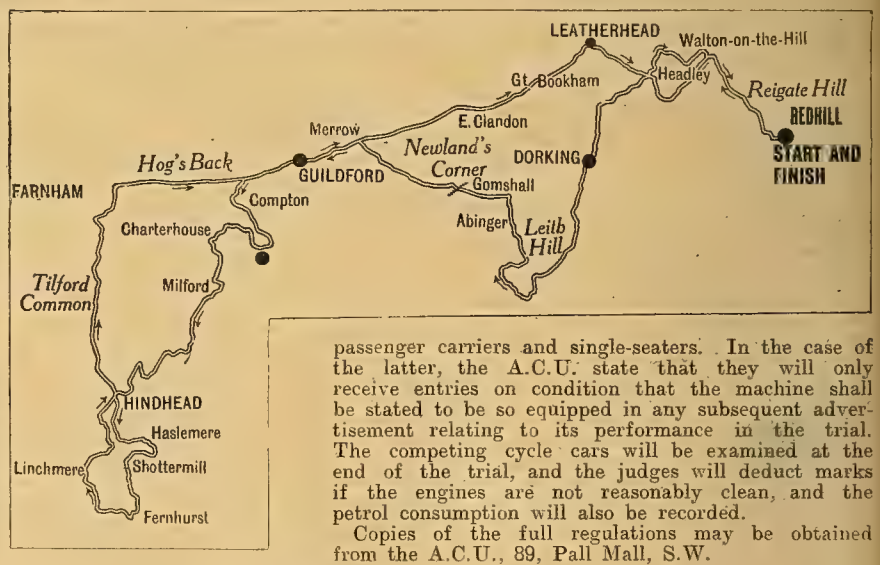
The next motor cycle race was the seventh in the programme, and was down for 4.30. This, however, was not run off, as a heavy shower, which began at 4 o'clock, caused the rest of the meeting to be postponed.

A.C.U. CYCLE CAR TRIAL: MAP OF THE COURSE.

THE Auto Cycle Union have issued the rules for the one day cycle car trial, which is to be held on Wednesday, October 29th, starting and finishing at Redhill. The course will be about 100 miles in length, and almost entirely in Surrey. No freak hills are included, and the route appears to be over very fair give and take country, including a few sharp rises, but nothing that any ordinary tourist should not be able to climb in the course of an average day's run. No trial will be held unless there is a minimum entry of twenty-five, and entries will be received by the Union up to Saturday, October 18th.

The rules framed for this event are quite simple, and provide for the inclusion of three-wheelers, whose cubic capacity is limited to 1,000 c.c., and for four-wheeled vehicles up to 1,100 c.c. The usual A.C.U. weight definition is adopted. There are two classes, A and B, for three and four-wheeled machines respectively, and these classes are each sub-divided into passenger carriers and single-seaters. In the case of the latter, the A.C.U. state that they will only receive entries on condition that the machine shall be stated to be so equipped in any subsequent advertisement relating to its performance in the trial. The competing cycle cars will be examined at the end of the trial, and the judges will deduct marks if the engines are not reasonably clean, and the petrol consumption will also be recorded.

Copies of the full regulations may be obtained from the A.C.U., 89, Pall Mall, S.W.



SPEEDOMETERS DRIVEN OFF THE ENGINE.

IT'S a cruel world, my masters! When I let fall words of profound wisdom, no kindly soul writes to praise and encourage me. But when I am overcome by one of those fits of temporary insanity which periodically overtake all great men from Solomon down to Isaac Newton and Ixion, every motor cyclist in the kingdom (and there are now over 100,000 of them) writes or wires or 'phones two hours after publication to jeer at my folly. I gave these hard-hearted cynics a glorious opportunity last week, when I had been musing over a T.T. machine, and considering how much nicer it would be if its speedometer were driven off the magneto chain sprocket. Obviously, this brilliant suggestion would be worse than useless for any machine except a single-geared chain driver. Consider what fearful results would flow from its adoption. Anybody late at a control in an A.C.U. trial would merely run the speedometer on free engine for five minutes, and then inform the judges that the section was eighty miles longer than the card indicated. Any hireling of the tyre companies who desired to compose a veracious and astounding testimonial would merely do about three laps of Brooklands on bottom gear, and then write to the makers and say his cover had done 20,000 miles, and still looked better than new. I must have meant that par for the Christmas number. IXION.

1914 N.S.U. Twin-cylinder Models.

OUR illustration shows the first of the 1914 model 6½ h.p. N.S.U. motor bicycles on the road. It will be seen that it comprises several features which, up to the present time, have been foreign to N.S.U. practice. The drive is by Hans Renold chains, the front chain being entirely enclosed and the back chain half enclosed. The gear box is of the counter-shaft type, and contains three speeds. Footboards are also fitted, while conspicuous in the photograph is to be seen a kick starter. The bore is 75 mm. and the stroke 94 mm., 830 c.c. This model will be fitted with 26in. × 3in. tyres.

A similar model will be the 7-9 h.p., 80 mm. × 99 mm., 995 c.c., which will be fitted with 28in. × 3in. tyres. Other features which will be common to the two models will be Ferodo-lined rear brakes and mechanical lubricator delivering oil through a sight feed.

The latest pattern 6 h.p. N.S.U. which is fitted with chain drive and counter-shaft three-speed gear.

MOTORING FOR THE MILLION.

Recently there appeared in the *Daily Mail* some remarkable figures taken from motor registration authorities. The fact we glean from this information is that every month nearly 1,500 more cars and motor cycles are registered throughout the British Isles.

The total increase in the number of cars and motor cycles registered this year up to September 29th, as compared with the same period last year, is as follows:

	1912.	1913	Increase.
Motor Cycles	34,878	40,767	5,889
Motor Cars ...	32,953	42,288	9,335

Below is given a list of the numbers of motor cycles registered in many of the most populous districts from Jan. 1st to Sept. 29th, 1912 and 1913.

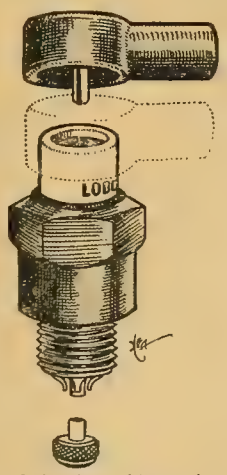
	1912.	1913.	Increase.
Manchester ...	812	865	53
Bristol ...	1,516	1,899	383
Surrey ...	851	1,034	183
Essex ...	777	873	96
Kent	865	1,081	216
Derbyshire ..	1,413	1,800	387
Leicestershire	1,016	1,290	274
Southampton	489	519	30
Belfast ...	797	982	185
Liverpool ..	630	673	43
Lanarkshire ..	690	967	277
Edinburgh ...	1,045	1,399	354
Coventry ...	2,309	3,015	706
Wakefield ...	713	751	38
Bolton ...	510	654	144
Dublin ..	239	280	41
Herefordshire	443	615	172
Huddersfield	353	443	90
London ...	3,251	3,721	470

It will be noted that the Coventry figures are high. This is due largely to firms registering motor cycles for their owners, so that their machines are ready for the road when they leave the works.

The London County Council figures are only available up to August 1st in each year. In the area covered by the Council, the total number of motor cars registered to June last was 65,257, and the number of motor cycles with and without sidecars was 25,831.

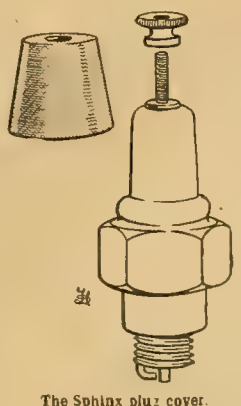
WEATHER-PROOF PLUGS.

The new type of Lodge plug with weather-proof terminal is most excellent in design. In the first place, it will be seen that the top of the sparking plug is fitted with a special plug connection so that the high tension wire is instantly attached without having to be screwed on. It is perfectly insulated so that the wire can be detached when the engine is running, if such a course is thought to be desirable. Moreover, the end of the wire is supported by the terminal itself, and in consequence there is no danger of the wire breaking off. The special terminal also absolutely protects the porcelain from being shorted by means of wet or mud.



Lodge plug and terminal. At the bottom is seen the gauge for the distance between the points.

The whole device has been most cleverly thought out, as the insulation of the terminal overlaps the steatite insulator of the plug, and thus the perfect protection of the plug is effected without increasing its height. The plug used is of the three-point pattern, the three points being separated from the central electrode by means of a special gauge, which, when withdrawn, leaves the gap correct.



The Sphinx plug cover.

The Sphinx Manufacturing Co., of Bradford Street, Birmingham, are marketing a plug cover which will be known as the Plug-protector. It is designed to be used with any make of plug and to protect the insulator from mud, rain, oil, etc. The cover is heat proof, being made of an asbestos compound, and is neatly constructed.

TIME TO LIGHT LAMPS.

October	9	...	...	6.20
,,	11	...	...	6.15
,,	13	...	...	6.11
,,	15	...	...	6.7

British Successes in Spain.

In a recent motor cycle race in Spain between Mercadillo and Cortederra English machines were well to the front. The winner rode a Bat, second a Douglas, third and fourth Rudges.

A Comprehensive Issue.

This week we follow up our description of the new 3½ h.p. Douglas with the new Montgomery horizontal engine, especially intended for sidecar work. The engine possesses many interesting features.

The first of the new N.S.U. three-speed counter-shaft geared mounts is also dealt with, an improved Rotherham pilot jet carburetter, a mechanical lubricator, the 1914 pattern 7 h.p. Matchless sidecar outfit, and a four-cylinder friction driven cycle car, to sell at approximately £100, the new Douglas cycle car, an American belt driven four-wheeler, and Williamson sidecar improvements.

The 500 c.c. Hour Record.

There are rumours of early attempts on the one hour motor bicycle record which has stood so long to the credit of G. E. Stanley. One of the most likely to annex the record is D. R. O'Donovan, who has got his 3½ h.p. 490 c.c. Norton tuned up almost to perfection. He can lap regularly at over 70 m.p.h. The latest Rudges from the works, too, are much faster, and an attempt on one of these mounts is not unlikely. There was a strong rumour in the Midlands last week that A. G. Fenn had actually captured the record on a B.S.A.

The Coventry Hill-climb.

The rendezvous for the Coventry and Warwickshire Motor Club hill-climb on Saturday next is the Red Lion Hotel, Banbury, where the weighing will take place, and a notice posted giving the name and position of the hill. Among the representative entry, numbering about 130, are J. R. Haswell, Cheshire, and Crawley on Triumphs; A. A. Scott and "Tim Wood" on Scotts; T. Silver (Quadrant), F. C. North and L. Newey (Ariels), H. F. S. Morgan (Morgan runabout), a number of Rudge riders (this firm's best known representatives will be at Brooklands), Geo. Griffith (Zenith), de la Hay (Sunbeam), C. T. Newsome and M. Orde (Rovers), and F. S. Whitworth (Douglas).

Programmes, sixpence each, may be obtained from *The Motor Cycle* Offices, Coventry.

High Diving on a Motor Cycle.

The cinema actor nowadays finds himself in many curious situations, but a photograph we reproduce must have provided the rider with a thrill, even greater than will be the lot of the audience who views it in the picture palaces. Mr. Harry Loraine, one of the actors employed by the British and Colonial Kinematograph Co., Ltd., during the course of the construction of a drama entitled "In the Villain's Grip," had to ride into forty feet of water at a speed of 35 miles an hour from a height of twelve feet. Splendid practice for taking water-splashes, we should imagine, and even more exciting than climbing mountains, of which we have lately heard so much!

SPECIAL FEATURES:

ANOTHER HORIZONTAL TWIN ENGINE

SATURDAY'S MIDLAND RELIABILITY TRIAL.

POWER OF SIDECAR COMBINATIONS.

Alldays Light Car.

We hear that for the 1914 season the Alldays Midget will be fitted with a light four-cylinder engine.

New London Home of the Douglas.

Douglas Bros. have just acquired much larger London premises at 39, Newman Street, Oxford Street, W., next door to the Bosch Magneto Co.

Thirty-five miles an hour into Tilbury Docks for a cinematograph film!
(See accompanying paragraph.)

A Distinction for the C.T.C.

H.R.H. the Prince of Wales has become a member of the Cyclists' Touring Club.

A Wonderful Performance.

By averaging 62.76 m.p.h. for nine hours at Brooklands last week, the 10 h.p. Singer has accomplished the finest performance to date of any cycle car or light car on the track.

Not a Cycle Car.

The little four-cylinder De Dion, which is only just outside the cycle car limits, with an engine of 1,183 c.c., has made its appearance. A car in miniature exactly describes this interesting little vehicle.

One Day Trial for Cycle Cars.

The A.C.U. will be glad to hear the names of any gentlemen, not connected with the trade, willing to act as observers, on the occasion of the One Day Cycle Car Trial on Wednesday, October 29th, from Redhill.

The Sidecar Age.

One of the lady speakers at the Church Congress at Southampton, declared last week that "these are the days of the sidecar" and that "the days of women riding pillion were over." We agree with the speaker on the former point, but on the latter she is not on such certain ground. But, doubtless, she was referring to a horse pillion.

Well Known Rider's Plans.

Harry Bashall, whose riding feats on the track and road are so well known, writes us that he is recovering rapidly from the severe accident to his knee which he sustained some months ago. His plans for the future include driving a Morgan in the M.C.C. London-Exeter Christmas run, when, he says, his brother Aubrey will also be similarly mounted. He hopes to ride in the Senior T.T. race next year, and says he will probably be found on a Scott. His brothers also will take part in the race. He also says he is keenly looking forward to the projected cycle car race in the Isle of Man next September, for he has a penchant for the old course over which it will be decided, as he knows the road so well.

Opening for British Trade.

Recent activity has led to a noteworthy improvement in Egyptian roads, says *The Board of Trade Journal*, and consequently there is a large demand for every description of motor vehicle, especially motor cycles. According to statistics issued by the police authorities of Cairo and Alexandria the number of motor cycles registered at the dates indicated were as follows:

	Dec. 31st., 1911.	Dec. 31st., 1912.	June 30th, 1913.
Cairo	250 ...	364 ...	448
Alexandria ...	40	68 ...	109

The United Kingdom easily occupies first place as supplier of motor cycles to the Egyptian market, all the leading makes being represented at retail prices of from £55 to £80, according to make and power.

There would also appear to be an opening in Egypt for cycle cars at about £100 each.

FUTURE EVENTS.

Oct. 11.—Coventry & Warwickshire M.C Annual Open Hill-climb.
,, 11.—B.M.C.R.C. Meeting and A.C.U. Championships.
,, 18.—Herts. M.C.C. Open Half-day Trial.
,, 25.—Mersey M.C. Open Trial.
,, 29.—A.C.U. Open One Day Trial for Cycle Cars.
Nov. 7-15.—Motor Car Show at Olympia.
,, 24-29.—MOTOR CYCLE & CYCLE CAR SHOW AT OLYMPIA.

Stolen Machine.

A 1913 three-speed Triumph was stolen from the street in Watford last week. The frame number is 212661 and the right pedal is missing. The owner is Mr. R. Haines, 52, St. Albans Road, Watford.

Motor Cycle Found.

One of our readers informs us that a brand new motor cycle was left in a barn by the roadside on the night of September 27th near Sandhurst, Berks. It was taken to the Sandhurst Police Station.

Amulree Hill-climb.

On September 18th we mentioned that the Amulree hill-climb had been postponed partly on account of the accident to Mr. McGregor and the consequent difficulty of finding an efficient substitute. We regarded this as a well-merited compliment to Mr. McGregor, but Mr. Good, who, without our knowledge, had been meanwhile appointed hon. secretary *pro tem.*, imagines it reflects on his capability as a secretary. We cannot see how, though if Mr. Good thinks otherwise, it gives us great pleasure to assure him and our readers that our high opinion of his organising abilities was and is unshaken.

A.C.U. Subscriptions.

Prospective members are reminded that those who join the A.C.U. at the present time will have their membership covered until January 1st, 1915. For 5s. members this works out to the extremely moderate sum of 1d. per week, which is not excessive when the numerous advantages of the Union are considered.

Ride Cautiously.

We are requested by a correspondent to draw attention to the need for exercising extreme caution when passing through Romsey (Hants.), as that town not only abounds in very acute corners, but also a very dangerous bridge exists where it is quite impossible to see what is coming from the opposite direction.

Sunday Club Meetings.

We have received serious complaints of the nuisance caused by crowds of motor cyclists riding through villages about church time on Sunday morning with apparently no regard for the silencer regulations or the feelings of the public. It is this kind of thoughtless behaviour which makes motor cyclists so unpopular in many quarters, and we hope that this hint will be duly observed before strong measures are taken to put a stop to such practices.

Racing in Italy.

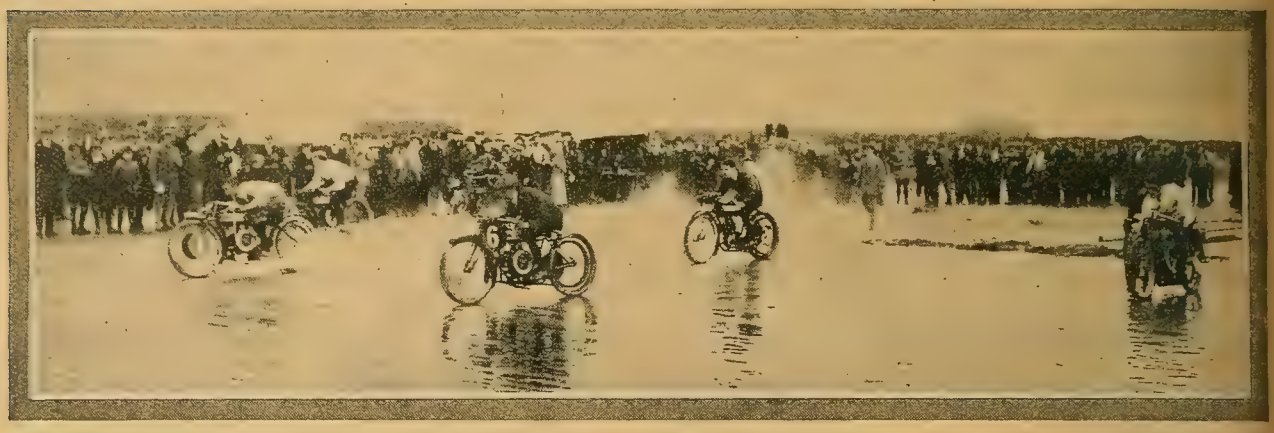
An important road race was held over the Circuito Umbro-Tuscano in Italy, the course of 230 miles including the famous ascent at Consuma. Both amateur and trade classes went to British machines, Tofanari Bindo on a Triumph being the first private owner in 6h. 18m. and A. Zan on a Triumph taking the trade prize in 6h. 38m. In the Roman race for the trophy, presented by *La Tribuna*, the Triumph trio took the team prize.

THE MIDLAND RELIABILITY TRIAL.

A. N. Barrett (5-6 h.p. Rudge Multi) and B. L. Bird (3½ h.p. Rudge) ascending Beacon Hill. The greasy state of the surface will be noted.

Racing on the Sands at Weston-super-Mare.

Bristol M.C.C. and Somerset A.C. Open and Closed Speed Trials.



Start of a heat for the first event for motor cycles up to 350 c.c. H. O. Springfield and H. K. Walker, both on 2¾ h.p. Douglases, get away well in the third heat.

SELDOM have appearances in general given more promise of a thoroughly enjoyable day than they did when we arrived at Weston-super-Mare on Saturday to witness these trials. The morning mists were just lifting—it was ten o'clock, but the early morning had been damp and foggy—and the sun was struggling to penetrate the grey cloak that enveloped the horizon, Brean Down, and the wooded heights behind Weston. A mile along the glistening sands we found the secretary and a number of stewards already on the scene, superintending the erection of tents, marking the course, etc.

The course, a mile in length, was marked off along the sands by coloured flags, and notices placed at frequent intervals requested the public not to walk thereon. There was a separate return route to the starting point, which enabled heats to be run off at three minute intervals, while a travelling marshal, who followed on the heels of the competitors in the last heats, took back the names of firsts and seconds who had to compete in the finals, to the starter. In the unlimited solo class first, second, and third competed in the final.

Torrents of Rain.

Only six heats had been run off when a drenching rainstorm came on, which lasted about ten minutes, and cleared the long promenade of its hundreds of spectators, and caused the postponement of the final of the 350 general class.

When racing recommenced the sands were in an appalling condition—slushy, and covered with rain puddles—and it was soon apparent that belt slip and plug troubles were rife among competitors, several of whom failed to stay the course in this and subsequent events.

The final of the Unlimited Capacity (General) Class was won by eight yards by A. James in fine style, and the chain-drive men smiled a knowing smile. P. Matthews (Rudge) romped home in the first heat of the 500 Sidecar Class, as did Moore (Rudge) in heat two, but F. P. Davies (Rudge) and Salway (Premier) had a very close contest for second place. The second heat of the Unlimited Sidecar Class provided the best sporting finish of the day, Griffiths overhauling Chapman, both on Zeniths, not thirty yards from the post. Rain now began again, and never ceased till the last of us had made his weary and dripping way from the course.

Two Machines are Pushed Home.

The first heat of the 1,100 Sidecar Class ended remarkably. McMinnies had an easy lead, when just three yards from the finish his Morgan jibbed, and defied all efforts to restart it. Meanwhile number two was creeping up, and McMinnies and his passenger made valiant efforts to push the machine over the line, and finally succeeded, just in time to secure second place.

Competitors travelling well in the final of Class II. Right—A. H. Alexander (Douglas) and left—P. H. Matthews (3½ h.p. Rudge) leading the field.

A FINE START. Start of Class IV. for 3½ h.p. sidecar machines.

In the second heat of this event, Cox's Morgan won easily, and the Douglas cycle car was third. In the final, Cox steered his lady passenger to another easy victory.

This was the last of the open events, but the club competitions provided some keen contests. In heat two of the 500 Class, P. Matthews (Rudge) was held up with plug trouble some distance from the finish, but bravely pushed his machine home, removed with difficulty the binding of insulation tape, and, after drying the plug, cut the bulb off his small bulb horn and used it as a plug protector. Returning to the start in fine style, he was able to bring off an easy victory in the final.

A Successful Meeting.

By about a quarter to three, the motor cycle events were over, and the cars followed on. Of interest to motor cyclists was the first awarded to W. Douglas (Douglas cycle car) in the 12 h.p. class. The striking feature of these events was the performance of various Talbot cars, though Miss Starkey showed up well with her Sunbeam

Considering the weather, it must be regarded as a successful day. The unusual conditions precluded any record breaking, whilst one can hardly take failures as evidence of incapacity on the part of machines or riders. Perhaps the most pithy description of the day was contained in a remark overheard in the official tent: "What an advertisement for plug-protectors!"

Final Results.

CLASS I.—Solo machines not exceeding 350 c.c., for single or twin-cylinder engines.

1. G. H. Fry (Douglas).
2. W. W. Douglas (Douglas).
3. E. Kickham (Douglas).

Fastest time, E. Kickham (Douglas), 1m. 15⅕s.

CLASS IIa.—Solo machines not exceeding 500 c.c., for single or twin-cylinder engines (generals only).

1. J. C. Moore (Rudge).
2. F. Woolstenholme (Triumph).
3. F. C. Davies (Rudge).

Fastest time, George Clark (Rudge), 1m. 14⅖s.

CLASS II.—Solo machines not exceeding 500 c.c., for single or twin-cylinder engines (experts only).

1. P. H. A. Matthews (Rudge).
2. A. H. Alexander (Douglas).
3. E. Kickham (Rudge).

Fastest time, P. H. A. Matthews (Rudge), 1m. 15⅗s.

CLASS III.—Solo machines (unlimited capacity), for single or twin-cylinder engines (experts only).

1. Geo. Griffiths (Zenith).
2. Byran Jeffreys (Zenith).
3. A. H. Alexander (Douglas).

Fastest time, Geo. Griffiths (Zenith), 1m. 14⅗s.

CLASS IIIa.—Solo machines (unlimitd capacity), for single or twin-cylinder engines (generals only).

1. A. James (Indian).
2. F. P. Davies (Rudge).
3. G. H. Fry (Rudge).

Fastest time, A. James (Indian), 1m. 14⅖s.

CLASS IV.—Sidecar machines not exceeding 500 c.c., for single or twin-cylinder engines. Passenger not under 132 lbs.

1. F. P. Davies (Rudge).
2. P. H. A. Matthews (Rudge).

Fastest times, H. Moore (Rudge) and F. P. Davies (Rudge), 1m. 38⅗s.

CLASS V.—Sidecar machines (unlimited capacity), single or twin-cylinder engines. Passengers not under 132 lbs. weight.

1. Geo. Griffiths (Zenith).
2. E. E. Chapman (Zenith).
3. A. B. Wade (Imperial-Jap).

Fastest time, Geo. Griffiths (Zenith), 1m. 19⅗s.

CLASS VI.—Cycle cars not exceeding 1,100 c.c. Passenger not less than 132 lbs. Sidecars barred, but three-wheeled cycle cars eligible. Passengers not exceeding 132 lbs. weight.

1. F. G. Cox (Morgan).
2. H. Morgan (Morgan).
3. W. G. McMinnies (Morgan).

Fastest time, W. G. McMinnies (Morgan), 1m. 47⅕s.

CLASS VII.—Club class, not exceeding 350 c.c., for single or twin-cylinder engines.

1. W. W. Douglas (Douglas).
2. G. H. Fry (Douglas).

Fastest time, W. W. Douglas (Douglas), 1m. 28s

CLASS VIII.—Club class, not exceeding 500 c.c., single or twin-cylinder engines.

1. P. H. Matthews (Rudge).
2. F. P. Davies (Rudge).
3. W. W. Douglas (Douglas).

Fastest time, G. H. Fry (Rudge), 1m. 27⅕s

CLASS X.—Club class, not exceeding 350, single or twin-cylinder engines, for members not having won a first in a speed trial or hill-climb, and not connected with the trade.

1. F. C. Wasley (Douglas).
2. J. King (Douglas).

CLASS IX.—Club passenger machine championship. Sealed handicap adjusted by the Editor of *The Motor Cycle*.

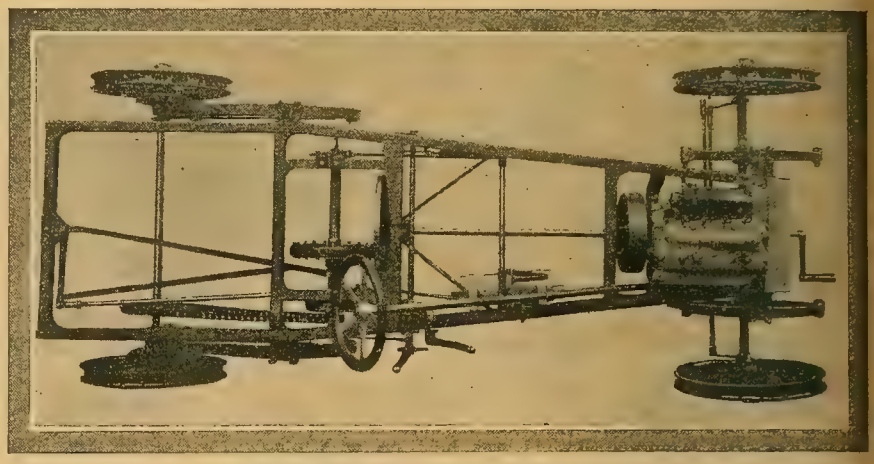
	m.	s.
1. G. H. Fry (Zenith sc.)	1	19
Less handicap time		3
Fastest time	1	16
2. F. P. Davies (Rudge sc.)	1	43⅗
Less handicap time		11
	1	32⅗
3. E. A Davies (3½ Premier sc.)	1	47⅖
Less handicap time		7
	1	40⅗

There was no contest in the match between the Straker-Squire car (15 h.p.) and 8 h.p. Zenith, but the stewards gave a walk-over to Geo. Griffiths (8 h.p. Zenith).

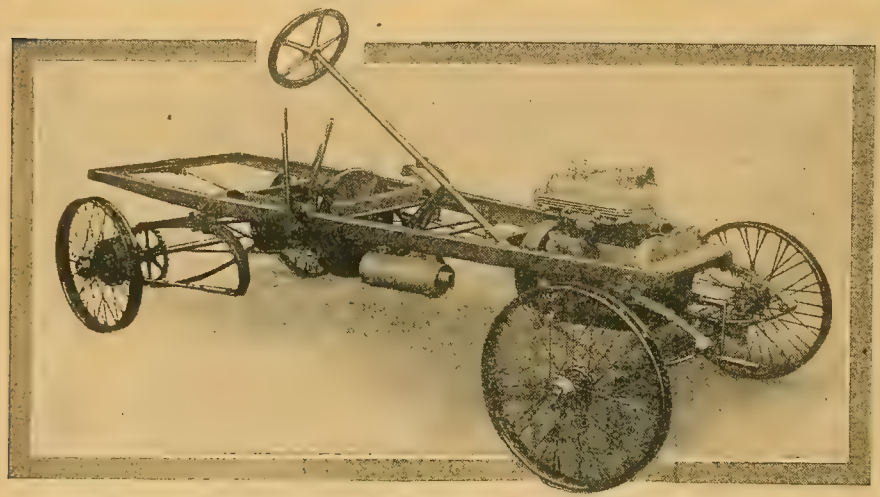
THE AJAX CYCLE CAR.

A French Production with Four Cylinders, Friction Drive, and Detachable Wheels.

A MOST interesting cycle car is being constructed in Paris for the Salon, and by the courtesy of its makers, Messrs. Briscoe Frères, we were able to examine it. The water-cooled engine is a four-cylinder, 57×96 mm., with two bearing crankshaft, the cylinders and top portion of crank case being cast together. The bottom of the case below the crank-shaft bearings is formed out of a sheet steel pressing, and acts only as a pan to retain the oil. The tops of the valves are covered by a single plate, which reduces the overall length of the engine by decreasing the spaces occupied by the threads of the valve caps. The timing gear is chain-driven, and enclosed in a sheet steel cover, so that with this and the cylinder construction cost of production is enormously reduced. The engine is suspended at three points, and the steering box lug forms one of the two rear attachments for the engine.



Plan view of the Ajax friction driven cycle car.



Chassis of the new Ajax. Note the rear springing, torque rods and detachable wire wheels.

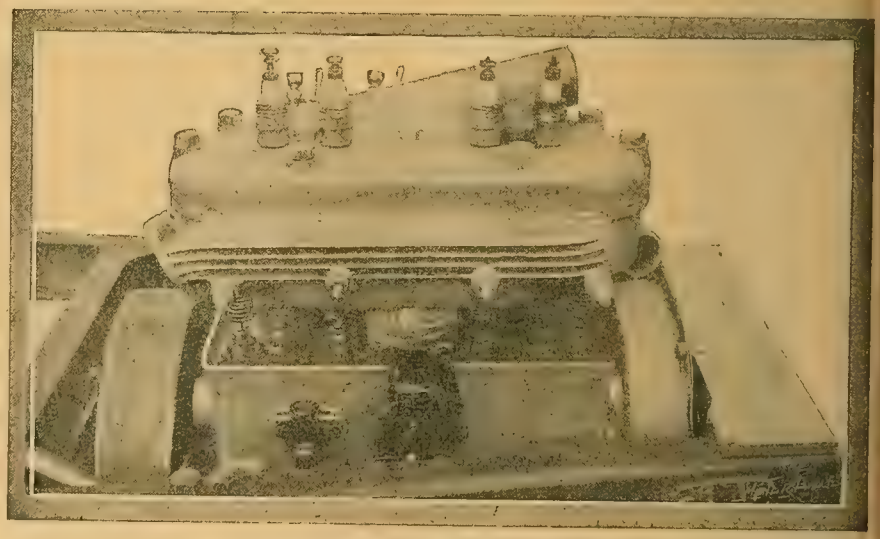
The lubrication is by plunger pump, the oil being led to a splash plate, into which the ends of the connecting rods dip. Thermo-syphon cooling is used, and the radiator is of special construction, to which we shall refer later.

The transmission is carried from the engine to a large diameter friction disc by means of a propeller-shaft, a spring disc being interposed between the fly-wheel and the shaft to allow for any slight distortion of the chassis. Next the friction disc is the friction wheel, which slides on a castellated shaft held at one side of the frame in a swinging arm bearing, and at the opposite side in a spherically held ball bearing, which allows the shaft a slight amount of movement when the tractive effort tends to draw the wheel and disc together. A dust cover is placed under the friction mechanism. This arrangement and the method of operating the wheel to slide it across the disc are reminiscent of the Turicum friction-driven car of a few years ago. We believe it to be, however, the first cycle car with a friction drive and four-cylinder engine.

From the counter-shaft the transmission to the rear live axle is by roller chain, and there is no differential.

The rear axle has double ball bearings at each end of the shaft, and the wheels are detachable. The inner hub of the detachable wheels is keyed to the axle, and over it fits an outer hub carrying the flanges for wire spokes. The inner flanges of the fixed and movable hubs are castellated, and fit together. When the wheel is slipped on, these castellations take the drive, and the wheel is fastened in position by a spring locking device in the hub cap. The brakes are all internal-cap. The brakes are all of the internal-expanding type.

The front springs are full elliptical, and the rear are of the cantilever type, and are extended down beyond the frame, where they are anchored, so that they form brackets for the radius rods, the latter being adjustable to take up the slack of the chain. It is hoped to fix the selling price at under £100.



Valve side of the Ajax cycle car engine. The timing gear cover is made of sheet steel, and the cylinders and top half of the crank case are all cast in one.

London to Edinburgh Non-engine-stop Run.

ON Tuesday of last week Rex Mundy left the A.C.U. garage, London, at 8 p.m., in an endeavour to reach the Scottish capital without having stopped his engine. The machine used was an 8 h.p. water-cooled Williamson with sidecar attached, in which was accommodated an official of the A.C.U., under whose auspices the test was being run.

No incident of any importance occurred during the whole journey, the combination running with the regularity of clockwork during the trip North.

The journey through the night was not without its disadvantages, the period between sunset and dawn at this time of the year being rather on the cold side for comfort. Newcastle was reached shortly after one o'clock on the Wednesday, and after a short stop for refreshment, during which the engine was running the whole time, the journey across the border was re-commenced.

Through the counties of Southern Scotland a keen east wind chilled the riders, and by the time they arrived at Edinburgh, shortly after eight in the evening, they were cold, tired, and hungry. We were the only pressman to witness their arrival at the Scott Memorial in Prince's Street, and few of the spectators present, when we took a flashlight photograph of the successful rider, realised that such a fine performance had been accomplished. The official observer returned South by the night train the same evening, while Mr. Mundy followed the following morning.

A flashlight photograph of Rex Mundy on the 8 h.p. Williamson and sidecar with A.C.U. representative as passenger, taken outside the National Art Gallery on his arrival at Edinburgh at 8.15 p.m. on Wednesday last week.

The following certificate of the performance has been issued by the A.C.U.:

AUTO CYCLE UNION.

Certificate of performance in a trial of an 8 h.p. Williamson motor bicycle and sidecar (under the open competition rules of the A.C.U.), September 30th and October 1st, 1913.

This is to certify that an 8 h.p. Williamson motor bicycle and sidecar was entered for a non-stop engine trial by Mr. Rex Mundy. The motor bicycle and sidecar was a standard 8 h.p. Williamson with a single-seated sidecar attached. The engine was of the water-cooled horizontally opposed twin-cylinder type, bore and stroke 85×85 mm., 964 c.c. The driver was Mr. Rex Mundy, and the sidecar was occupied by the A.C.U. official observer.

The trial was held between London and Edinburgh, the route followed being *via* Hatfield, Biggleswade, Grantham, Doncaster, Wetherby, Darlington, Newcastle-on-Tyne, Berwick-on-Tweed, Edinburgh, the total distance covered being 394 miles.

The motor bicycle and sidecar was driven throughout the trial at an average speed of 18.4 miles per hour, the total time occupied being twenty-two hours fifty minutes. During this period the road wheels were at rest for one hour nineteen minutes for food and convenience, and oil and petrol replenishments were effected. The radiator was also replenished with water on five occasions, and an adjustment of the automatic oil feed occupied thirty-eight and a half minutes. No other adjustment was effected during the trial.

The engine was not stopped throughout the total time of twenty-two hours fifty minutes occupied in completing the trial of 394 miles. The weather was fine and the roads good.

(Signed) E. PERCY GREENHILL,
Chairman of Competitions Committee.
T. W. LOUGHBOROUGH,
Secretary.

Pall Mall, London, S.W., Oct. 3rd, 1913.

THE NEW DOUGLAS LIGHT CAR.

We were able to make a brief inspection of this machine, which was competing in the Bristol M.C.C. Speed Trials at Weston-super-Mare. It is fitted with an 8 h.p. Douglas water-cooled engine, as supplied to Williamson machines, but with a separate water intake and exit to and from the radiator to each of its two cylinders. The model competing was built on car lines, with the engine set across the frame, streamline body and luxurious fittings generally, one feature of which, the lighting by a dynamo, was especially admirable. The seats are staggered.

The new 8 h.p. Douglas light car which competed in the Bristol M.C.C. Speed Trials at Weston-super-Mare. W. W. Douglas is seen at the wheel.

It is, of course, shaft driven, with side brakes, and brake acting on the counter-shaft. A mechanical oil pump, operated from the magneto drive, is an interesting feature. The machine has three gears (selective) and reverse.

SCARBOROUGH M.C.C. RELIABILITY TRIAL.

Last week, in delightful weather, the above club held their annual 125 miles reliability trial over a splendid course *viâ* Pickering, Helmsley, Ingleby-Greenhow, Castleton, Sleights, Pickering, and home. This route includes such hills as Westhouse Bank, Limber Hill, Blue Bank (over three miles long, with a particularly bad length of gradient at the top), and Hell Corner (Saltersgate). The result was as follows:

CLASS I.—For Solo Motor Cycles.

Rider and machine.	Lost marks.
1. S. H. Clay (3½ Triumph)	0
2. J. E. Truefitt (3½ Triumph)	11
3. R. Swift (3½ Bradbury)	14

CLASS II.—Passenger Motor Cycles and Cycle Cars.

1. W. E. Grange (3½ Bradbury)	7
2. C. Mosey (5-6 A.J.S.)	14
3. J. E. Brooke (5-6 A.J.S.)	40

S. H. Clay (3½ Triumph) won the Tranmer Trophy.

Middlesex M.C.C.

Owing to lack of entries the proposed eighteen hours trial will not take place.

North Birmingham A.C.

The results of the reliability trial to Rhyl and back are as follows: Gold medals—R. W. Lovegrove (7 Indian sc.), A. Butterfield (2¼ Levis), A. W. Thrush (3½ Triumph), and G. N. Norris (2½ Levis). Silver medal—E. H. Bayliss (8 Chater-Lea sc.) Bronze medal—H. Newey (2½ Levis sc.).

Liverpool A.C.C.

A non-stop speed judging contest was held recently for the Captain's Cup and Medals. The competitors were despatched at intervals round a circular course without route card, the only instructions given them being to take every right hand turn they came to until they arrived back at the starting point; two laps to be covered at twenty, and later two more laps to be covered at seventeen miles per hour. Result: 1, L. V. Barton (6 Rex), error 97 seconds; 2, Horace Marsden (3½ Triumph sc.), error 136 seconds; 3, J. Fox (6 Matchless) and Harry Marsden (3½ Zenith sc.), error 190 seconds.

Glasgow M.C.C.

On Saturday last a flexibility hill-climb was held near Lennoxtown. The gradients were in no way severe, and, the surface being admirable, the hill was very well adapted for such a contest. The total distance was divided into two portions, the first (which was the more severe gradient) being used for the slow climb, while the second part (a long gentle slope) was excellent for a speed burst.

The first man, A. R. Fraser, travelled too slowly, and stopped on the first bend. Two others also failed here, these being W. Adam (5-6 Rudge sc.) and A. D. Morrison (3½ Ariel). Perhaps the best performance was that of D. S. Baddeley (3½ P. and M.), who travelled at a walking pace to the first line, and then went off with a fine burst of speed, finishing as fast as anyone. R. M. McCulloch (6 A.J.S.) was also good, but the fastest over the speed portion was G. W. Orr (3½ Ariel). A. W. Miller (2¾ Douglas) was another whose variation was very marked, and he was a great deal better than many of the 3½ h.p. singles.

In the sidecar class, W. Carlaw (6 Enfield sc.) was undoubtedly the best, and succeeded in crawling up to the first line, and then got away very quickly, finishing at a fine speed. H. W. Ballardie (5-6 Hazlewood) was, if anything, the slowest sidecar combination over the slow section, but his acceleration might have been better.

The following are the results and prizewinners:

Sidecar Class.—1, W. Carlaw (6 Enfield sc.), figure of merit 1,050, Ariel gold medal; 2, W. Turpin (6 Campion sc.), 950, special prize given by Mr. J. S. Fulton; 3, A. McDougall (5-6 A.J.S. sc.), 955; 4, H. W. Ballardie (5-6 Hazlewood sc.), 805; 5, G. Thomson (6 A.J.S. sc.), 767; 6, A. L. Coley (6 A.J.S. sc.), 750.

Solo Machines.—1, D. S. Baddeley (3½ P. and M.), figure of merit 620, gold medal; 2, R. M. McCulloch (6 A.J.S.), 550; 3, G. W. Orr (3½ Ariel), 538; 4, A. W. Miller (2¾ Douglas), 496; 5, R. G. McGibbon (3½ Norton), 491; 6, W. Hood (3½ Rudge), 472; 7, R. D. Fleming (3½ Triumph), 463; 8, W. B. Cramb (3½ Elswick), 420.

Herts M.C.C.

The fourth and last open half-day trial of the year will take place on Saturday, October 18th, starting from Barnet at 10 a.m. The regulations and entry forms for this trial and also for the open flexibility trial in Brookman's Park may be had from the sports honorary secretary, Mr. C. C. Cooke, North Mymms, Hatfield.

Barton-on-Humber and District M.C.C.

The results of the hill-climb held on the 27th ult. were as follows:

Class I.—For Motor Cycles up to 350 c.c., on formula.

		Figure of merit.
1.	F. G. Howard, Scunthorpe (F.N.) ...	278.8
2.	E. Hounslow, Brigg (N.S.U.)	343.25

Class II.—For Motor Cycles up to 570 c.c., on formula.

1.	W. Rhodes, Moortown (Rover)	321.1
2.	M. Wadsworth, Goole (Norton)	333.33

Class III.—For Passenger Motor Cycles, any capacity, on formula.

1.	F. G. Howard, Scunthorpe (Quadrant) ...	337.4
2.	W. E. Slack, Barton (Elswick)	415.0

Class IV.—For T.T. Motor Cycles, on time.

1.	T. T. Laker, Barton (Torpedo)	19.4s
2.	F. Hopper, jun., Barton (Torpedo) ...	20s.

Class V.—Unlimited, on time.

1.	W. Rhodes, Moortown (Zenith)	17.2s.
2.	F. Hopper, jun., Barton (Torpedo) ...	20s.

GLASGOW M.C.C. FLEXIBILITY HILL-CLIMB AT LENNOXTOWN LAST SATURDAY.

R. G. McGibbon (3½ h.p. Norton) crossing the finishing line. A. D. McDougall (6 h.p. A.J.S. sidecar) accelerating in the fast portion.

Club News.—

Cheltenham M.C.C.

The third reliability trial for the Williams Challenge Bowl was run off on the 27th ult. The route selected was a very severe one, including Withington, Birdlip, and Portway Hills. The awards were: F. Y. Ruck (2½ A.J.S.), full marks, silver award and prize presented by Mr. F. W. Corbett for the best performance by an amateur; W. B. Gibb (2¾ Douglas) and T. R. Trotter (3½ B.S.A.), full marks. Tetley (2¾ Sunbeam) and Farmer (4 Precision) also completed the course, non-stop.

Dumfries and District M.C.C.

A petrol consumption trial took place on the 27th ult., over a stiff course from Maxwelltown Station, and the result was as follows: 1, W. Bell (6 Matchless sc.), 29 miles; 2, J. Smith (3½ B.S.A.), 28½ miles. The formula used was $\frac{C \times W}{15}$

A hill-climb was held immediately after at South Carthat Hill, Collin, with the following results:

On Time.

	Rider and machine.	Time.
1.	T. K. Newbigging (6 Rex)	40s.
2.	A. Midgley (3½ Triumph)	42s.
3.	J. Smith (3½ B.S.A.)	49s.

On Formula.

		Figure of merit.
1.	A. Midgley (3½ Triumph)	423
2.	J. Smith (3½ B.S.A.)	419
3.	T. K. Newbigging (6 Rex)	278

Port Elizabeth M.C.C.

This club held its speed trials on September 6th, when a large number of South African motor cyclists showed the paces of their mounts. All the competing machines but one were of British make.

In the sidecar class, G. Matthews, riding a 3½ h.p. Rudge, won easily, and he also annexed the 500 c.c. solo class, covering the threequarter-mile course in 43s. with a flying start, the highest speed of the day. The leaders were:

Class I.—Lightweights up to 400 c.c.

1.	R. Inggs (2¾ Humber)	52⅖s.
2.	W. R. Dennis (2¾ Douglas)	56⅕s.
3.	R. K. How (2¾ Douglas)	68⅘s.

Class II.—500 c.c.

1.	G. E. Matthews (3½ Rudge)	43s.
2.	H. G. Braybrooke (3½ Alldays)	50s.
3.	W. Wilson (3½ New Hudson)	52⅘s.

Class III.—Sidecar Class.

1.	G. E. Matthews (3½ Rudge)	58⅖s.
2.	P. G. Parnell (5-6 Rudge)	61⅖s.
3.	E. J. Green (3½ New Hudson)	68⅖s.

Purley M.C.C.

The night trial on the 27th ult. resulted as under: 1, C. W. Meredith (Bradbury sc.), Scott Cup and silver medal; 2, H. B. Willoughby (Rudge-multi); 3, R. G. Charlesworth (6 Zenith sc.); 4, D. Iron (B.S.A.). The course was to Eastbourne, over Beachy Head, through Seaford, Newhaven, and Lewes home—113 miles—and the schedule speed 20 m.p.h.

Kidderminster M.C.C.

A hill-climb was held on the 20th ult. A standing start was made at the foot of the hill, which was about 300 yards long, average gradient about 1 in 7. Results:

Class I.—Lightweights, up to 350 c.c.

		Time.
1.	J. W. Timmis (Douglas)	24⅗s.
2.	C. A. Nicholls (Douglas)	26⅘s.
3.	G. Dance (A.J.S.)	27⅗s.

Class II.—Standard touring, up to 500 c.c.

1.	B. L. Bird (Rudge-Multi)	22⅘s.
2.	C. H. Williams (Triumph)	27⅖s.
3.	H. Mantle (Ariel)	30⅗s.

Class III.—Tourist Trophy, up to 500 c.c.

1.	F. W. Giles (Triumph)	20s.
2.	J. G. Nickson (Rudge-Multi)	22⅕s.
3.	C. Rhodes (Premier)	22⅗s.

Class IV.

1.	H. J. L. Greatwich (5 Wright-Blumfield)	19s.
2.	F. Giles (3½ Triumph)	19⅘s.
3.	C. Humphries (5 Bat-Jap)	20s.

Malvern and District M.C.C.

The hill-climb held at the British Camp resulted as under. There was a very good entry, excepting the 350 class and touring 500 class. There was a large crowd in attendance.

Class I.—Up to 350 c.c.

		On time.
1.	Guy Smith (2¾ Sunbeam)	31⅕s.

Class II.—Up to 500 c.c.

1.	J. G. Nickson (3½ Rudge)	22⅕s.
2.	B. E. Surman (3½ Alldays)	23s.
	F. Giles (3½ Triumph)	23s.
4.	S. Jones (3½ Ixion)	28s.

Class III.—Up to 1,000 c.c.

1.	H. J. G. Greatwich (5 Wright-Blumfield)	19⅕s.
2.	R. E. Surman (5 Matchless)	21s.
3.	J. G. Nickson (3½ Rudge)	22⅕s.

Class IV.—Sidecars and Cycle Cars, on *The Motor Cycle* formula.

1. —: Hall (6 Enfield sc.).
2. S. W. Aitken (8 Zenith sc.).
3. W. Crocker (5 A.J.S. sc.).

Class V.—Up to 500 c.c., on formula.

1. R. E. Surman (3½ Alldays).
2. G. Smith (2¾ Sunbeam).
3. B. Bladder (3½ Rudge Multi)

THE NORTH WALES TRIAL OF THE LIVERPOOL A.C.C.

(1) A. J. Dixon (3½ h.p. Singer) in Henllan. (2) J. H. Sedgwick (3½ h.p. Rudge, in the act of skidding in the grease on Llanfair. (3) E. F. Baxter (Rex) ascending Altybady, a freak hill outside Llangollen.

Wulfrunas in London.

Messrs. Selfridge, Limited, Oxford Street, W., have taken up the sole agency for the South-West of London for Wulfruna motor cycles.

An Engineer-designer.

Harry A. Smith, designer of the Dayeds and Ilston and Smith motors, is now a consulting engineer with premises at 58, Durlston Road, Kingston-on-Thames. Mr. Smith's long experience in the various branches of the motoring industry in designing, drawing, and pattern making should stand him in good stead.

Mechanical Drawings Wanted.

The Superintendent of the Mechanical Engineering School, Bangalore, Mysore, India, would be glad to receive blue prints or diagrams suitable for hanging on walls for the purpose of lecturing and demonstrating in the schools. Drawings relating to internal combustion engineering, turbines, pumping machinery, etc., will be welcomed.

Drummond Lathes.

At the Small Power Engineering Exhibition to be held at the Horticultural Hall, Westminster, in October, Messrs. Drummond Brothers, Limited, the well-known lathe manufacturers, inform us that they will be showing on Stand 17 their 3½in., 4in., 5in., and 6in. lathes, drills, etc. One of the exhibits will consist of a 3½ h.p. motor cycle engine made on a 3½in. centre lathe.

A Rim Protector.

We recently inspected a device for protecting the rims of motor cycles from being damaged or badly worn by brakes. Strips of a metal which is for the most part composed of nickel steel, are electrically welded to that part of the rims to which the brakes are applied. The advantages of these strips are that they lend the machine a neat appearance, wear white right through, and do not rust. The makers are F. Attwood and Co., 99-107, Rosebery Avenue, London, E.C.

An Unstretchable Belt.

The Midland Rubber Co.'s new belt should appeal to motor cyclists who have been sufferers from belt troubles. Piano wire of great strength is incorporated in the rubber, and moulded in the usual V shape five ply wire in ⅞in., six ply in 1in., and seven ply in 1⅛in. This combination, whilst giving great strength, is claimed to prevent undue enlongation; and any good fastener may be used.

British Successes in Toronto.

We have received details of a reliability run held on September 14th near Toronto, round Lake Simcue, which proved to be one of the most strenuous one-day runs ever held in the Dominion. The distance was 181 miles, and so bad was the sandy going in places that the riders were glad to take to a railway line and bump along the sleepers. There were twelve Triumphs in the run, and all but one got through with flying colours. The Triumph machine has frequently distinguished itself in Canada, and there are in the neighbourhood of Toronto motor cycling clubs composed exclusively of Triumph riders.

SPARKLETS

Tyre Successes at Brighton.

E. B. Ware, who was a most successful comepetitor in the recent Streatham and District M.C.C. races at Brighton, where he won three events, was using Clincher tyres on his Zenith.

A Durable Belt.

We have heard of a wonderful record of a Centipede belt, which is made by W. Pollin, Shepherdswell, near Dover. The belt in question, according to its owner, who is a medical man, has been in constant use since September, 1910, and has been employed a good deal for sidecar work. The owner says that it seems good for many hundreds of miles yet.

Catalogues Received.

We are in receipt of a catalogue of hardening furnaces, etc., sent to us by S. N. Brayshaw, 2-4, Mulberry Street, Hulme, Manchester. To motor cyclists the most interesting part of the catalogue is that devoted to useful mathematical tables, giving hints on converting degrees in temperature centigrade into Fahrenheit, and *vice versa*, and millimetre and decimal equivalents.

European Maps.

Messrs. Freytag and Berndt, Vienna, have published another sheet of their excellent maps of Europe. This is Section 31, comprising the North of Holland. The maps are clear, and should be invaluable to tourists on the Continent. The sections comprise parts of Holland, Denmark, the whole of the German Empire, part of Austria-Hungary, Bosnia, Montenegro, the north of Italy, the whole of Switzerland, and parts of France.

A New Address.

Messrs. Bi-Metals, Ltd., the makers of the well-known Tinol outfit, inform us that they have moved into more commodious premises at 57, Lant Street, Southwark, S.E.

Grease Injectors.

Messrs. A. R. Price, Vevo Works, Park Lane, Aston, Birmingham, make a speciality of grease injectors for motor cycles and cycle cars. These are extremely useful accessories, which are made in no less than four different sizes.

A Demonstration Van.

Messrs. The Acetylene Publicity Ltd., 285, Winchester House, Old Broad Street, E.C., are about to send an elaborately equipped van round the country demonstrating the different devices for lighting and cooking by means of acetylene gas, and oxy-acteylene welding. Naturally, the lighting and welding processes should be of interest to users of motor cycles.

A Sidecar Treatise.

The Enfield Cycle Co., Ltd., Redditch, forward a very well got up booklet entitled "The Book of the 6 h.p. Enfield Sidecar Combination." This describes and illustrates very thoroughly all the various parts of this well-known combination, and should be invaluable to all users, especially when ordering spares.

Fitting New Pistons.

The Gradior Machine Co., Stafford, who have an excellent reputation for cylinder grinding, are prepared to fit new pistons and rings and regrind cylinders of all 84 and 85 mm. bore engines for the sum of 30s. This is a big reduction on their previous price, which was in the neighbourhood of £2. The above only applies to cylinders of the dimensions given, special arrangements having been made to deal with this size of engine. The same firm construct a single-cylinder 86 × 90 mm. standard type engine suitable for sidecars, rated at 3¾ h.p. As there are a number on the look out for a big single suitable for sidecar work it will probably be welcomed by readers.

BRITISH MOTOR CYCLES OVERSEAS.

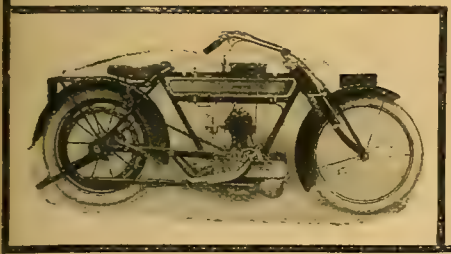
A group of motor cyclists of East London, South Africa, who are all riders of 3½ h.p. Triumph machines. H. Becke, the sender of the photograph, says, "my own machine is a 1911 model, and I have covered 12,000 miles without any replacements to the engine."

O'DONOVAN DID IT !

ON THE UNAPPROACHABLE

NORTON

SMASHING NOT ONLY THE $3\frac{1}{2}$ BUT ALSO 6 H.P. RECORDS



Flying 5 miles .. .. 71·54 m.p.h.
Standing 10 miles .. .. 68·08 m.p.h.
490 c.c. UNAPPROACHABLE. CLASSES C. & D.

NORTON MOTORS, Birmingham.

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A LEATHER CASE WITH FLASK OF HORLICK'S LUNCH TABLETS.

To be attached to the Frame.

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Also a New and Accurate Road Map of ENGLAND & WALES in Leatherette Case, with Roads shown in Colours and Classified, will be sent FREE with this Case and Flask.

THE LEATHER CASE illustrated is strongly made in solid, light brown leather, and is excellently finished. It may be attached to the handle-bars or frame in a convenient position, so that the Flask may be removed for use at a moment's notice without dismounting.

Horlick's Lunch Tablets contain all the valuable nutriment of full cream milk and choice malted grain in a convenient tablet form. A few dissolved in the mouth from time to time will supply the necessary nutriment to maintain strength and vigour, and restore energy when Touring or Racing, and are useful at all times.

PRICES: IN GLASS FLASKS TO FIT CYCLE CASES—ONE SHILLING EACH,
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Send Postal Order to—HORLICK'S MALTED MILK CO., SLOUGH, BUCKS.

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IF it is a Passenger Mount you require for Winter riding— REMEMBER, the MATCHLESS gained the SPECIAL PRIZE for SIDECARS (amongst other awards) in the recent SIX DAYS TRIAL

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Triple success for SUMMER

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1 S. Huile de Luxe was used by Mr. P. W. MOFFATT on his 2¾ h.p. Douglas, when he obtained the highest figure of merit, irrespective of class in the A.C.U. Six Days' Trial.

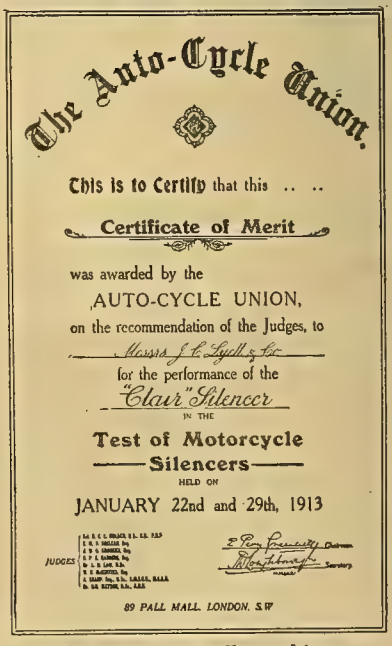
2 The same lubricant was used by Mr. R. G. MUNDY on his 3½ h.p. Triumph, the winner of the highest figure of merit in the 500 c.c. class, and by Mr. REX PEARSON (5-6 h.p. Clyno), who obtained the highest figure of merit in the 750 c.c. (passenger) class.

3 S. Huile de Luxe was also used by Mr. MORGAN on his 8 h.p. Morgan —the only air-cooled engined Cycle Car to gain a Gold Medal.

Proofs of efficiency which will appeal to every practical motor cyclist. Write for Lists to

PRICES' COMPANY LIMITED
BATTERSEA, LONDON, S.W.

SILENCE WITHOUT LOSS
OF POWER AN ACCOMPLISHED FACT.


The Auto-Cycle Union.

This is to Certify that this .. ..

Certificate of Merit

was awarded by the AUTO-CYCLE UNION, on the recommendation of the Judges, to

Messrs J. C. Lyell & Co.

for the performance of the "Clair" Silencer IN THE

Test of Motorcycle Silencers HELD ON

JANUARY 22nd and 29th, 1913

JUDGES

89 PALL MALL, LONDON, S.W.

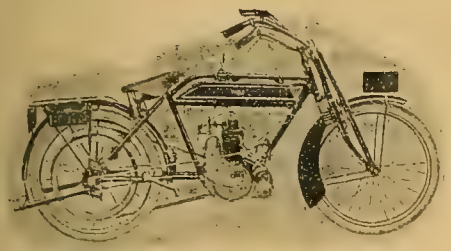
Models to suit all machines.
"CLAIR" SILENCER obtained the highest speed and power at the Bench Test.

J. C. LYELL & CO., LTD.,
113, GREAT PORTLAND STREET, LONDON, W.

In answering these advertisements it is desirable to mention "The Motor Cycle."

SELFRIDGE'S

The Cheapest Motor Cycle Made.



Cash price, with Single Gear Belt Drive .. .. .. **24 Gns.**

With Armstrong or Sturmey-Archer 3-speed Gear .. **32 Gns.**
(as illustrated)

AFTER careful tests we are convinced that the "Wolf" Motor Cycle is the best value on the market. Our expert has given the machine a severe trial, and has found it completely satisfactory.

It runs 160 miles to the gallon of petrol, at a speed of 35 miles per hour, the engine is built into the frame, not insecurely fastened as on the usual low-priced machine.

The great demand for a low-priced, lightweight motor cycle has enabled the Wulfruna Engineering Co., Ltd., to manufacture a greater number of machines at a substantial reduction on the cost of production, thus bringing a reliable machine within the reach of every prospective motor cyclist. We recommend this lightweight for the use of professional and business men as well as the "week-ender."

The compact, light and simple construction of the "Wolf" allows for easy adjustment; every part is in sight and can easily be "got at."

We are the Sole West End Agents for the "Wolf" Lightweight.

You can obtain immediate possession of the "Wolf" on payment of £5 deposit, and twelve monthly instalments of £1 13 8.

Specification of the Wolf 2½ h.p. Motor Cycle

Engine: By Ilston, of Birmingham. Single-cylinder, 76mm × 65mm. (cc. 298), giving over 2½h.p. at 4,000 revolutions per minute. Valves are of large area and easily detachable. Cylinders cast in special mixture of iron to withstand rough usage. Flywheels of extra large dimension, mounted on ball bearings. Adjustable pulley of simple construction. Gear ratio is 5-1 to 8-1.

Crank Case: Made of aluminium, of extra strong construction. Valve motion enclosed, oil and dust tight.

Carburetter: Amac or Senspray of latest type.

Ignition: High tension U.H. magneto, latest enclosed type, protected from mud and dust.

Transmission: ¾in. best quality rubber belt, with patent adjustable pulley.

Forks: Pilot spring forks, of latest type.

Tank: Sheet steel. Petrol capacity 1 gallon. Oil capacity 1 pint. Large filler caps and pump can be easily manipulated from saddle.

Wheels: 26in. × 2in., extra strong spokes and nipples, well tensioned and accurate.

Tyres: Hutchinson, 26in. × 2in.

Brakes: Foot rim, with Bowden handle-bar lever. Back belt rim actuated by foot pedal.

Foot Rests: Adjustable, with rubber covers fitted.

Mudguards: Wide, with side splashers to front guard.

Frame: Neat, light, and strong, made of best weldless tubing, and reinforced in all vital parts. Gives low riding and well-balanced position to rider.

Controls: Front brake, air and throttle and valve lifter all controlled from handle-bar by means of latest Bowden attachments. Magneto controlled by lever fitted to tank.

Finish: Enamelled black and lined throughout. Tank enamelled green and gold. Complete with number plates, tool bag, oilers, spanners, pump, and clips.

If unable to call write for full particulars.

ALL 1913 MODELS at REDUCED PRICES

WE are clearing every one of our 1913 models at greatly reduced prices to make room for the new stock of 1914 machines. You can have any one of the machines listed below on our extended payment plan: 20% deposit and the balance to extend over a period of twelve months.

STORE-SOILED MOTOR CYCLES, 1913 MODELS.

NEW HUDSON, 3½h.p., 3-speed, belt drive. List price £60/18; reduced to £56.

B.S.A., 3½h.p., 2-speed, chain drive. List price £60; reduced to £55.

ROVER, 3½h.p., 3-speed Armstrong gear, belt drive. List price £58; reduced to £54.

Second-hand INDIAN, 7 h.p. 1912 model, 2-speed, free engine, £18 18 0 Millford Sidecar, two horns, P.R.S. lamp Lucas sidecar lamp and spares. Special price £55.

TRIUMPH, 3½h.p., 3-speed Sturmey-Archer gear. List price £59/15; reduced to £55.

ZENITH, 3½h.p., Gradua gear, free engine, kick starter. List price £63; reduced to £57/10.

REX, 6h.p., 2-speed gear, belt drive. List price £62/10; reduced to £47/10.

LEA-FRANCIS, 3¼h.p., twin-cylinder, 2-speed gear, chain drive. List price £68/5; reduced to £63.

Ariel, 3½h.p., 3-speed, perfect condition, used for demonstration purposes. List price £60; reduced to £45.

MARTIN-J.A.P., 8h.p., fixed engine, fitted with speedometer. List price £64/6; reduced to £59/10.

MATCHLESS, 6h.p., 2-speed, chain drive, complete with 1914 Matchless Sidecar. List price £94; reduced to £87/10.

1913 A.C. Sociable, second-hand, complete with hood, screen, lamps, electric horn, clock, and spares, £50.

If unable to call write for complete list.

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LODGE
PLUGS

are so successful in Motor Cycle work for four main reasons:—

They provide: (1) Easy starting.
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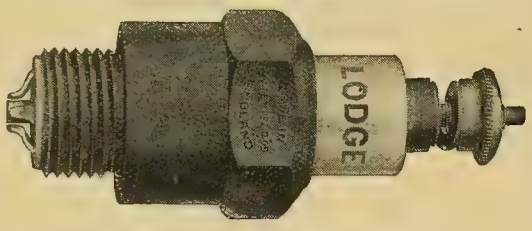
—POWERFUL REASONS THESE—REASONS WHICH NO MOTOR CYCLE OWNER CAN AFFORD TO OVERLOOK.



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PRICE 4/- EACH.

Sold in Red Metal Boxes (sealed)

THE LODGE SPARKING PLUG CO., LTD., Birmingham.

FOR SCOTT MOTOR CYCLES

ADJUSTABLE VALVES.

EFFICIENT AND RELIABLE

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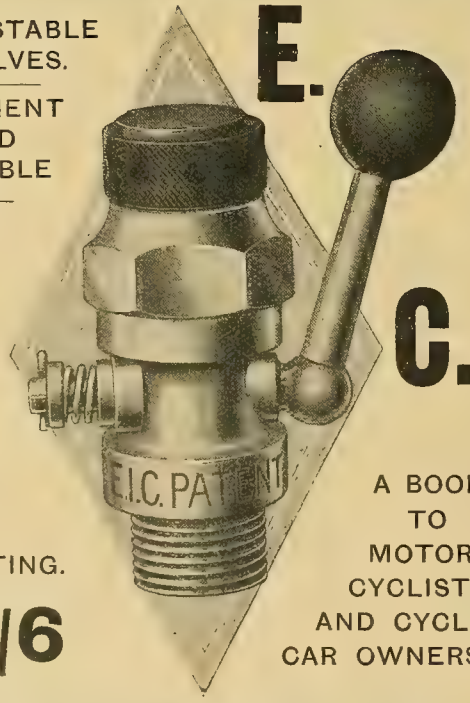

FOR EASY STARTING.

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A BOON TO MOTOR CYCLISTS AND CYCLE CAR OWNERS.

DECOMPRESSOR.

DEPT. C., ELECTRIC IGNITION CO. (1913), Ltd., B'HAM.
Descriptive Pamphlet on request.

GRAVES
CLINCHER MOTOR CYCLE TYRES
ON EASY MONTHLY TERMS AT CASH PRICES.

We supply this world-renowned make of Tyre at rock-bottom cash prices on Easy Payment Terms. Any grade and pattern of **'Clincher' Tyres** supplied to approved orders for small payment with order and the balance to be completed in equal monthly payments if you are entirely satisfied after full examination at your own home. Manufacturers' Guarantee.

The 'Clincher' B Motor Cycle Tyre with beaded edge. Cover only. 26 x 2 **21/-** 3/6 Monthly. 26 x 2¼ **27/6** 4/7 Monthly.

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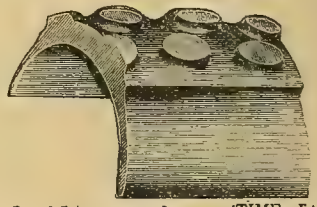
Write for Catalogue. Send a post card to-day for our illustrated Catalogue of all 'Clincher' Cycle and Motor Cycle Tyres all on easy terms at cash prices from **7/6**

J. G. GRAVES LTD. SHEFFIELD.

RETREADING
MOTOR CYCLE COVERS
(ALL MAKES. ALL SIZES.)

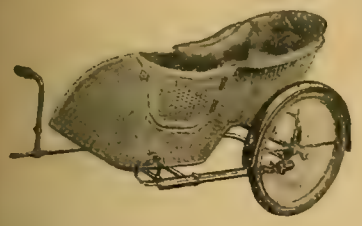


9/-, 12/- & 14/- each. (TIME TAKEN 7 DAYS.)

We have specialised in TYRE REPAIRS for the past 16 years.
Write for List and sections of Retreads.

THE EXCELSIOR TYRE & RUBBER Co., Hurst Street, BIRMINGHAM.

CORONET SIDE CARS



MODELS.—Underslung frame, high-class reed cane body, sides and floor lined to exclude draughts. "Coronet" detachable joints. **£8 17s. 6d.**

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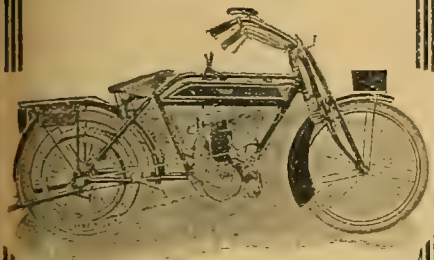
SENT CARRIAGE PAID.
TRADE SUPPLIED.

24 Guineas only.

2¾ h.p. 1914 Wolf Lightweights

Delivery from Stock.



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BOOTH'S MOTORIES,

Portland Place, Skircoat Road,

HALIFAX

(Opposite County Court).

Telephone 1062.

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LIVERPOOL, Birkenhead, and Manchester.

COLMORE Depots, 31, Renshaw St., Liverpool, and 261, Deansgate, Manchester.—New and 2nd-hand at the leading depots for the north, Colmore Depots; agents for Douglas, Scott, Mitchless, Bat, Clyno, Premier, Chater-Lea, New Hudson, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, 31, Renshaw St., Liverpool, and 261, Deansgate, Manchester. [X6046

BAT, 6h.p., chain drive, 2-speed, kick starter, shop-soiled only, just one left, ideal sidecar machine; special price to clear £68, cash offers invited.

NEW Hudson, VII. A., 3½h.p., 3-speed, combination, with luxurious coachbuilt sidecar, slightly soiled only; cost £75/12, will accept £65 cash.

BAT, 8h.p., 1912, shop-soiled only, quite new, fitted with P. and M. gear, and accessories; must be sold, best cash offer over £50 gets it.—Colmore Depot, 31 Renshaw St., Liverpool. [X2543

1910 6h.p. J.A.P., £24; 1912 Motosacoche, £19 10; or exchange.—40, Andover St., Sheffield. [X2394

DOUGLAS, Xmas, 1911, perfect order, tyres excellent, spares; £22.—Romans, Totley, Sheffield. [X2333

AUTO-WHEELS.—Immediate delivery from stock.—Official agents, Mead Motor Mart, Liverpool. [X2386

1913 Levis, all models; immediate delivery from stock.—Official agents, Mead Motor Mart, Liverpool. [X2385

MOTO-REVE 2½h.p. Twin, mag., Roc 2-speed, handle starting; £15.—Miller, Inglewood, Staveley Rd., Shipley. [X2177

1911 Clutch Triumph, spares, and complete accessories; any trial; £32/10.—English, 8, Ashgate Rd., Sheffield. [X2427

1913 3½h.p. Martin, model B; usual price £48; brand new, not even soiled; £40.—Mead Motor Mart, Liverpool. [X2384

2½ h.p. Motosacoche, mag., h.b.c., lamp, horn, tools, spare tyres, valves, etc.; £15.—Cook, Wentworth St., Huddersfield. [X1889

5-6h.p. Chater Twin, F. engine, Bosch, Brown and Barlow perfect; £25, or exchange.—A. Pulleyn, Wigginton, York. [2609

1913 Douglas, models O, P, and R; delivery from stock; end of season prices.—Cordingley, Haslingden. Tel.: 2Y. [2140

1913 Matchless, 6h.p., 2 speeds, F.E., brand new; to clear £62/10; no exchange; all other models for immediate delivery.—Cordingley, Haslingden. Tel.: 2Y. [2143

1913 Scott, just arrived, brand new; clear for £60.—Cordingley, Haslingden. Tel.: 2Y. [2144

1913 Singer, 3½h.p., 3 speeds, F.E., brand new; list £58/15, £48/10.—Cordingley, Haslingden. Tel.: 2Y. [2146

BRADBURY, 3½h.p., T.T., 1911 model, splendid order; £27/10.—Cordingley, Haslingden. Tel.: 2Y. [2147

SCOTT, new October, 1912 in really fine order; £55, or very close offer.—Cordingley, Haslingden. Tel.: 2Y. [2148

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2¾h.p. Torpedo, complete with speedometer, lamps and horn, 1912 model; a bargain, £26.—Cordingley, Haslingden. Tel.: 2Y. [2150

HUMBER, 3½h.p., 2-speed, free engine, handle starting, sidecar complete; a bargain, £25.—Cordingley, Haslingden. Tel.: 2Y. [2151

TRIUMPH, 3½h.p., 1908 standard, Mabon clutch, footboards, good machine; £20.—Cordingley, Haslingden. Tel.: 2Y. [2152

TRIUMPH, 3½h.p., lamp, horn, tools, etc., in good condition; accept £18.—Cordingley, Haslingden. Tel.: 2Y. [2153

PREMIER, 3½h.p., 1910 model, complete with lamp, generator, horn, tools, etc.; £25.—Cordingley, Haslingden. Tel.: 2Y. [2154

HOBART, 1912, 2¾h.p., fixed engine model, only done 1,600 miles, speedometer, lamp, etc., absolutely as brand new; clear for £25.—Cordingley, Haslingden. Tel., 2Y. [2155

1912 Rudge, 3½h.p., free engine model, complete, and just like new, bought this year; £35.—Cordingley, Haslingden. Tel.: 2Y. [2156

1911 3½h.p. Humber, 2-speed, F.E., and sidecar; clear, £27/10.—Cordingley, Haslingden. Tel.: 2Y. [2157

1912 Royal Enfield, 2¾h.p., 2-speed, free engine, Dunlops, good condition, lamp, horn; £25/10.—Thompson, 83, Anlaby Rd., Hull. [X2409

BRADBURY, T.T., very fast, specially built for trick rider, condition as new throughout; £32, no offers.—Evans, Radnor Place, Liverpool. [2491

CLYNO, 1913, brand new, 3-speed model, 3in. back tyre, interchangeable wheels, latest engine; £62 cost £75.—Potter, Leicester Grove, Leeds. [X2399

1913 B.S.A., belt drive, 2 speeds, never ridden, but simply shop-soiled; usual price £60, to clear £52/10.—Mead Motor Mart, Liverpool. [X2383

3½h.p. Triumph, 1910, 3-speed, good condition; £33, a bargain; seen by appointment.—The Motor Mart Co., Old Lancaster Rd., Morecambe. [2472

WE SAVE YOU £17.

We offer a new 1913 £52-10 machine for **£35-10**

Why pay the same price for a second-hand 1912 machine. If you wish to secure the biggest bargain ever offered, do so **NOW**, to-morrow may be too late. Easy payment terms are **£9 down and 12 monthly payments of £2-5.**

Read the following specification, and secure one of the biggest bargains ever offered.

NEW 1913 3¾ h.p. A.S.L.-PRECISION.

Fitted with 3¾ h.p. Precision engine, Bosch weatherproof magneto, Best and Lloyd dr.p feed lubricator, Hutchinson rubber-studded tyres, handle-bar control, and complete with stand, carrier, number-plates, toolbag, and spare spring. Limited number only. If you are a cash buyer we will

ALLOW A DISCOUNT.

We will take your present machine in exchange if required. We will supply 2-speed gear and free engine for **£6** extra. Don't miss this bargain.

OFFERS WANTED FOR THE FOLLOWING :

New 1913 3-speed 3¼ h.p. **HUMBER.**	
8 h.p. **BAT-J.A.P.,** P. and M. 2-speed	£35 10
3½ h.p. **REX,** 1909 model, magneto	£15 10
4 h.p. Twin **N.S.U.** on Rex frame, magneto	£13 10
3½ h.p. **PREMIER,** 1911½, B.S.A. 2-speed	£32 10
3¼ h.p. **HUMBER,** 1913, 3-speed model, done about 200 miles, complete with sidecar	£46 0
8 h.p. **G.W.K.** 1912 model, not much used	£98 0
3½ h.p. **REX,** 1908, 2-speed, sidecar	£18 10
3½ h.p. **A.S.L.,** brand new, 1913 model	£35 10
3¼ h.p. **PREMIER,** 1913 model, 3 speeds, only run 500 miles	£46 10
4 h.p. **ROC,** 2 speeds, handle-starting	£20 0
3½ h.p. **N.S.U.,** free engine, splendid order	£19 10
3¼ h.p. **QUADRANT,** 1908, magneto	£15 10
TWIN HUMBER, 1912 Lightweight, free engine	£29 10
2 h.p. **MOTOSACOCHE,** 1910, magneto	£13 10
3½ h.p. **REX,** 1910 model	£17 10
SCOTT, 1909, 2 speeds, nice condition	£19 10
MORGAN Runabout, 1912, screen, hood, side tool boxes, new 3in. tyre	£67 0
6 h.p. **TWIN REX,** magneto, H.B. control	£12 10
3½ h.p. **N.S.U.,** m.o.v.	£3 15
3½ h.p. **REX**	£4 15
6 h.p. **REX-J.A.P.** Sidette, nearly new	£49 10
3½ h.p. **TRIUMPH,** 1907 model	£18 10
8 h.p. **BAT-J.A.P.** 2 speeds, with £9 Sidecar	£39 10
3½ h.p. **REX,** m.o.v., low built	£7 15
2½ h.p. **MINERVA,** h.-b. control	£4 15
6 h.p. **CLYNO,** 1912, with Sidecar	£45 0
6 h.p. **REX,** 1909, 2 speeds, sidecar	£26 10
4 h.p. **ROC,** free engine, magneto	£14 10

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MISCELLANEOUS.

New N.S.U. 2-speed Gears, adjustable pulleys, for Bradburys, Rudges, Singers, 1910 and 1912 Triumphs. Cheap to clear.	
XL'All Pan Seat Saddle	18 6
Good rigid Sidecar	£2 17 6
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New Cane Sidecar Body, side door	£2 10 0
Triumph Free Engine, built into wheel	£2 10 0
Nearly new Binks Carburetter	£1 5 5
N.S.U. 2-speed Gear and Free Engine	£2 10 0
New Wicker Sidecar Body, side door	£1 9 6
Ditto, canoe front	19 6
Good Rigid Sidecar	£3 7 6
Nearly new Coronet Sidecar	£4 10 0
Bosch Magneto, suit Triumph	£2 2 6
N.S.U. forecar, cane body, less tyres	14 6
Triumph Pattern Handle-bars, 1in. stems	4 6
2-cylinder Plain Coil	5 6
Spray Carburetter, H.B. control	17 6
New Twin Bosch DAV Magneto 45°, 48°, and 50°	£2 19 6
New 1913 Armstrong Mark VI. 3-speed Gears. Delivery from stock. Trade supplied.	
Nearly-new Mark VI. 3-speed Gear	£3 15 0
New Coach-built Sidecar Body, side door	£3 10 0
New Mirror Lens Lamp and Generator	13 9

Removed to our new premises.

Booth's Motories,

Portland Place, Skircoat Road, HALIFAX.

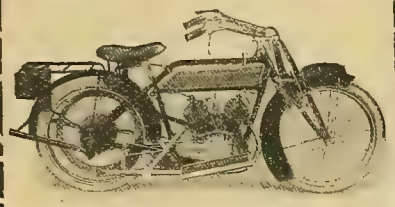
(opposite County Court.)

Telephone 1062.

THEY'RE OFF

This remark aptly applies to our stock of 1913 **REXES.** We are selling these much quicker than anticipated, and we know the supply will not last much longer. We make unprecedented exchange offers, and accept deferred terms free of extra charge.

1913 NOT 1912.



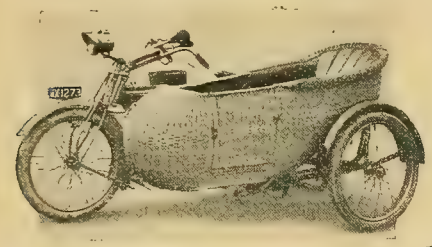
6 h.p. REX DE LUXE, complete with **Portland £13 13 0 Sidecar** (illustrated below), lamp, horn, registration, etc., ready to be ridden away and **fully guaranteed.**

£70 - 0 - 0

or, payable £17 10 0 deposit, and 12 monthly payments of 87/6 Exchanges arranged. Write for terms and discounts. 'Phone, call, or wire.

THE PORTLAND SIDECAR

ELEGANCE—STRENGTH—DURABILITY.
TYPE—LOUNGE.



THIRTEEN GUINEAS.
THE PRETTIEST SIDECARS MADE.
Lists of 15 Models post free.

SECOND-HAND BARGAINS.

ALL GUARANTEED.
Full Specification on Request.

1913 **GREEN-PRECISION,** 3½ h.p., water-cooled, 3 speeds, chain drive, as new.... **£45**
1912 **ZENITH,** 6 h.p., Canoelet Sidecar ... **£50**
1912 **MATCHLESS,** 8 h.p., free engine ... **£49**
1912 **MATCHLESS,** 6 h.p., T.T. model ... **£40**
1912 **REX,** 6.h.p. Portland Sidecar **£47**
1912 **BRADBURY,** 3½ h.p., 2-speed, Sidecar **£40**
1912 **BRADBURY,** 3½ h.p., Montgomery Sc. **£41**
1912 **DOUGLAS,** 2¾ h.p., 2 speeds, kick start **£42**
1912 **N.S.U.,** 3½ h.p., 2 speeds..... **£41**
1913 **REX** 6 h.p. Sidette, like new..... **£55**
1912 **REX,** 6 h.p., chain drive, Coach Sidecar **£46**
1911 **F.N.,** 2¼ h.p., 2 speeds, shaft drive... **£25**
1910 **V.S.,** 5-6 h.p., 2 speeds, spring forks.. **£26**
1910 **DOUGLAS,** 2¾ h.p., twin, magneto .. **£25**
1910 **ENFIELD,** 2¼ h.p. twin-cylinder **£20**
1909 **HUMBER,** 3½ h.p., 2 speeds, Sidecar **£24**
1909 **REX,** 6 h.p., 2 speeds, handle start .. **£26**
2¾ h.p. **DOUGLAS,** magneto..... **£18**
2 h.p. **MOTOSACOCHE,** magneto machine **£11**
5 h.p. **ALCYON,** spring forks, very fast.... **£13**
2¼ h.p. **KERRY,** magneto ignition **£12**
1¾ h.p. **N.S.U.,** magneto nice lightweight .. **£9**
5 h.p. **F.N.** Cycle Car, 2 speeds, 4 wheels.. **£40**
5 h.p. **REX,** twin, wants repairs **£9**
HUMBER CAR, 15 h.p., 3 speeds and reverse, magneto, gate change, five-seater, hood, screen, Stepney, speedometer, lamps, horn, etc., excellent order. Exchange motor cycle or combination .....Price **£52**
Deferred Payments, 5% extra.

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Grams: Abdicate, Wesdo, London. 'Phone: 552 Mayfar.

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TRIUMPH, 1912, free engine, Lucas lamp, horn, mirror, Kempshalls, spare belt, perfect, little used; £39.—Vernon House, Vernon Rd., Barnsley. [X2503

1913 4h.p. 3-speed L.M.C., decompressor, perfect, brand new, shop-soiled only; usual price £62, cash price £50.—Mead Motor Mart, Liverpool. [X2381

1913 3½h.p. Green-Precision, water-cooled Mead, 2-speed countershaft gear, kick starter, brand new, shop-soiled only; £50.—Mead Motor Mart, Liverpool. [X2382

PHELON and Moore, 3½h.p., 2-speed, chain drive, Bosch, automatic lubrication, grand order, particularly fine engine of this renowned make, does 40; £45.—Aireville House, Harrogate. [X1520

3½h.p. T.T. Mead-Precision, Brampton gear, special competition machine, winner 20 prizes, condition equal new; £30, or exchange, Douglas preferred.—Mogridge, 12, Crosby Green, West Derby, Liverpool. [X2459

6h.p. Zenith, racing and touring bars, Cowey speedometer, ordinary and racing, timings, winner six prizes hill-climbs this year, perfect condition; any examination; reason selling, buying 8h.p. Zenith; £50.—Bigland, Ulverston, Lancashire. [X2173

HAZELWOOD, 5-6h.p., mark VI. Armstrong 3-speed gear; this machine was bought specially to compete in the recent A.C.U. severe 6-day trial, in which it was awarded a gold medal; only ridden 2,000, guaranteed perfect; £50.—Blamire, Forshaw St., Barrow. [X2405

SALE of 1913 shop-soiled Zeniths, never been on road.—3½h.p., kick starter, listed £63, our price £50; 6h.p., kick starter, listed £78/15, our price £60; 6h.p., standard, listed £71/8, our price £55. There is one each only left, therefore get on the jump quick. No deferred or swaps entertained at these prices.—Hitchens, Ltd., Morecambe. [0334

NORTHERN Depot, Ltd., Everything Motorish, Leece St., Liverpool.—End of season sale. Few special clearance lines: Soiled F.R.S. back rests, 20/- each; Xl'all pan seat (new), £2/5; Xl'all saddles, shop-soiled, 17/6 and 21/6; F.R.S. lamp sets, 15% off list; oil silk coats (to clear), £1/5/6; Jones speedometer, almost new, £2/2; Millers ebony back lamp set (large), £1/17/6; Lucas ebony black horn, 21/-; demonstration 1h.p. auxiliary lightweight, £16/10; 2¾h.p. Douglas, £23; 1913 6h.p. Rex-Jap combination, £77; 1913 4h.p. Rex-Jap, clutch model, £48; exchange depot for D.A. cylinders; N.D.L. oilskin motor cycle suits, with leather belt, 30/6; sold elsewhere for 45/-. For special bargains see under Sidecars. [X1742

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

3½h.p. Triumph, new condition, bargain, £23; F.N., £6.—Ison, Green Lane, Bloxwich. [X2471

DOUGLAS, 1911, single-speed, in perfect condition; £18.—James Davies, Broseley, Salop. [X2397

1913 3h.p. Enfield, not run 500 miles, perfect condition; £38.—Thos. Booth, Frodsham. [X2444

1913 Dougals, model P, perfect condition; any trial £40.—Tagg, Ashfields, Newcastle-u.-Lyme. [X2403

ASCOT, 3½h.p., low built, h.b.c., B. and B. carburetter; £8.—Houlden, Winshill, Burton-on-Trent. [X2376

1913 Douglas, model P, with accessories, like new, perfect; nearest £40.—Lloyd, Midland Bank, Oswestry. [2483

1912 Premier 2½h.p. Motor Cycle, good condition; £19.—Cymro, 4,242, *The Motor Cycle* Offices, Coventry. [X2342

2½h.p. Rover, mag., B. and B. carb., in splendid condition throughout; bargain, £12/10.—H. Norgrove, 78, Wyle Cop, Shrewsbury. [2455

3½h.p. Triumph, 1910, clutch, decompressor, lamp, horn, tools, many spares, new condition, good tyres, splendid sidecar machine; £30, no offers.—Stoddard, Tunstall. [2468

SCOTT, 1913, engine No. 1610, Binks carburetter, specially fitted hand lever for gears; bought for lady, but too heavy; not ridden 300 miles; £50.—Tyler, Willenhall, Staffs. [X2335

MOTOR Cycles, Motor Cycles, Motor Cycles.—End of season clearance sale. A splendid opportunity to secure a bargain. We invite your inspection. No reasonable offer refused. Now's your time.

1913 A.S.L., 3½h.p. Precision engine, only done 200 miles; 1913 A.J.S., 2¾h.p., model B, 2-speed, etc.; 1913 Douglas, single speed model; 1913 T.T. Rudge (red), exceptionally hot stuff, special engine; 1913 3h.p. N.S.U., single-cyl., shop-soiled; 1912 B.S.A., 3½h.p., 2-speed, fine order, with sidecar; 1912 4h.p. 2-speed Singer, complete with sidecar; 1912 2½h.p. T.T. Singer, very fast; 1912 Bradbury, standard model; 1912 F.E. Rudge and sidecar, speedometer, lamps, etc.; 1912 T.T. Rudge Multi; 1912 3½h.p. Zenith Gradua; 1912 F.E. Rover; 1909 F.E. Triumph; 1909 standard Triumph; 1911 N.S.U., 3½h.p., 2-speed, and sidecar, etc.; 1910 Douglas, speedometer, and lamp, fine order throughout; Humberette, complete, latest brown model, only been used for trial runs.

ENQUIRIES from the Trade especially invited.—The North Wales Motor Exchange, Holt St., Wrexham. Tel.: 223. [X2412

THE BIGGEST AND MOST GENUINE SALE

in the Motor Cycle World is now proceeding at the "NO WORRY DEPOT."

MOTOR BICYCLES
(Highest Grade only),
ACCESSORIES,
TYRES, Etc.

GREAT REDUCTIONS.

SEND FOR LIST TO-DAY.

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"NO WORRY DEPOT"

52— & —62
Manningham Lane,

BRADFORD

£10-10-0

Ten guineas is all it costs to bring your mount up-to-date by the addition of the

1913½ ROC REVERZ

SIDECAR PATTERN

Two-speed Gear.

(6 Days' World's Sidecar Record type)

The 1913½ big clutch type has been designed expressly for passenger work.

It solves all gear worries and guarantees you satisfaction.

The 1913 Roc gear was already recognised the last word in motor cycle gears for solo use.

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No better investment for the money is possible than in this 1913½ Roc dependable gear, fitted complete for ten guineas.

Write for particulars, stating make and h.p. of your machine.

No delay in delivery.

ROC GEAR Co.,

HAYMILLS, BIRMINGHAM.

London : Robertson's, 157, Gt. Portland St., W

MOTOR BICYCLES FOR SALE.

DOUGLAS, 1911, Dunlop tyres and belt, in splendid running condition; £22/10.—Apply, Charles, 17, Meriden St., Coventry. [X2562

DOUGLAS, 1911, just overhauled, lamp, horn, tools, spares, tyres nearly new; £25.—North, 80, Monk's Park Rd., Northampton. [X2171

3½h.p. Rover Motor Cycle, 1912, first-class condition, £37 10; also Canoelet car.—Price, Huzlemere, Queenswood Rd., Moseley. [X2352

TRIUMPH, 3½h.p., thoroughly overhauled, complete with accessories; offers invited.—Motorist, 52, Gregory Boulevard, Nottingham. [X2351

MOTOR Cycle, 3½h.p. Rex, late 1911, Bosch mag., spring forks, splendid order; bargain, £19/10.—56, Sutton St., Aston, Birmingham. [X2478

AUTO-WHEELING Revolutionises Cycling.—Opportunity of quick delivery of Auto-Wheels.—A. W. Wall, Ltd., Hay Mills, Birmingham. [0360

1913 3½h.p., everything new and of the best, except engine; no appointment necessary for trial; £27.—Electric Supply, Wellingborough. [X2442

2h.p. Humber, nearly new cylinder, piston, bearings, tyre and belt, whole perfect condition; £18.—Colomb, Fairleigh, Warwick Rd., Kenilworth. [X2346

1910 Free Engine Triumph, new tyres and belt, Cowey speedometer, 1913 piston and cylinder, F.R.S. lamp; price £28.—Bull, Weaver's Arms, Nuneaton. [X2505

£6.—3h.p. Rover, low, fast, h.b.c., spring forks, good Michelins, new pulley, accumulator and belt, overhauled, re-bushed, guaranteed.—R. Chappell, Sketchley, Hinckley. [X2389

MOTOSACOCHE, 2h.p., new Bosch, new cover and tube, stand, jockey pulley, good condition; £13, near offer; a bargain.—Cherry, 3, Bullring Terrace, Coton, Nuneaton. [X2375

ZENITH, 3½h.p., never used, 46 gns.; Rudge, T.T., ditto, £40; Triumph, F.E., new April last, £44; offers; several second-hand motors cheap.—Midland Cycle Co., Coalville, Leicester. [X1880

BAT-J.A.P., 8h.p., late 1910, T.T. model, new tyres, speedometer, spares, perfect condition; genuine bargain, £35; photo and specification free.—Preston, Stoneygate Av., Leicester. [2541

TRIUMPH, F.E., 1911, with 1912 and 1913 improvements, speedometer, horn, lamp, and many spares, in good condition; £30, or nearest offer.—Pain, 44, Russell Terrace, Leamington. [X2555

TRIUMPHS, latest 1913 3-speed, free engine, and T.T. roadster models in stock for immediate delivery; cash, exchanges, or easy payments. — Premier Motor Co., Ltd., Aston Rd., Birmingham. [0340

P. and M., latest 1913 model, lamp and horn, Kempshall tyres, unpunctured, sidecar gear ratios, new 2 months ago, and in absolutely perfect condition; £57/10.—M. Sampson, 17, Grosvenor Rd., Coventry. [X723

B.S.A., 1913 model, 2 speeds, kick start, running boards, very fine condition, used for one month only, £43; 2h.p. 1913 Humber lightweight, fully equipped, in fine condition, £22.—Baines, Garage, Oakham. [X1615

1910 Standard Triumph, first-class order, tyres, enamelling, and plating very good, new lamp, horn, decompressor, belt, and spare tube, and numerous spares; a bargain, £26.—Mason, Midland Rd., Wellingboro'. [2546

1913 Bradbury, 3-speed gear, £49; 1913 2½h.p. T.T. Premier, run 600 miles, £27/10; 1911 Indian, 7h.p., new 1913 clutch, new tyres, £38/10; 1911 Humber, 2-speed, in very good order, £22/10; 1911 Humber lightweight, good condition, £17.—Jas. Plastow, Osborne St., Grimsby. [X2350

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

1912 Ariel, variable gear, decompressor, good tyres; £28.—Robinson's, Green St., Cambridge. [2600

1910 Triumph, free engine, good condition; £25.—Robinson's, Green St., Cambridge. [2601

T.T. B.S.A., 1912, 3½h.p., tyres and engine very good; £30.—Robinson's, Green St., Cambridge. [2602

CLYNO, 1912, 6h.p. twin, 2-speed, good tyres; £42.—Robinson's, Green St., Cambridge. [2603

SCOTT, 1911, complete, new inside to engine; £27/10.—Robinson's, Green St., Cambridge. [2604

MATCHLESS, 1910, 3½h.p., single-cyl., good condition; £19.—Robinson's, Green St., Cambridge. [2605

BARGAIN, £8.—2¾h.p. motor cycle, low, fast, good condition.—13, Broad St., King's Lynn. [X2261

3½h.p. Rex, Amac carburetter, tyres good, new front, good running order; £5/10.—Giles, Stoke Ferry, Norfolk. [2487

8h.p. 2-speed Matchless, 50 gns.; also several other machines with sidecars; cash offers invited.—Young, Newmarket. [2225

1913 Scott, run 250 miles, equal to new, lamp, horn, genuine bargain, £55/10; approval willingly, deposit.—Mitson, Mabille House, Newmarket. [2506

3½h.p. Brown, good running order, overhauled, tyres good, new belt, etc., £8; also sidecar, 50/.—Creese, Garboldisham, Norfolk. [X2269

COLLIER'S

Westgate, HALIFAX, England.

New Machines with Makers' Guarantee.

1913 W.C. **WILLIAMSON** and Sidecar ..	£98 10
1913 W.C. **WILLIAMSON**	£82 10
1913 4 h.p. **REX** de Luxe, chain drive ...	£61 5
1913 6 h.p. **REX** de Luxe, chain drive	£67 15
1913 6 h.p. **REX** Sidette, coach-built	£77 2
1912 4 h.p. Tourist, 84½ × 95, reduced to	£34 0
1912 6 h p Twin **REX**, 77½ × 95	£39 10
1912 6 h.p. **REX** de Luxe, reduced to	£53 0

SECOND-HAND MACHINES.

3½ h.p. **P. & M.** and £16 16s. Sidecar	£45 0
BRADBURY, 2-speed, chain drive, as new	£49 10
RUDGE Multi, 1912, and Sidecar	£47 10
1912 4 h.p. Tourist **REX,** trials only	£31 10
1912 **RUDGE** Multi	£41 10
1912 2-speed Twin **CLYNO**	£42 10
REX, 1913, 6 h.p., 2-speed, done 200 miles	£43 10
ROVER, 1911, clutch model; cost £55 ..	£29 10
JAMES, 1910, 3½ h.p., magneto	£16 10
REX, 5 h.p., 1909, 2-speed, de luxe	£26 10
P. & M., 3½ h.p., 2-speed	£17 10
CLYNO, 1912, and special cane Sidecar ..	£49 10
SINGER, 1911, magneto, lightweight	£19 19
REX, 1913, 4 h.p., 2-speed, de luxe, chain drive, nearly new	£49 10
REX, 1911, 2-speed, twin de luxe	£36 10
MOTOSACOCHE, Lightweight	£15 10
1911 Twin **REX** Sidette, chain drive	£45 0
1912 Twin **REX** de Luxe, and new Sidecar	£45 0
F.N. Lightweight	£9 10
N.S.U., 5½ h.p., Twin, spring forks	£22 10
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31 10
QUADRANT, 3½ h.p., very low	£17 10
2¾ h.p. 3-speed **GENTAUR,** as new	£35 10
5½ h.p. Magneto Twin **REX**	£19 19
N.S.U., 1911, 3 h.p., 2-speed	£29 10
N.S.U., 5½ h.p., twin, 2-speed	£27 10
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31 0
REX, 3½ h.p., spring forks	£12 10
F.N., Lightweight, battery ignition	£9 10
REX, 3½ h.p., magneto, 1910	£24 10
REX, 3½ h.p., magneto, 1909	£22 10
REX, 1912, 4 h.p., only used 100 miles ..	£31 10
REX, 1908, 2-speed, twin, and Sidecar ..	£19 10
3½ h.p. **ARIEL,** 1911, runs well	£25 0
3 h.p. **HUMBER,** chain drive	£8 10
3½ h.p. **REX,** spring forks	£12 10
3½ h.p. Light Low **REX,** specially good ..	£10 10
3½-4 h.p. Twin **WERNER,** new tyres	£12 10
4½ h.p. Twin **MINERVA**	£15 10
MOTOSACOCHE, 1911, M.O.V.	£19 10
REX, 5½ h.p., twin, spring forks	£15 10
J.A.P., 6 h.p., M.O.V., free engine	£34 10
MOTO-REVE, twin, lightweight, runs well	£15 10
BRADBURY, 1912, 3-speed Sturmey	£47 10
QUADRANT, 1912, free engine	£35 10
MINERVA, 2 h.p., magneto	£11 0
WERNER, Twin Lightweight	£12 10
REX, 3½ h.p., magneto, spring forks, 1908	£19 10
REX, 3½ h.p., light and low	£10 10
N.S.U., 3½ h.p., magneto	£17 10
3½ h.p. 2-speed Twin **REX**	£22 10
3½ h.p. 3-speed **SINGER,** Druids	£34 10
3½ h.p. 1912 3-speed **BRADBURY**	£45 10
5 h.p. Twin Magneto **PEUGEOT**	£17 10
3½ h.p. 2-speed **HUMBER** and new Sidecar	£23 10
5-6 h.p. Twin **J.A.P.,** magneto, spring forks	£29 10
3½ h.p. Magneto **SIMMS**	£16 10
1911-12 3½ h.p. 2-speed **REX** and Sidecar	£36 10
3½ h.p. 2-speed **PEUGEOT**	£16 10
5 h.p. **V.S.,** torpedo tank	£17 10
6 h.p. **BAT-J.A.P.,** spring forks	£29 10
5 h.p. 2-speed **QUADRANT** Carette	£7 15
4-cylinder 2-seater **WOLSELEY** Car	£17 15
26 × 2¼ Wheel with Mark VI. Armstrong gear	£7 12 6
Wicker Sidecar, well upholstered	£3 5 0
Wicker Sidecar, new, with tyre	£4 7 6
Armstrong 3-sp. Gear, II., £5 10. III.	£6 2 6

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Easy Payments or Exchanges quoted.

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SHOP-SOILED MOTORCYCLES

1913 **ALCYON,** 2½ h.p. £32
1913 **ALCYON,** 3½ h.p. £36
1913 **EDMUND-J.A.P.,** 4 h.p., spring frame £42
1913 **ZENITH-GREEN,** water-cooled £54
1913 **WILLIAMSON,** water-cooled £75

SHOP-SOILED SIDECARS.

MONTGOMERY No. 5, Edinburgh body £14 0
MONTGOMERY No. 7, Exeter body, hood, screen £17 10
MONTGOMERY standard £6 15
MILLFORD Corvette, storm apron, mat, and luggage board £11 10
MILLFORD spring wheel No. 4 chair £11 0
MILLFORD rigid No. 4 chair £9 0
MILLFORD rigid No. 14 chair £11 0
MILLFORD rigid No. 3 chair £10 10
BRAMBLE No. 6 ..... £10 15

SECOND-HAND MOTOR CYCLES.

1427. 1913 **RUDGE** Multi, 5 h.p., scarcely used £52
1435. 1913 **DOUGLAS** Model S, one week old £46
1441. 1913 **NEW HUDSON,** 2¾ h.p., 3-speed, practically unused £38
1444. 1913 **DOUGLAS,** Model P, nearly new £42
1446. 1913 **LEA FRANCIS-J.A.P.,** 3½ h.p., chain drive, F.R.S. lamp, generator, horn, tools, and spares £52
1327. 1912 **BRADBURY,** 3½ h.p. £35
1342. 1912 **ZENITH,** 6 h.p. £48
1283. 1912 **ZENITH,** 3½ h.p. £38
1285. 1912 **CLYNO,** 6 h.p., 2-speed £46
1338. 1912 **BRADBURY,** free engine £36
1362. 1912 **RUDGE,** free engine £35
1395. 1912 **J.A.P.-CHATER,** 6 h.p., free engine, and Sidecar with child's seat £42
1406. 1912 **A.J.S.,** 6 h.p., with a lot of accessories .. £55
1412. 1912 **HOBART,** 2¼ h.p. £22
1426. 1912-13 **F.N.,** 4-cylinder, 2-speed £36
1428. 1912 **TRIUMPH,** free engine, Cowey, etc. £39
1430. 1912 **F.N.,** 4-cylinder, 2-speed, and cane Sidecar £45
1432. 1912 **NEW HUDSON,** 2¾ h.p., 3-speed £35
1433. 1912 **REGAL-PRECISION,** 4¼ h.p., 2-speed, and Sidecar £34
1436. 1912 **MATCHLESS,** 6 h.p., 2-speed, twin belt, Turner Sidecar, and numerous accessories £68
1332. 1911 **ZENITH,** 6 h.p. £42
1439. 1911 **F.N.,** 4-cylinder, 2-speed, and racy coach-built Sidecar £34
1442. 1911 **TRIUMPH,** 3½ h.p. £28
1282. **BROUGH,** 5 h.p., twin cylinder £25

SECOND-HAND CYCLE CAR.

1913 **WALL TRICARRIAGE,** 5 h.p., 2-speed, shaft drive, speedometer, watch, horn, hood, luggage carrier, acetylene side lights, tail lamp and full kit of tools. Guaranteed in perfect order £75

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157, GREAT PORTLAND STREET, W

MOTOR BICYCLES FOR SALE.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SCOTT Motor Cycle, king of the road; bargain, £29.—2, Albany Rd., Cardiff. [X2300

DOUGLAS, 2¾h.p., 1910 running well; £19/10.—Sibbitt, 8, Grange St., Port Talbot. [2576

TRIUMPH, 1912, clutch, new last April; £40.—Evans, Alicia, Aberarth, Cardiganshire. [X2396

1913 3½h.p. Premier, 2-speed, countershaft, splendid condition, 60/- lamp, horn, etc.; £44.—Richards, 11, Dumfries Place, Cardiff. [X2420

1912 Precision, 3½h.p., Armstrong 3-speed, Kempshall back, efficient silencer; £38, or with Montgomery sidecar, £44; no offers. — Paget, Blackwell Bromsgrove. [X1895

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

SCOTT, latest 1913 model, brand new; £58, great bargain.—Ginger, Motors, Banbury. [X1884

KERRY, 2¾h.p., recently overhauled, new tyres and belt; £7/10.—Cook's Garage, Devizes. [X925

3h.p. Fafnir, B.B. carburetter, good tyres, very fast; £12.—Moss, Binfield Rd., Bracknell, Berks. [2502

MATCHLESS, 1913 models for immediate delivery.—Sole Oxfordshire agents, The Morris Garage, Oxford. [0313

PHELON and Moore, 1913 models for immediate delivery.—Sole district agent, The Morris Garages, Oxford. [0203

P. and M., 1913, good condition, little used; £55, nearest offer. — Baines, 65, Whiteladies Rd., Bristol. [2598

1913 3½h.p. Twin Matchless, brand new, just delivered; list £63, accept £58.—Balfour, Market Place, Banbury. [X2441

HUMBER, late 1912, 2h.p., very good condition, new Dunlop back; bargain, £18.—Court, North Hall, Basingstoke. [2456

TRIUMPH, 1908, splendid condition, new tyres, belt, lamp, generator, horn, overalls; £20. — Doxey Milner, Tewkesbury. [2657

PREMIER, 1912½, standard, excellent condition, complete with spare new Dunlop belt; £35.—Hill Granby House, Bletchley. [X1885

PRECISION, 3¾h.p., A.S.L. frame, 1912, exceptionally comfortable; £30, or with sidecar.—Curtis Garden Suburb, Dursley. [X1883

LAYTONS.—Triumph, 1911¾, clutch model, excellent condition, complete with lamp, horn, etc.; £31.—Laytons, Bicester, Oxon. [X2509

LAYTONS.—Premier, 1912, 2½h.p., 3-speed, free engine, very nice order; bargain, £25.—Laytons, Bicester, Oxon. [X2510

LAYTONS.—Zenith, 3½h.p., 1913 model, really worth buying, complete with lamp, horn, etc.; £43.—Laytons, Bicester, Oxon. [X2511

LAYTONS.—Zenith, 6h.p., 1913, complete with lamp, horn, speed indicator, etc.; £57.—Laytons, Bicester, Oxon. [X2512

LAYTONS.—Triumph, 1913, 3-speed model, shop-soiled only; £51, catalogue price £59/15.—Laytons, Bicester, Oxon. [X2513

LAYTONS.—Scott, 1913, slightly shop-soiled; £60.—Laytons, Bicester, Oxon. [X2514

LAYTONS.—Douglas, 1913, model O, shop-soiled only; £42, catalogue price £48.—Laytons, Bicester. [X2515

1913 Douglas, 2-speed, kick starter, speedometer, lamp, horn, etc.; £45, no offer.—Linington, 19, Junction Rd., Southsea. [2622

RUDGE Multi. — Deliveries from stock; trial runs given; exchanges entertained; trade supplied.—Official agent, Barnes, Slough. [9139

HARTWELLS' Garage, Chipping Norton. — Triumph and Douglas agents; also agents for Swift cycle car for Banbury, Burford, and Chipping Norton.

TRIUMPH, 3-speed, 3½h.p., free engine, clutch; in stock; £59/15.—Hartwells'.

DOUGLAS model O, £48; in stock model R, £52.—Hartwells'.

ENFIELD Autolette in stock, £138.—Oxfordshire agents, Hartwells'.

TRIUMPH, 1912, free engine, in fine order throughout, new 1in. Dunlop belt, lamp, horn, and tools; £39.—Hartwells'. [1786

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

TRIUMPH, 1913, 3½h.p., 3-speed, delivered in May, absolutely as new. Lucas horn, Cowey speedometer, Brooks luggage carrier, leather belt and tube case, spare belt, tube, valve, etc., and 3 suits of overalls; cost £76, take £47; owner buying car.—Hedgeland, 6, Cripley Rd., Oxford. [2646

HUNTS LTD.,

The City & West End Motor House,

117, Long Acre, London, W.C.

GREAT ANNUAL SALE

For 28 days. **Commencing Oct. 1st.**

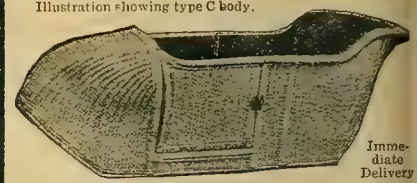
THE HUNT "MODEL DE LUXE" SIDECAR.

Carr. Extra.

CHASSIS—Fitted with quick detachable joints for attaching to motor cycle; these allow the wheel to keep in line with the wheel of the motor cycle. C springs, with latest shackle attachment—giving a low position. Standard 26 x 2½ tyre. Width detached, 38in. BODY—Handsome art cane, luxuriously upholstered in dark green Pegamoid. Side entrance door. Roomy, light and comfortable. Complete with cushion, mat, spanner and storm apron. Sale Price **£10**, Body only £3 19s. 6d.

The Hunt "Model de Luxe" Sidecar Body,
the acme of comfort and perfection—strength combined with lightness.

Illustration showing type C body.



Immediate Delivery

Closely woven art cane body. Side entrance door. Upholstered in dark green Pegamoid. Lined inside to exclude draught. Sale price, **£4 10s.**, usual price £6 6s. Carr. Extra.

THE HUNT BROOKLANDS OUTFIT.

Coat—manufactured of double texture fawn Paramatta, storm collar, throat tab, storm sleeves, two outside pockets with flaps, ventilated under arms, proofing guaranteed. Stock sizes: Coat, length, 36in., chest 40, 42, 44in. (size taken over coat).

Leggings to match the above, fitted with straps for attaching to brace buttons, spat feet, patent press buttons at side. Stocked in two sizes, *i.e.*—
Men's No. 1 length over all 31in., length inside leg 28in.
Men's No. 2, length over all 33in., length inside leg 29in.

Sale Price, quality A1—

Coat single-breasted..	18 6
,, doubted-breasted	24 6
Leggings .... per pair	9 6

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CASS'S.—Trump-Japs, 1913, special bargain, 6h.p., 3-speed, kick starter, decompressor, best frame market; 60 gns., list £69/10.

CASS'S.—Triumph, 1912, F.E., and accessories, good condition; £40.

CASS'S.—Indian and sidecar, 1912, 2-speed, and accessories; £58.

CASS'S.—Quadrant, 1912, 4½h.p., 3-speed Armstrong, climb anything, list price £59/10, bargain, £49/10; second-hand ditto, £38.

CASS'S.—F.N., 1912, as new, 5-6h.p., clutch model; special sale price £38; also 1910 model, £22.

CASS'S.—All makes, new and second-hand, motor cycles and cycle cars supplied, sidecars, tyres, accessories; deferred payments.—Cass's Motor Mart, 5, Green St., Euston Rd., W. (opposite Tube Station, L. 3624 Mayfair. [2664

CURLIN and Co.—Grandex Precision, 4h.p., 2 speeds, free engine, complete with sidecar, 1912; £36.—Curlin and Co., 295, Mare St., Hackney. [1898

DOUGLAS, 1913½, 2-speed, Amac, almost new, speedometer, watch, etc., spares, insurance; £43, offer, bargain.—77, Amhurst Park, N. [2575

E.S.A., 1911½, 3½h.p., free engine, Jones speedometer, lamp, generator, etc., perfect condition throughout; £35.—Sardals, 59, Aytoun Rd., Brixton. [2653

ELON and Moore, 1912½, 3½h.p., 2 speeds, kick starter, speedometer, all accessories; £47; exchange.—Hammond, 112, Leverson St., Streatham. [2544

FOTOSACOCHE, 1911¾, 2½h.p., mag., free engine, very little used, perfect condition; 18.—White, 11, The Grove, Blackheath, S.E. [2630

G.S.U., 3½h.p., B. and B., tyres good, new front and tube, lamp, horn, tools, spares, excellent condition; 6.—14, Dickinson Rd., Crouch Hill, London, N. [2531

GRIUMPH, late 1911, nearly new condition, lamp (Autoclipse), horn, tools, lot of spares, etc.; sacrifice £33, bargain.—51, High St., Tunbridge Wells. [X2349

FOTOSACOCHE, Bosch mag., Druids, Palmer tyres, excellent condition throughout; £9/15 west.—Morgan, 60, Kingscourt Rd., Streatham, S.W. [2628

GENUINE Bargains can be obtained for cash or easy payments from Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [0326

h.p. F.E. Lincoln-Elk, done 200; too fast for owner; £34, or offer; would exchange for 2½h.p. machine.—Garage, 228, Stanstead Rd., Forest Hill, London. [2599

1h.p. Premier, late 1911, just overhauled makers, 2 new cylinder, etc., new Dunlops, new Lyso belt, 7; light sidecar, £3.—T., White House, Hemel Hempstead. [X2305

912 3½h.p. Rover, late model, been little used, good tyres, and belt in new condition all round; £27 cash.—Wallis, High Street, Saffron Walden. [X2526

910 Chater-Lea, 2¾h.p. J.A.P., 1912 B. and B., Bosch, automatic lubrication, tools; full particulars; £16, or offers.—J. Paine, 5, Roxborough Park, Harrow. [2627

-6h.p. Rex Speed King, Bosch, B. and B., Whittle, fine condition, very fast and reliable; £21, or offer.—D. Weeden, 26, Queen's Av., Muswell Hill, N. [2636

h.p. J.A.P., special competition engine, complete mag., carburetter, silencer, perfect condition; any examination; best offer over £15.—Vivian Olsson, Farm Cottage, Oxted. [X2307

JUMBER, 3½h.p., 2-speed, free, Bosch, B. and B., Dunlop tyres, belt, handle start, lamp, horn, tools, splendid condition; £20; must sell.—Wright, 133, Clonmell Rd., Tottenham. [X1890

DOUGLAS, 1913, model P, just arrived from the works; immediate delivery; £48; exchanges; lowest terms.—Wilkins, Simpson and Co., 11 Hammersmith Rd., London. [2517

INDIAN, 1911, red, 5-6h.p., free engine, clutch, Brooks saddle, good condition; a bargain, £25/10.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [2518

D. and M., bought October 1912, new Kempshall tyre back wheel, splendid condition, like new; £44.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [2520

ZENITH, 6h.p., 1913, Gradua gear, kick starter and clutch; useful price £78 15, slightly shop-soiled.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [2510

912 Rudge Multi, in quite new condition, tyres and belt very good, gear perfect; cash £35, or exchange 1913 2-speed Douglas.—Beechwood, Borough Green, Saffron Walden. [X2527

913 New Hudson, 2½h.p., J.A.P., Armstrong 3 speed gear, Dunlops, Bosch, B. and B., only ridden 50 miles, as new; £40; any time.—12, Loughboro' Rd., Brixton. [2637

TRIUMPH 3-speed, Bradbury 3-speed, Matchless Gradua 6h.p.; big reduction; New Hudson, 1912, 3½h.p., 3-speed, listed 47 gns., accept £37; Humberette, all on £115.—Morriss and Co., 139, Finchley Rd., N.W. [2476

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Taylor's Competition Lamp Sets, lamp-bracket and generator complete, new	25/-	19/6
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Taylor's P. & H. Lamp and Bracket only, genuine Mangin lens, to fit on handle-bar stem	21/-	17/6
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Leather Tool Rolls, with flaps and sliding strap to hold tools separately, size 24×12in.	6/3	4/9
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'Phone—10987 Central.

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19 12½ 2h.p. Humber, as new, £20; 1911 3½h.p. T.T. Rex, fast, and powerful, £17 10; 1912½ 2¾h.p. Humber, 3-speed, free engine, as new, £30.—G. J. McIntosh, 68a, Delancey St., N.W. [2647

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled and are in perfect order.—Can be seen at above address. [0131

2¾h.p. Minerva throughout, Bosch, B. and B., Palmer tyres, rebored, new pistons and rings by makers recently, new belt, N.A.B.; a bargain, 12 gns.—A., 14, Links Rd., Tooting Junction, S.W. [2497

3½h.p. Rudge Multi, 1912½, just overhauled Rudge works, absolutely new magneto, back tyre and belt, Dunlop, 1913 Sunspray, thorough going order; £40, bargain.—Harriss, Albert Rd., Belvedere. [2458

3½h.p. Werner, low spring forks, 26×2¼ Continental and Dunlop, ⅞in. Dermatine belt, splendid condition throughout, new coil, all accessories, trial; bargain £7/15.—45, Charles St., Commercial Rd., E. [X2538

DOUGLAS, model R, 2-speed gear, free engine clutch, with kick starting pedal, footboards, and new model mudguards, just arrived from works; £52, cash, or lowest easy payments.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [2512

WOLF, 2¼h.p., 1914 model, just arrived; look at the price, 24 gns.; a marvel. Call or write for particulars. Immediate delivery at present.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [2514

DOUGLAS, 1913, T.T. model, 2-speed, April 30th, perfect condition, Jones speedometer, Solar lamp, generator, horn, spare belt, tube, spare chain, tools, etc.; £40.—Grimaldi, 5, Hillside Mansions, Jackson's Lane, Highgate. [2625

WE Have a Few Shop-soiled and other Machines which have been used for competition purposes, to be sold at bargain prices. Write for particulars, or call and inspect.—N.S.U. Motor Co., Ltd., 186, Gt. Portland St., London, W. [0361

ROVER, 3½h.p., F.E., Sturmey-Archer 3-speed gear, delivered June, 1912, Lucas lamp and horn, Cowey speedometer, practically new front Dunlop tyre (only run 10 miles); may be seen by appointment; £44.—P. W. Johnson, Kirk Braddon, Croydon Rd., Beckenham, Kent. [7500

TRIUMPH, 1913, free engine, Jones trip speedometer, 1,000ft. F.R.S. lamp set, horn, spares, full insurance policy until February, 1914; lot cost over £68; condition as new; 45 gns.; appointment.—Watson, 451, Archway Rd., Highgate. Tel.: London Wall 8220. [X2378

TRIUMPH, June, 1913, 3-speed Sturmey, 795 miles only, unscratched, practically new, lamp, speedometer, Clincher Luxe tyres (unpunctured), many accessories; cost £70, accept £48, offers ignored.—Yates, Stables, 5, Hampton Place, Brighton. [2616

TRIUMPH, 1912, free engine, absolutely new condition, fitted Philipson pulley, handle-bar mag., Kempshall tyres (excellent), 1in. Dunlop and new Pedley belts, horn, all tools and spares; £39, with ordinary pulley £37.—Wright, Aycott, The Avenue, Coulsdon, Surrey [2679

NEW Shop-soiled Machines at big reductions; Douglas, Enfields, James, Triumphs, Rudges, B.S.A.'s, Singers, New Hudsons, Williamsons, Zeniths, at keen cash prices, or very liberal deferred payments. Give us a chance to quote you.—Lamb's, 151, High St., Walthamstow. [2426

19 12 Triumph, first-class condition throughout, Lucas lamp, 2 horns, speed indicator, new spare tube and case, knee pads, Kempshall heavy non-skids just fitted, all accessories, very fast; £46, spot cash, no offers; can be seen by appointment; owner buying Indian.—Apply, French and Thurlow, Uckfield. [2471

19 13 Mead-Precision, 3½h.p., 3-speed Armstrong, speedometer, lamp, horn, tools, run 200 miles, £40; 1912 Bradbury, standard, lamp and horn, £27; 1912 Calcott 2½h.p. lightweight, £18; 1911 2½h.p. Motosacoche, free engine, £14; 1911 2¾h.p. Campion, twin, £15; 1911 Kerry, 3½h.p., perfect, £22.—Batchelor and Co., Clarence St., Kingston-on-Thames. [X2532

MESSRS. PALMER and Kitson, South Eastern Garage, Herne Hill, London, S.E., guarantee all the following machines to be in running order: 3½h.p. 1912 Zenith-Gradua, £36; 5h.p. 1911 F.N., £24; 2¼h.p. Clement, £9; 1910 Douglas, £17; 1912 2½h.p. Calcott, £26; 1911 6h.p. 2-speed N.S.U., £32; 2½h.p. Kerry, £9; 2½h.p. 1911 Motosacoche, £21; 3h.p. 1908 N.S.U., mag., £12; 4h.p. 1909½ Roc, 2-speed, sidecar, £22; 3½h.p. Kerry-Abingdon, 2-speed, sidecar, £32; 1909 Triumph, £23; 1912 Triumph, F.E., £42; 1913 Triumph, F.E., £47; 1913 Williamson, 2-speed, sidecar, £68; 4½h.p. Antoine tricar, 2 speeds, £15.

ACCESSORIES.—New: Mabon clutch, £2; exhaust whistles, 5/-; watches, 4/9; Triumph pattern bars, all 5 controls, 20/-; goggles, 2/3 and 3/-. Second-hand: Veeder, 7/6; Miller lamp and generator, 25/-; 3h.p. Quadrant engine, £3. Heaps of other goods, new and second-hand. Write for lists.—P. and K., as above. [2457

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

BSA., 1912 3½h.p., 3-speed, Armstrong Mark VI; £33.—Manfield, Wooth, Bridport. [2504

BSA., 1911, 2-speed, free, back front tyres new, splendid condition, accessories; £38.—Moon, Lizard. [X2355

MOTOR BICYCLES FOR SALE.

SINGER, 1911, 2½h.p., perfect order; £15. — Box 4,247, *The Motor Cycle* Offices, Coventry. [X2541

3½h.p. (C. and H.) Blumfield 1912, good condition, all accessories; £24.—Seymour, Daniel Rd., Truro. [2574

1912¾ T.T. Douglas, new tyres, belt, accessories, splendid condition; £37.—Percy Gilley, Aylwood, Torquay. [2580

HUMBER, 1911, 3½h.p., guaranteed perfect, lamp, tools, etc.; £29.—Gould, Galton, Warmwell, Dorchester. [2559

ARIELS, 1913, the success of the season, from £47.10; order now; early delivery.—Moon Bros., Duke St., Plymouth. [1926

REX de Luxe, 5-6h.p., very powerful, late 1910, recently overhauled, and in splendid running condition; £25.—17, Penventon Terrace, Redruth, Cornwall. [2495

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1912 Singer, 3½h.p., Bosch mag., B.B., Lucas lamp, horn, new tin. Dunlop, good climber, splendid condition; £28.—31, Warbro' Rd., St. Mary Church, Torquay. [X2294

ROVER, 1912, 3½h.p., 3-speed, run 1,100 miles only, condition almost perfect; cost with accessories £65, cash £45, lowest.—R., Aysgarth, Alexandra Rd., Weymouth. [X2498

ROC, 4h.p., 2 speeds, free engine, Bosch, Whittle, Palmer cord back, Continental front, butt-ended tubes, excellent condition throughout; trial; £17; bought cycle car.—Corben, Easton, Portland. [2562

SECTION X.

Scotland.

DOUGLAS, 1913, Model R, as new; £42. Dall, Ladybank, Fife. [2624

DOUGLAS, 1910, new 1911 engine fitted by makers last April, new Brooks saddle, minor improvements, spare Whittle and valves; £23, or nearest. — Moyes, Crichton, Dumfries. [X2169

ABERDEEN and District Agent for Scott, Levis, P. and M., A.J.S., Matchless, and Sun, also Premier cycle car; any other make supplied.—George Cumming, 165, Holburn St. [9406

DOUGLAS, Douglas, Douglas.—The king of lightweight motor cycles; immediate delivery from stock of all models; Scottish trade supplied.—Alexander and Co., 115, Lothian, Edinburgh. [X9870

2¼h.p. T.T. Indian, 2-speed gear, used for competitions only, in splendid condition, very special engine; this identical machine won 1911 T.T. race, and was third in 1913 T.T.; a special chance at £39.—Alexander's, 115, Lothian Rd., Edinburgh. [X2289

3½h.p. T.T. Zenith Gradua, with special 90×77½ engine, used for competitions only, and winner of many events, good as new; £38.—Alexander's, 115, Lothian Rd., Edinburgh. [X2290

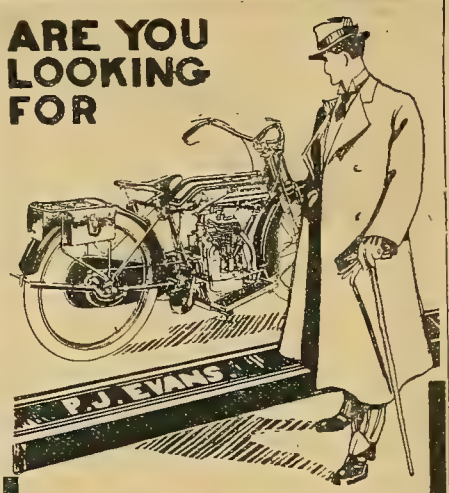
END of Season Sale.—Great reductions in new 1913 shop-soiled models. Send for list and save pounds sterling by buying now.—Alexander's, 115, Lothian Rd., Edinburgh, and 272, Great Western Rd., Glasgow. [X2291

SECTION XI.

Ireland and Isle of Man.

LEVIS, 2¼h.p., 1913, only done 1,200 miles, excellent condition, with new Dunlop back cover, and butt-ended tube; will deliver any part England; £30.—R. F. Dodd, Castletown, Isle of Man. [X2178

FOR Sale, 1912 Motosacoche, perfect, £15; wanted, change speed gears (2, 3, or variable), for Rex, Triumph, N.S.U., Motosacoche; magneto bar control; cheap, cash.—Particulars, Coon, Letterkenny. [2481



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MATCHLESS, 8 h.p., c.d., sidecar, spares.. £68
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HUMBER, 2 h.p., brand new, list £35 .... £26
SUNBEAM, 2¾ h.p., 2-sp., shop-soiled £55
CLYNO, 6 h.p., 3-sp., shop-soiled..... £65
ENFIELD, 6 h.p., coach sidecar, as new.... £68
TRIUMPH, F.E. model, shop-soiled £50
INDIAN, 7 h.p., 2-sp., shop-soiled £65
ROVER, T.T., with Philipson, soiled £45
A.J.S., 2¾ h.p., 2-sp., shop-soiled..... £45
BRADBURY, 3½ h.p., 3-sp., shop-soiled £48
HUMBER, 3½ h.p., 3-sp., shop-soiled £48
ZENITH, 3½ h.p., variable gear, as new £45
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SCOTT, latest model, as new £55

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1911 **BRADBURY,** 4 h.p., Free Engine.... £25
1910 **ENFIELD,** 2¼ h.p., Twin..... £15
1910 **F.N.** lightweight, magneto, spring forks £12
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LM. Padded Seats, side door, outside balance whe perfectly sprung, reliable; quick delivery.—Cunnin ham, Clitheroe. [X25

SINGER, 10h.p., latest model from works Sept. 20t 1913, complete, grey colour; £185.—Cordingle Tel.: 2Y. [21

HUMBERETTE, 1913, chocolate finish, latest mod shop-soiled; £110.—P. J. Evans, John Bright S Birmingham. [X24

MORGAN, 1912-13, 8h.p. J.A.P., all accessorie £65.—P. J. Evans, John Bright St., Birmin ham. [X24

HUMBERETTE, 1913 complete Stepney whe spares, had very careful use; £95.—P. J. Evan John Bright St., Birmingham. [X24

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PALMER'S Garage, Tooting.—8-10h.p. 1913 Bede similar model Grand Prix winner, brand new; livery 3 days; £109.

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PALMER'S Garage, Tooting.—8-10h.p. 1913 Bed Model de Luxe, hood, screen, latest mag., step, double steering, as new; £90.

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PALMER'S Garage, Tooting.—8-10h.p. 1913 Humb ette, fully equipped; £95, no offers.

PALMER'S Garage, Tooting.—8-10h.p. 1913 Humb ette, brand new, driven only from Coventry London; £115.

PALMER'S Garage, Tooting.—6-10h.p. Automobil 1913 3-seat., 2-cyl., shaft drive, Bosch mag.; im diate delivery; £120.

PALMER'S Garage, Tooting.—8-10h.p. 1913 with special bucket body brand new, 3rd fitted if desired; £100.

PALMER'S Garage, Tooting.—5-6h.p. A.C. Socia nice lot; clearance bargain, £45.

PALMER'S Garage, Tooting.—8-10h.p. 1913 chassis only, brand new, £77/10; single or 2 body, built to order for this in about 10 days

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PALMER'S Garage, Tooting.—8-10h.p. Sociable wheeler, roomy body, J.A.P. engine; bargain,

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PALMER'S Garage, Tooting.—Sole address, L Palmer's Garage, Merton Tram Terminus, T ing. 'Phone: 208 Streatham (20 mins. Victoria, mins. Wimbledon). [2

WARNE Cycle Car, latest model, nearly new, accessories; offers wanted.—Cyclecarist, 55, Walk, Chelsea. [2

HUMBERETTE, 1913, hood, screen, spare tyre, little used, complete; £95.—James Wilson, Granville Terrace, Edinburgh. [X1

A.C. Sociable, new June, 1913, hood, screen, la everything, driven only 500; any trial, appr ment; £72/10.—96, Abinger Rd., Bedford Park, [2

CYCLE CARS.

HURLIN and Co., the light car specialists.—Hurlin and Co., 295, Mare St., Hackney. Tel.: No. 2989 Dalston.

HURLIN and Co. offer Baby voiturette, 8h.p., water-cooled, 1913 model, delivered in May last, guaranteed perfect in every way; price £70.—Below.

HURLIN and Co.—Bedelia, 4½h.p., 2-seat., 1912, fitted with electric head lamps, many refinements; owner: £45.—Below.

SINGER Light Car, 10h.p., immediate delivery: £185; easy payments; exchanges entertained.

CONVERSIONS.—Have your motor cycle converted into cycle car. We are specialists in this work. Any high powered motor cycle converted quickly and cheaply.—Hurlin and Co., below.

HUMBERETTES.—Immediate deliveries, latest models.—Hurlin and Co., below.

HURLIN and Co.—G.N., 8h.p. J.A.P., 1912, magneto ignition, cycle car, fitted with up-to-date refinements; spares, tools, etc., as new.—Hurlin and Co., 295, Mare St., Hackney. Tel.: No. 2989 Dalston.

HURLIN and Co., the Hackney cycle car specialists, 295, Mare St., Hackney. Tel.: No. 2989 Dalston. [1897

10h.p. Sociable, 3 and reverse, coachbuilt body, splendid condition; £40, or near offer; would exchange.—42a, Brockley Rise, S.E. [X2393

LAYTONS.—Perry 1913 light car, 2-cyl., water-cooled, complete with hood, screen, lamps, horn, detachable wheels; £136/10; delivery of one car from stock. Laytons, Bicester, Oxon. [X2516

LAYTONS.—Premier 1913 cycle car, quite new, 7-9 h.p., complete with very smart 2-seat. body, hood, screen, etc.; catalogue price £115, our price £90, barain.—Laytons, Bicester, Oxon. [X2517

WALL Tricarriage, 5h.p. Precision engine, 2 speeds, luxurious 2-seat. body, hood, screen, lamps, etc., new tyres; cost £110, £55.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0356

MOTORETTE, 1912, 6-7h.p., water-cooled, 2 speede, chain drive, nearly new Dunlop tyres, hood and wind screen, guaranteed perfect; £55.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0350

9h.p. Rexette, in splendid order, just been thoroughly overhauled, 2-speed, 2-seat., free engine, wheel steering, new engine, new brass radiator, mag.; £55; write for particulars.—Howard, Gas, Fazeley, Staffs [X2504

9-10h.p. Bedelia Torpedo Car, new last November, fast, reliable, splendid condition throughout, side, car, head lamps; sell £60, or pay difference on new organ or good second-hand G.W.K.—Heath Lodge, Woodbridge Rd., Ipswich. [X2181

HOLLIDAYS Midget, bought June, cost over £150, re-plating, Stepney, special mudguards, speedometer, tyres good; any examination, photo; going abroad; £25 cash; done under 2,000.—Smith, Glover's Garage, Northall St., Stockwell. [X2328

APOLLO Cycle Car, 1912, run 3,000 miles, perfect condition, hood, screen, lamps, speedometer, and several spares, extra wide front seat for 2 passengers; any trial; guaranteed perfect; £70.—Greenhous, Bishop's Castle. [X2565

A.C. Sociable, perfect throughout, hood, screen, curtains, speedometer, tyres unpunctured, non-skid rear, spare tube, chain, 4 lamps, B. and B., Bosch, ringing 63 m.p.g.; any examination, trial; £58.—Day, 11, Victoria Rd. N., Southsea. [X2518

G.W.K. Cycle Car, latest model, all complete; £150; in stock, immediate delivery; free trials. We teach you to drive and deliver to your door free; our easy payments are the very lowest, try us.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [2507

SINGER Light Car, 10h.p., latest model, just arrived, in stock, immediate delivery, no extras; £185; ready to drive away. We teach you to drive and deliver to your door free; our easy payments are the very lowest, try us.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [2508

JUST from Works.—Singer 10h.p. light car, practically 1914 model, with raised seat, finished French grey, hood, screen, 5 lamps, valances, steps frame, finest and fastest cycle car turned out of Singer works; £188; exchanges.—Cordingley, Haslingden. Tel.: 2Y. [2441

HUMBERETTE, latest model, as new, hood, screen, lamps, speedometer, luggage carrier, mat, spare new Dunlop and tube, many spares; cost in July nearly £40, accept £100, no offers; convincing trial given; reason for selling, owner bought large car.—Frost, Beechwood, Imber Lane, Esher. [2543

TRICARS FOR SALE.

9h.p. Tricar, w.c. head, 2-speed, fine engine; £7/10. —259, Clifton Rd., Rugby. [X2341

7-8h.p. Twin-cyl. W.C. Coachbuilt Tricar; £35.—Fuller particulars.—Davies, drapers, Llanhilleth, Newport, Mon. [X2304

9h.p. Singer Tricar, 3 coachbuilt seats, real leather, 3 speeds and reverse, car tyres, everything perfect; £30.—R., Ash Lea, Ashton-on-Mersey. [X2265

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SIDECAR, basket, by Premier Motor Co.; £3.—Mansfield, Wooth, Bridport. [2505

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LONDON Middleton Agents, Rey, 173, Gt. Portland St., and 378-384, Euston Rd.

MIDDLETON'S, wholesale, export, sidecar manufacturers, shippers, 27, Stroud Green Rd., Finsbury Park, London, N. 'Phone: 1584 Hornsey. [2464

GLORIA Sidecar, cost £16/16, perfect; £7. — Box 4,248, *The Motor Cycle* Offices, Coventry. [X2542

CANOELET, Swan.—Sole wholesale agent, London Rey, Hampstead, and 173, Gt. Portland St., W. [9667

1913 Gloria 16 gn. Sidecar, to fit Triumph, brand new; 12 gns.—Batchelor and Co., Kingston-on-Thames. [X2529

SIDECAR, new 1912, fit either 1911, 1912, 1913 Rex motors; cost 12 gns., sell £8/15.—12, Bull Ring, Birmingham [X2477

SIDECAR, quick detachable joints and child's seat, apron, stand, splendid condition; £4/10.—48, Chertsey Rd., Woking. [2619

MATCHLESS Sidecar, new, shop-soiled; listed 15 gns., sell 10 gns.—Write, The Motor Mart Co., Old Lancaster Rd., Morecambe. [0336

SIDECAR (Turner), cost £14, sacrifice £10; new; cannot take delivery.—Box L2,781, *The Motor Cycle* Offices, 20, Tudor St., E.C. [2247

STOKES and Holt, Ltd., Leicester, wholesale makers of every description of sidecar bodies and chassis; special designs quoted for. Write for catalogues. [0190

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CASS'S have finest stock of sidecars in London for immediate delivery. See our £6/15; 33⅓ cheaper than any other maker; 12 different models to select from; all marvellous; extended payments arranged.—Cuss's Motor Mart, 5, Warren St., Euston Rd. Tel.: 3624 Mayfair. [2665

THERE are plenty of coachbuilt sidecars on the market, but none so pleasing in design and clean appearance as the Oakleigh Windcutter sidecar, as illustrated in issue Aug. 21st, no wind screen wanted, 10 miles an hour faster than any other; price £9.—Oakleigh Sidecar Co., 65a, Rosendale Rd., West Dulwich. [X2561

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1908 Triumph and Sidecar, Bosch, overalls; £18.—21, Goda St., Lambeth. [X2258

4-CYL. 1913 F.N. and Sidecar, as new.—Heath, Salford Priors, Warwickshire. [X2339

ZENITH 6h.p. Twin, 1912, Montgomery sidecar; £50. —809, Attercliffe Rd., Sheffield. [X2263

1913 3½h.p. Rover and Coachbuilt Sidecar, nearly new; £55.—Thos. Booth, Frodsham. [X2413

V.S., 5-6h.p., twin, 2-speed, Millford castor sidecar; £26.—62, Irving Rd., Bournemouth. [2611

TRIUMPH, 1909, with sidecar, lamp, horn, Cowey, accessories; £30.—32, Market St., Wigan. [X2308

4h.p. N.S.U. and Millford Sidecar, 2 speeds, complete, all spares; £25.—Cross, Jeweller, Rotherham. [X2421

3½h.p. Motor and Sidecar; nearest offer to £15.—Andrewe, Silverdale, King Edward St., Slough. [2579

1912 Humber, 3½h.p., Canoelet sidecar, run 2,000 miles; 50 gns.—Edwards, Wesham, Kirkham. [X2338

BRADBURY and Sidecar, 1911-12, N.S.U. 2-speed; £29/10.—Mason, Schoolmaster, Bentley, Doncaster. [X2494

ZENITH, 6h.p., 1913, and Millford sidecar, in good condition; £60.—C. Anfrey, R.M.A., Woolwich. [2530

TRIUMPH, 1911, free engine, canoe sidecar; 50 mile trial; £35.—74, Knapp Rd., Bow, London, E. [2629

1913 Clyno, 5-6h.p., complete with sidecar, 3 speeds, F.E., etc.; £78.—Cordingley, Haslingden. Tel.: 2Y. [2143

1913 Singer 4½h.p. Sidecar Combination, brand new; list £80, accept £65.—Cordingley, Haslingden. Tel.: 2Y. [2145

1913 James, 3½h.p., 3-speed, chain drive, complete with Canoelet sidecar, brand new; list £76/13, clear for £66.—Cordingley, Haslingden. Tel.: 2Y. [2142

ENFIELDS.—Keenest cash prices, E.P. no extra, ¼ down and the balance by 12 payments.—Lamb's (below).

SINGER, 3½h.p., with sidecar and accessories, splendid order; £35, bargain.—Lamb's (below).

ENFIELD, 1912½, 6h.p., 2-speed, combination, complete 2 lamps, horn, speedometer; £65; no reasonable offer refused, either cash or easy payments. —Lamb's, 151, High St., Walthamstow. 2428

3½h.p. Humber and Sidecar, complete lamp, horn, spares; £35.—Box 4,245, *The Motor Cycle* Offices, Coventry. [X2423

TRIUMPH, 1913½, F.E., with accessories, and Viceroy torpedo sidecar; £57/10.—3, Sandringham Parade, Ealing. [2450

1912 T.M.C. and Sidecar, water-cooled, 3 speeds, spare tyre, etc.; owner gone abroad; best offer.—Marley, Workington. [X2406

5-6h.p. A.J.S., Millford coachbuilt sidecar, nearly new; £49/10; appointment.—P. C. Bridge, 18, Pinfold Rd., Streatham. [2567

REX Sidette, latest 1913, 6h.p., coachbuilt sidecar, splendid order; must sell, what offers?—159, Leam Terrace, Leamington. [X2334

6h.p. Rex, handle starting, B.B., Whittle, new handsome sidecar; £24/10, or separate.—30, Alexandra Rd., Canton, Cardiff. [X2501

RUDGE, 1912, and 10 gn. coachbuilt sidecar, both in new condition; nearest £40.—F. Jackson, 25, Industrial St., Todmorden. [2466

TRIUMPH, 1911, Villiers F.E. clutch, 1913, and sidecar, all accessories, including policy till May; £42. —2, Crosby Rd., Birkdale. [X2467

REX de Luxe, 6h.p., free engine, 2 speeds, mag., with torpedo sidecar; sell turnout £28.—103, Heeley Rd., Selly Oak, Birmingham. [X2483

JAMES and Canoelet Sidecar, new April, splendid condition; £60.—Apply, after 7 p.m., Roberts, 3, Blessington Rd., Blackheath. [2594

REX, 1912-1, 2-speed, and sidecar, complete with all spares, 6h.p., only wants seeing; at £47.—Pond, 349, West End Lane, London. [X2508

TRIUMPH, 1912¾, clutch model, canoe sidecar, horn, lamp, spares; £45; perfect condition.—19, Mayflower Rd., Clapham, London. [2577

1912 6h.p. Rex de Luxe, free engine, 2 speeds, with £16 sidecar, all in new condition; bargain £36 —32, Clarendon St., Coventry. [X2431

ARIEL, 1913½, 3-speed, kick start, with coachbuilt sidecar, perfect combination; £55, or near offer.—Johnson, Bath St., Leamington. [X2180

3½h.p. Brown, 1913, free, 2-speed, kick starter, sidecar, all accessories; bargain, £45.—Knight, 202, Whitehorse Lane, South Norwood. [X2392

4¼h.p. Precision, Bowden 2-speed, 650×65 tyres, pan saddle, Chater-Lea sidecar; £40; trial given.—224, Wood St., Walthamstow. [2485

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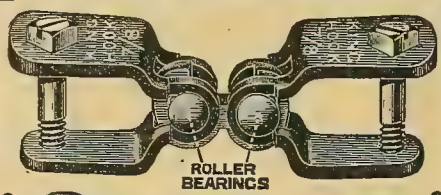

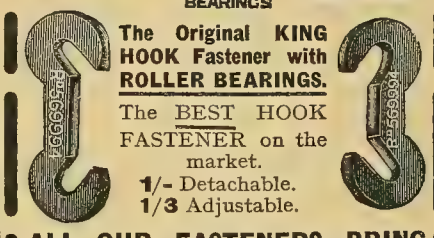

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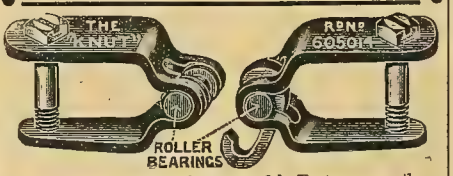

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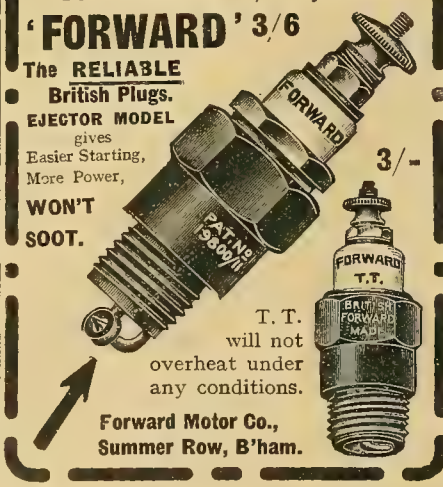

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KERRY-ABINGDON, 1911, 2 speeds, 1912 sidecar, excellent condition; £32; weekdays only. —290, Milkwood Rd., Herne Hill. [2423

6h.p. Enfield Sidecar Combination, 1912 model, coachbuilt sidecar, complete; £57/10 cash.—Box 4,170, *The Motor Cycle* Offices, Coventry. [X956

CLYNO, late 1912, coachbuilt sidecar, Jones speedometer, F.R.S. lamps; any trial; cost £95, £60.—4, Harrowgate Rd., South Hackney. [2652

1909 Triumph Motor Cycle and Phœnix Sidecar, N.S.U. 2-speed gear, F.R.S. lamp and generator, in very good condition; offers.—Below.

1912 P. and M. Motor Cycle and Forward Sidecar, fitted with speedometer, wind screen, luggage carrier with box, F.R.S. lamp and tools; £55.—Glendower Motor Co., 3, Glendower Place, South Kensington. Kensington 558 and 559. [2215

4h.p. 1912 Singer, with sidecar, speedometer, horn, lamp, new belt, perfect; £45.—Box L2,843, *The Motor Cycle* Offices, 20, Tudor St., E.C. [2533

MATCHLESS 6h.p. Twin, 1911, 2 speeds, nearly new, coachbuilt sidecar, condition, including tyres, as new; £48.—736, Holloway Rd., London. [X1738

CLYNO, 1913, brand new, 3-speed model, 3in. back tyre, interchangeable wheels, latest engine; £62, cost £75.—Potter, Leicester Grove, Leeds. [X2400

BRADBURY, 1913, 3 speeds, kick starter, lamp, horn, spares, and coach sidecar, excellent order.—P. J. Evans, John Bright St., Birmingham. [X2446

ENFIELD, 1913, 6h.p., 2 speeds, coach sidecar, Lucas horn, mirror; cost £86, accept £65.—P. J. Evans, John Bright St., Birmingham. [X2448

ZENITH, 1911, 3½h.p., Gradua gear, and wicker sidecar; £30.—P. J. Evans, John Bright St., Birmingham. [X2449

1912 6h.p. Clyno Coach Combination, chain drive, 2 speeds, kick start, accessories, fine condition £43.—Jordan, Bookseller, Walton-on-Thames. [X2488

1912 6h.p. Rex and Sidecar, new June, 1913, complete Cowey, lamp, horn, spares, etc.; £45.—Box 4,244, *The Motor Cycle* Offices, Coventry. [X2422

3½h.p. Triumph, 1910, free engine, new cylinder, etc. speedometer, all accessories and sidecar; £35; without sidecar £32.—22, Belsize Sq., N.W. [263

BRADBURY, 1913, 3½h.p., 2-speed, chain drive, kick start, coachbuilt sidecar; cost £72 May, splendid condition, £52.—88, Tannsfield Rd., Sydenham. [244

KERRY-ABINGDON, 5h.p., Millford sidecar, Brown Barlow carburetter, accumulator, trembler; bargain, £15.—306, New Cross Rd., London, S.E. [246

1912 Clyno, with Clyno coach sidecar; genuine bargain; tyres perfect, Kempshall back; £60, or nearest offer.—Lovelace, Hentsridge, Somerset. [X227

1912 Matchless, 2 speeds, free engine, double belt drive, and 16 gn. sidecar; trial given; £60.—Wilson, 119, Nelson St., South Bank, S.O. [255

4½h.p. Twin Minerva and Sidecar, Mabon, Bosch, B and B., new belt, tyres perfect, splendid condition; £22, bargain.—120, Anerley Rd., Anerley. [252

5-6h.p. Twin Peugeot, Druids, Mabon clutch, Bosch Whittle, excellent condition, nearly new wicker sidecar; £40.—Henshaw, wheelwright, Stockport. [X243

CHATER-LEA-J.A.P., 3½h.p., N.S.U. 2-speed, enclosed sidecar, child's seat, side entrance £30.—Glenholme, Osmond Gardens, Wallington. [264

TRIUMPH, free engine, 1912¼, 2-seat. sidecar, 2¼in Pedley tyre on back, splendid condition; £42/10.—Berridge, 1, Nithsdale Av., Market Harborough. [X237

1912 Rover, 3½h.p., 3-speed, not ridden 800 miles perfect condition, cane sidecar, with accessories lowest £38.—Bristow, 128, Queen's Rd., Hastings. [X230

REX, 6h.p., new sidecar, magneto, clutch, fine order quick sale, going abroad; £25 or nearest.—Advertiser, 5, Belsize Grove, Hampstead, London. [261

SCOTT, late 1911, with 1913 coach torpedo sidecar plating and general condition splendid; £39; see any time.—Nicholls, 29, Chapel St., Belgravia, London [X239

REX de Luxe, late 1912, 6h.p., m.o.v., Bosch watertight mag., free engine, 2 speeds, fitted with handsome sidecar; sell turnout £39.—12, Bull Ring, Birmingham. [X247

8h.p. 1911¾ Bat and Millford Castor Wheel Sidecar new tyres, new belt, P. and H. lamp set, 2-speed and free; sacrifice, £45.—20, Milkwood Rd., Herne Hill. [X246

CHATER-LEA, No. 7, 6h.p., 2-speed, and Glorspring wheel coachbuilt sidecar, large P. and lamp, watch, 23/- horn, all accessories, excellent condition; any trial; sacrifice, £45.—20, Milkwood Rd., Herne Hill. [X246

1910 Bradbury, sidecar, 1913 N.S.U. gear, 2 new tyres and tubes, lamp and horn, condition sound £30, no offers.—6, Fosbury Mews, Inverness Terr., Bayswater. [249

HUMBER, 1911¼ 3½h.p., 2-speed, F.E., with Montgomery cane sidecar, in fine condition, spare overall suit; £33.—Smith, Wesley Rd., Hemel Hempstead. [25

HUMBER, 1911, 3½h.p., 2-speed, B. and B., Bosch Millford torpedo body sidecar, nearly new tyres F.R.S. lamp, watch, etc.; 30 gns.—668, High Rd., Leyton. [26

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Cycle Cars.

THE Royal Automobile Club's and the A.C.U.'s well-meant attempt to provide for the type of vehicle which appeared to be coming definitely on to the market a year or so ago, by giving it a class name, formulating an official definition of it, and delegating its control on the sporting side to the Competitions Committee of the Auto Cycle Union, has resulted in a condition of affairs which would be amusing, indeed ludicrous, but for the serious effect it is having upon the motor cycle industry and also upon the public.

We suppose the Royal Automobile Club and the A.C.U. Special Joint Committee when they coined the term "cycle car" had in mind the belt-driven, air-cooled, four-wheeled vehicle of which many examples appeared at that time. Presumably, they did not anticipate the development of the *small light car*, which is merely a reduced *facsimile* of a full-sized motor car and obviously a different proposition altogether, and in no way connected with the cycle car, so they proceeded in an airy fashion to lay down a rule that any motor vehicle with an engine capacity not exceeding 1,100 c.c. and a total chassis weight of 6 cwt. should be labelled a "cycle car," and as a consequence should pass under the jurisdiction of the A.C.U. in matters pertaining to competitions and so forth. Since this step was taken, however, considerable attention has been devoted to the problem of providing a lightweight two-seater, and as we predicted and have held all along, the development has been for all practical purposes in the direction of the light car built in every essential particular on accepted car lines, in the majority of cases with a four-cylinder water-cooled engine, three-speed gear box, shaft drive, and differential. The subject has from the first received our closest attention, and from observations of developments for 1914, we are satisfied that the tendency is still more pronounced in favour of the light car pure and simple.

Now it is obvious that this unsatisfactory state of affairs from the motorist's point of view cannot go on. Already the true cycle car has been handicapped in its struggle for a place in the motorist's favour simply by being overshadowed by the larger and more expensive type of vehicle, which cannot by any stretch of imagination be termed a cycle car. Nor can the A.C.U. be altogether excused for such a state of affairs. Instead of seeing that its definition has been carried out to the letter, it has been content to sit on the wall and ignore the fact that cars exceeding half a ton weight are competing in so-called cycle car events. So long as the engine capacity was restricted to 1,100 c.c., the A.C.U. appears to have been satisfied. It therefore rests with *The Motor Cycle* to take the first step to bring about a better state of affairs. It must be confessed that the belt and belt-cum-chain-driven vehicle on motor cycle lines has made little or no progress in actual use on the road, though, unfortunately, owing to the injudicious booming it has received in certain quarters, many small manufacturers have been tempted to spend time and capital upon its production, with little prospect of remunerative return. It should here be remarked that we are referring to the new types of cycle cars, and not to those such as the A.C. and Morgan, which long ago won their spurs and whose reliability was unquestioned before the cycle car definition was thought of. Not only has the premature boom in question done much harm in this connection, but for the time being it has seriously damaged the motor cycle movement in that it has unsettled the minds of the public by leading people to believe that in the cycle car they might expect to find a more satisfactory vehicle than the very efficient, economical, and comfortable sidecar outfit, which has reached the stage of having proved itself to be by far the best passenger machine on the road at an outlay of about £100. Fortunately, the merits of the sidecar combination have been so clearly evident that, although the demand has been adversely affected as a result of the boom referred to, we have no doubt whatever that 1914 will see it more firmly established than ever in the affections of the public, as those who have been hesitating to purchase a sidecar combination will hesitate no longer.

The True Cycle Car Overshadowed.

MUCH of the criticism which has been levelled against the belt and chain driven types of cycle cars and the poor name they have at present, is largely due to the unfair comparison to which they have been subjected by competing with vehicles almost twice as heavy and doubly expensive. We hold that their development is not assisted, but is retarded, by the present unsatisfactory position created by the action of the R.A.C. and A.C.U. joint committees, which is referred to above. For instance, in competitions to-

day, the true cycle car must enter in a class which also admits the small car, and naturally it does not show up to advantage in such circumstances. The governing bodies have as yet made little or no attempt to rectify this unfortunate state of affairs by seeing that their definition is adhered to.

The other side of the question is almost as absurd. Light cars, many of which, as we say, exceed half a ton weight, are compelled to label themselves with the (for them) misleading title "cycle car," and enter competitions under the *ægis* of the Auto Cycle Union, otherwise they are debarred from all but a few competitions.

We have, for example, a One Day Trial arranged for the 29th October ostensibly for cycle cars, but, excluding the already proved types, it is safe to predict that the majority of the entries will be light cars. Again, the Auto Cycle Union proposes to run a "cycle car" race in the Isle of Man in September of next year, and again it is safe to assert that unless the A.C.U. sees the definition is adhered to the entrants who will distinguish themselves on that occasion will be the drivers of the light car type. Apart from the absurdity of such a position, the harm done is twofold: on the one hand the successes achieved are advertised as "cycle car" successes, and the indiscriminate public is apt to conclude that cycle cars as a class have successfully demonstrated their capabilities, which, of course, is not really the case. On the other hand, such true cycle cars as are entered stand very little chance of putting up a good show against their heavier and more expensive rivals, and so they are robbed of the encouragement which would rightly be theirs if the race were confined to cycle cars only.

The position of affairs on the Continent is equally absurd, if not worse, than it is here. In France cycle car classes are already subdivided into cycle cars with engines not exceeding 750 c.c. and 330 lbs. minimum weight and cycle cars with engines not exceeding 1,100 c.c. and 385 lbs. minimum weight. The same rule regarding chassis maximum weight as defined by the R.A.C. and A.C.U. also holds good. The result is that stripped and lightened voiturettes are made eligible for the 1,100 c.c. class, but the same chassis when sold to the public often weigh 8 cwt. or more.

Space will not permit us to pursue this phase of the subject further, nor is there perhaps any need to do so, since intelligent motorists recognise the illogical position at which the movement has now arrived. Whatever the view of the Royal Automobile Club, the Auto Cycle Union, the Motor Cycle Manufacturers' Union, and the Society of Motor Manufacturers may be, we feel that, in the interests of our readers, it is incumbent upon us to do what lies in our power to straighten things out; in fact, to relegate light cars to the car class, to which they unquestionably belong, and to deal with true cycle cars only as a development of the motor cycle. Therefore, in so far as cycle cars deserve encouragement and assistance, they will receive such very fully in the pages of *The Motor Cycle*. On the other hand, light cars will be dealt with adequately week by week in the pages of our sister journal *The Autocar*. So, in future, readers of *The Motor Cycle* will find its pages exclusively devoted to the encouragement of the motor bicycle, sidecar, and true cycle car—in other words *every phase of the motor cycle movement*—but the light car, which because of the official definition (which we have hitherto felt bound to respect) has crept into our pages, will be exclusively dealt with in *The Autocar*. We hope by such action that we are giving a lead to the governing bodies which they will see the wisdom of following, but whether they do so or not, we intend to do all we can to put an end to the present illogical position, and give the true cycle car the encouragement it needs.

Vehicles which it may be argued are just on the borderline of either class will be dealt with on their merits, probably in both papers for the time being, since we do not propose to be limited by rigid rules, but rather by commonsense in this matter.

We have every confidence that our readers will appreciate our action, and we hope they will use their influence in the same direction.

MIDLAND OPEN RELIABILITY TRIAL.

(1) R. W. Lovegrove (Ivy-Precision) rounding the corner on Beacon Hill.

(2) E. H. Armstrong (8 h.p. Armstrong cycle car) on the same hill.

(3) B. Alan Hill (7 h.p. Indian) ascending Whitback Hill, the scene of the flexibility test.

OCCASIONAL COMMENTS

BY "IXION"

Carrying a Golf Bag.

A golfing doctor kindly sends me an excellent reply to the query about carrying a caddie bag on a motor cycle. It only applies to such bags as have straps intended for holding an umbrella. A lamp bracket should be bolted to the front forks, low down near the hub. The loop intended to hold the ferrule end of the umbrella is slipped over this bracket, and the strap designed to grip the handle end of the umbrella is fastened round the handle-bar stem. Provided the umbrella loops are strongly made, this method is perfectly satisfactory.

Some Interesting Accessories.

My parcel post has been unusually interesting of late. *Imprimis*, Best and Lloyd have sent me samples of their latest tank stoppers, adopted by many wide-awake manufacturers. There are two good types, both apparently free from faults and bristling with merit. One has a hinged lid, of which only a milled disc protrudes above the filling nozzle; if you turn this disc, you expand or contract a leather washer which locks the lid in place or frees it—there is nothing to lose, nothing to go wrong. The other is still more ingenious. On the top of the tank you see a huge plated cap with milled edge, which looks for all the world like the ordinary hop-off-over-a-bump stopper till one spots a little hinge at one side. You unscrew this milled cap, and just when you expect it to come away in your hand, it stops turning, and the upper half of it opens like a hinged lid, the lower half remaining locked to the nozzle; here again there is nothing to go wrong, nothing to lose. I have also received a sample of Badcock's by-pass pilot jet. This device renders manipulation of the air lever unnecessary at speeds below legal limit, and enables the engine to be ticked over silently at very low r.p.m. when the clutch is out. My usual objection to these accessories is that they often consist of a multitude of tiny parts which drop off after they have sustained a little vibration; but the Badcock device is staunchly made—evidently the job of a practical rider. It functions well, and I think it well worth the small sum charged for it, provided the joint with the float chamber is thoroughly well made and care is taken in the fitting of the small bore tubing. Next in order comes the Garner whistle, which cleverly dodges the pitfalls awaiting a designer. Its valve is set in a by-pass from the main exhaust pipe, so that no carbon can settle on the moving surfaces when the whistle is out of operation. A little carbon is bound to be deposited in the tube above the valve, and must be carried into the valve when the whistle blows; but the carbonisation is plainly reduced to the absolute minimum, and the presence of a very strong encased spring behind the piston gives promise of the maximum effective mileage between cleanings. The last item I wish to describe is an absolute novelty to me—the Bailey patent locking device, which was originally invented to fasten motor car lamps on their brackets. It is an extraordinarily simple and ingenious little fitting, roughly resembling a letter padlock, and its patentee suggests with justice that it would be an admirable substitute for the key locks now fitted on most motor cycle pannier bags, which occasion such frequent trouble. I have not sufficient space to describe its internal mechanism at present, but if it were fitted to a toolbag, the visible portion would consist solely of a milled and plated disc the size of a penny, and about $\frac{3}{16}$in. thick. This disc would be situated where the present key locks are mounted. Round the rim of a small fixed central spindle on which the milled disc revolves several letters or figures would be stamped—any number of them—according to the size of the fitting: and from the milled edge a small set screw would project. Neither dust nor blows can possibly injure the affair; no outsider would have any conception how to release the lock, and a person familiar with its operation would have to make a number of attempts to open the bag, unless he knew to which letter or figure it was set. If any reader is commercially interested in this clever little patent, he should communicate with Mr. Bailey, 2, Spring Lane, South Norwood.

Durability of Leather Belts.

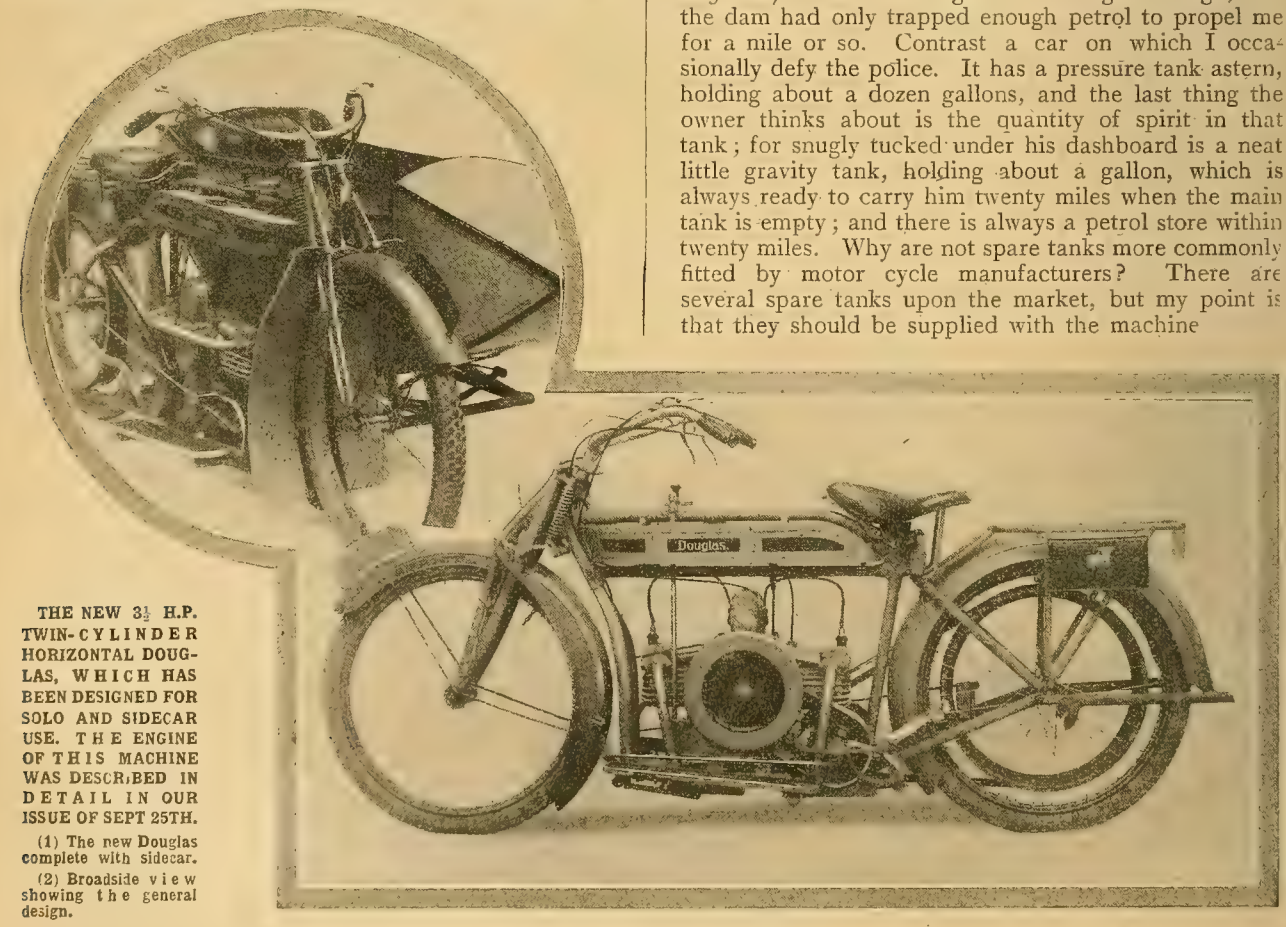
A correspondent who keeps a watchful eye on his motor cycling expenses asks me to emphasise the superior economy of leather belts, which he apparently considers have been rather unduly overshadowed of late by the rubber variety. His point is that when a leather belt develops a bad patch, it is usually possible to splice in a new section, but that when a rubber belt turns measly for a few inches, the entire belt is ruined. His implication is that impecunious motor cyclists would do well to prefer leather. I must speak humbly, for during the past few seasons I have only carried a leather belt on the chance of my rubber belt developing chronic rainslip, but my impressions are that it is quite possible to exaggerate the economy of leather. The belts themselves unquestionably outwear rubber, but they rub a shoulder on the pulley in quite a short time. Further, a fastidious rider is not likely to run far on a spliced leather belt. The width of the older portion of the belt will not be standard, but will have worn down to some between size, and the insertion of a new piece, which is, say, $\frac{7}{8}$in. dead, will introduce a little snatch and jerk into the drive. Moreover, it is possible to patch a rubber belt, either by inserting an extra fastener, or by cutting out the damaged portion and fitting in a length of new stuff. Few riders would do this, it is true; and their reluctance arises from precisely the point I mentioned anent

Occasional Comments.—

splicing a leather belt, that it may spoil the smoothness of the drive. On the whole, I do not doubt that leather belts are a shade more economical, on the average, than rubber, provided the word "economy" is used in a purely financial sense, without reference to expenditure of time or temper; but I doubt whether the saving is large enough to make a strong appeal to any but the most impecunious. *Per contra*, however, I must admit that there is upon the market more than one leather belt of remarkable pliability. Such a belt is much more suitable for a lightweight machine with a very small pulley than the average rubber belt.

Petrol Gauges that Don't Gauge.

I know I am a miserable faddist, but is it too much to beg the trade to tax its brains yet a little further in the direction of petrol gauges? We submitted meekly for years to the vertical gauges inset in the tankside, which registered fairly accurately the amount of fuel remaining in the tank, but failed to cope with our ineradicable laziness in that we couldn't accept their most desperate warnings unless we dismounted for the purpose. Personally, being a happy-go-lucky Celt, I never dismounted till the tank was dry, and the infernal gauge could only offer that most aggravating counsel "I told you so!" The dawn of 1913 brought a return to the old cork-cum-twisted-strip arrangement, which I first beamed upon in the tank of my Ormonde about the year 1901. I say "beamed," because I really did beam when I first saw the contraption at a Stanley Show, but afterwards I often glowered on the lying dial, which seldom registered with any precise accuracy at either the "full" or "empty" extreme, and jumped about enough to give one the giddy jim-jams on a rough road. How often have I not leapt off the saddle and torn out my stopper to find that dial was lying. I hoped the 1913 imitation would prove mysteriously superior to its original prototype, but I have been disappointed. It is probably a shade better than the invisible tankside glass, but it isn't really quite the goods. Once again I thought I had struck oil when I bought a machine with a partitioned tank. It read beautifully in the catalogue. "When the machine stops for want of petrol, dismount and raise the front wheel, so as to allow the reserve of petrol to run over the partition into the rear portion of the tank." When I got this machine, I rode blithely without counting the miles to the next petrol store. Then came a day when, after a few preliminary sputterings, the engine stopped—ten miles from a garage. With a smile I hopped off and elevated my front wheel about four feet off the road and then attempted to restart. After the tenth fetch-up on the dead centre of full compression, I breathed heavily, removed my stopper, and gave the glad eye to a faint moisture in the tank bottom behind the dam. I elevated the front wheel to the limit this time, and severely ricked my internal apparatus in the process, for the machine was of the 160 lbs. variety (catalogue rating; A.C.U. Trials rating, about 225 lbs.) This time I got a start right enough, but the dam had only trapped enough petrol to propel me for a mile or so. Contrast a car on which I occasionally defy the police. It has a pressure tank astern, holding about a dozen gallons, and the last thing the owner thinks about is the quantity of spirit in that tank; for snugly tucked under his dashboard is a neat little gravity tank, holding about a gallon, which is always ready to carry him twenty miles when the main tank is empty; and there is always a petrol store within twenty miles. Why are not spare tanks more commonly fitted by motor cycle manufacturers? There are several spare tanks upon the market, but my point is that they should be supplied with the machine



THE NEW 3½ H.P. TWIN-CYLINDER HORIZONTAL DOUGLAS, WHICH HAS BEEN DESIGNED FOR SOLO AND SIDECAR USE. THE ENGINE OF THIS MACHINE WAS DESCRIBED IN DETAIL IN OUR ISSUE OF SEPT 25TH.

(1) The new Douglas complete with sidecar.

(2) Broadside view showing the general design.

What the Show will Reveal.

Points in Design which may be expected on Next Year's Models.

THE few weeks before the Olympia Show are in many ways the most interesting in the motor cycle year, for the new models are coming before the public eye, and by the time the doors of Olympia are opened to us, our appetites for the good things provided for the year 1914 are exceedingly keen. Every year we hear rumours of finality in design being reached, but these are idle tales, and probably we are as far from finality nowadays as we were ten years ago when *The Motor Cycle* was in its infancy. Indeed, in some ways further, for then we had only one type of engine to consider—the four-stroke, whereas now the two-stroke has seriously invaded the field, rather more so, in fact, than the numbers actually met with on the road would indicate, for many of the big firms are spending much time and money in careful experiments with this type of engine.

Cleanliness a Cardinal Virtue.

But apart from engine design, there is plenty of room for improvement in details, and these should chiefly tend to making motor cycles more weatherproof and more flexible for traffic work. In the former department of design, chain cases which absolutely exclude wet and retain lubricant should be provided on all chain or chain-cum-belt-driven models, and we look forward to a very general advance in this matter. Protecting belts is by no means so simple, chiefly from the difficulty of good appearance, but one firm has already tackled the problem with fair success. Bigger mudguards, for which riders have long clamoured, will be fitted on many machines, and already we have had an advance view of some very admirable efforts in this direction. It is, of course, an absolute impossibility entirely to protect the rider in bad weather on a fast moving vehicle so low on the road as a motor cycle, but up to the present manufacturers have been rather too content simply to enlarge on pedal cycle mudguard practice. Dropped frames and inverted handle-bar levers may now be said to be standard practice on all up-to-date machines, and we observe that one or two makers who have not adopted the dropped frame for this year will come into line in 1914. Petrol capacity, too, is being increased, and not before such a move was wanted.

Transmission and Controls.

This vexed question will certainly not be settled finally next year. There will be almost equally powerful schools of design which favour in nearly equal proportions simple direct belt, chain-cum-belt, and all chain transmission. From certain observations, we rather think that the most noticeable advance will be found in the chain-cum-belt type of transmission. This type allows either a hub or counter-shaft type of gear to be used, gives a good deal of elasticity to the drive, and practically abolishes belt slip and rapid belt wear. Its only drawback is the nearness of the belt centres, but the large pulleys employed to a great extent minimise this rather more theoretical than practical drawback. With regard to the infinitely variable belt drive type of gearing great improvements have been effected, and in future ratios as low as 12 to 1 will be obtainable. To all chain drive, the growing popularity of the 500 c.c. twin will give a long lease of life. With a twin there is no shock to speak of compared with a single, and unless a good slipping clutch be embodied, a 500 c.c. is apt to wear the high speed chain with undue rapidity. A point to render driving more comfortable, and one ofttimes urged in *The Motor Cycle*, is the provision of a pilot jet to the carburetter. The extraordinary smoothness of running at slow speeds of a certain very popular twin has brought this accessory much to the front, and next year we may expect to see a number of carburetters so equipped. By this means traffic driving, in particular, will be vastly more pleasant. Combined with a three-speed gear of the counter-shaft or hub type, any machine should really be able to do what enthusiasts so often say they can, "tick over." And while on the subject of controllability, may we put in a plea for standardised handle-bar control for brakes and exhaust lifters. It is very annoying—and to the novice even dangerous—to ride for a time a machine with brake lever on the right and then go suddenly on to a machine with the same control on the left grip.

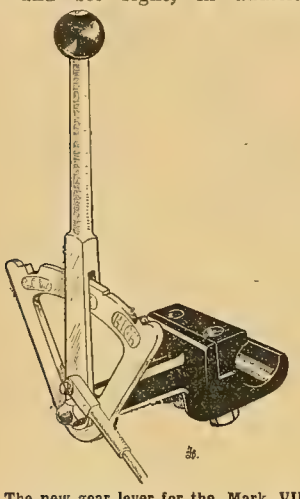
The Happy Mean in Engines.

Nearly everything in this world is in the nature of a compromise, and the motor cycle engine is no exception. Not many riders can afford to keep more than one machine at a time, and therefore they naturally turn to the one most likely to give the best all-round service. And nearly every one, at some time or another, wishes to take a passenger and a sidecar. Now the ordinary 500 c.c. machine is a little on the small side for such work, while the big twin is unnecessary for solo work, and the vast majority of riders still prefer the simplicity and efficiency of the single for all-round work. Therefore a demand has lately sprung up—and to a certain extent has been met—for larger single-cylinder engines. We believe that this demand will increase, and already we hear of some notable newcomers to this class. An engine with a cubical capacity of, say, 600 to 700 has the further advantage beyond power, in that it is not necessary to keep it in such perfect tune as its 500 c.c. little brother, owing to its natural reserve of strength, and it is also likely to be more long-lived in its "innards" owing to those organs not being so frequently stressed. We believe that the "big single" has an enormous future before it. Such a motor, if fitted with forced feed lubrication, would be practically everlasting. One great refinement we may look for in the near future is electric lighting. Already we hear of a famous machine to be so fitted, and when a dynamo electric lighting outfit is installed, night riding will be robbed of half its bothers, although acetylene gas may give a more powerful light.

The New Armstrong Mark VII. Gear.

Some Internal Features of Construction. Suitable for High-powered Machines.

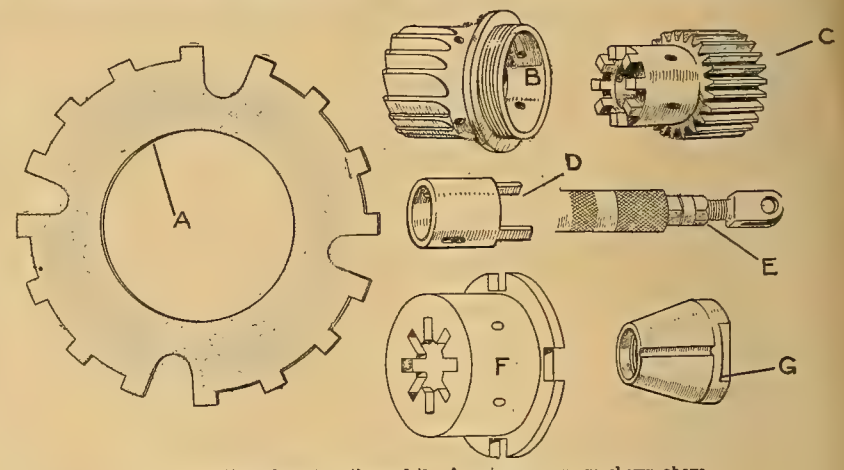
THE popularity of the Armstrong hub gears can be gauged by the large number to be seen at any gathering of motor cyclists, and it may be imagined that Messrs. the Armstrong Triplex Three-speed Co., Ltd., are keeping thoroughly up to date. The latest of the firm's products is the Mark VII. gear, which was shown to us in detail during a recent visit to the works. The new gear is in no way an experiment, but is the result of long experience in the manufacture of three-speed hubs, and is a perfected model of the Mark VI. gear, which is already well known. The performance of the Mark VI. hub has been very carefully watched, and the slightest defect traced to its source and set right, in addition to which all parts have been considerably strengthened and rendered as fool-proof as it is possible for so compact a piece of mechanism. Great attention has been paid to the lubrication question, and oil holes and leads have been arranged wherever necessary.



The new gear lever for the Mark VII. gear. The Quadrant is fixed to the lower tank rail and the long lever forms a very comfortable method of changing.

The clutch area has been increased 150%, the plates are now made of blue pen steel, and the clutch carrying member is held up to its work by a powerful coil spring. This latter feature is important, as it removes the possibility of clutch slip through over-screwing the nut which previously took the place of the spring. Another innovation is a ball thrust ring which is arranged to take the thrust of the clutch springs, and thus save a certain amount of friction. The substantial construction of the new gear may be judged from the appended line drawings and photographs, which show the improvements in some of the more important parts. The gear cross key has been doubled in strength, the clutch springs and control spring are longer and more flexible, and the adjusting cones improved so as to give a more delicate adjustment.

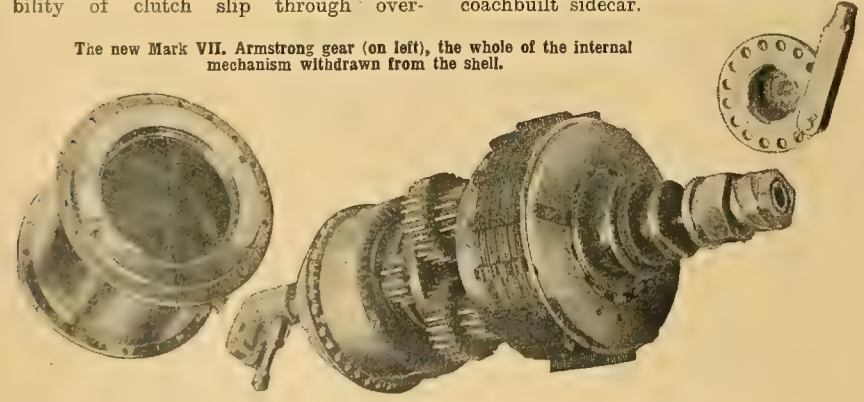
The hub is ½in. wider than the Mark VI., and requires 6¾in. between the fork ends; controls have been strengthened; the new change-speed lever is long and works in a large quadrant, making gear changing very easy and convenient, while the quadrant has a neutral position for adjusting purposes, which considerably simplifies the operation. We obtained excellent service from a Mark VI. gear during the past year, and have already a machine fitted with the Mark VII. which has required no attention during its first 300 miles, though fitted to a 6 h.p. twin-cylinder machine with coachbuilt sidecar.



Several of the enlarged portions of the Armstrong gear are shown above.

A. Clutch plate with oil pockets.
B. Cog driver with lubrication holes.
C. Medium size pinion which has increased bearing surface.
D. Strengthened axle collar.
E. Stiffened gear adjustment.
F. Leg clutch, the elongation of which permits the use of a longer and stronger clutch spring.
G. The new cone which gives finer adjustments.

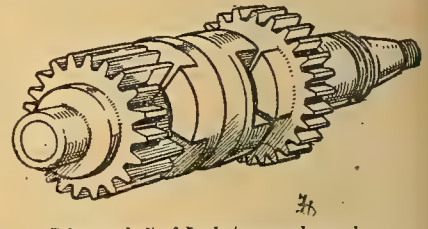
The new Mark VII. Armstrong gear (on left), the whole of the internal mechanism withdrawn from the shell.



A NEW LEVIS TWO-SPEEDER.

As a result of the successes of the 2¾ Levis during the past year, this model, which was originally designed for the Tourist Trophy, will be standardised in a modified form for next year. The bore and stroke will be 75 × 79 mm. respectively, and plain bearings will replace the rollers; the separate head will also be done away with.

A simple counter-shaft two-speed gear box has been designed, and will, in future, be fitted on request. The gear is of the sliding dog type and is solidly constructed. A very simple clutch on the expanding brake principle will shortly be ready, and will be contained in the fly-wheel, thus permitting existing types to be converted to free engine machines. The extra weight is small and the price low.



Primary shaft of Levis two-speed gear box.

The well-known Baby Levis will, of course, be marketed, and the 2¼ model will remain unaltered, except for an increase of three millimetres in the bore. A very novel engine is being constructed for aeroplane purposes, the details of which we are not yet at liberty to publish; it will be rated at 35 h.p.

Those who have seen Mr. Tom Davies, a well-known variety artist, performing in "motor cycling in the air" will be interested to hear that he has ordered four 2¼ Levis machines for his performance.

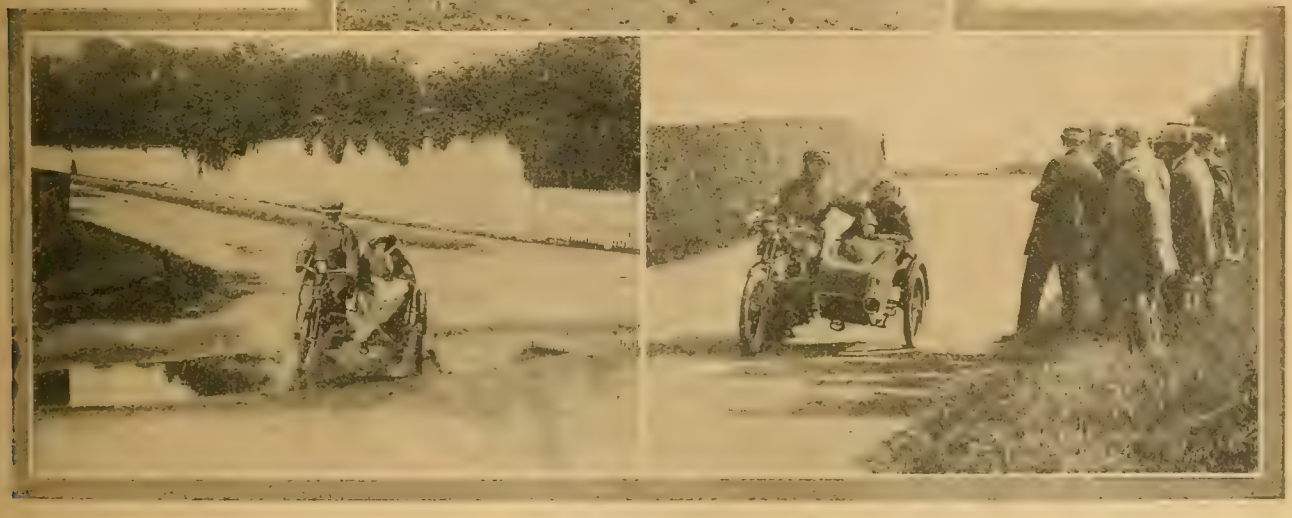
The Choice of a Sidecar Outfit.

By ROAD RIDER.

DESPITE the competition of the cycle car, sidecars are booming as they never boomed before; and they will boom more than ever when the next Olympia Show is over, because the standard bicycles of 1914 will be more admirably adapted to sidecar propulsion than their noblest predecessors. Novices may therefore welcome a few hints on the choice of a motor bicycle which is intended to drag an extra passenger.

The first question is that of horse-power. From this standpoint machines fall into two classes. The 2¾ h.p. class may be ignored, as it is only suited to clever riders in the easiest possible country, and is seldom sturdy enough to take an attachment. The big 8 h.p. machines may be left to those for whom money is no consideration and pace a great attraction. For the ordinary man the two horns of the dilemma are the 3½ h.p. and the 750 c.c., which is usually rated at "5-6 h.p.," though it should actually develop rather more. The 3½ h.p. can claim the advantages of simplicity and of economy. Its failings are that it is a trifle slow in hilly country or when a strong wind has to be faced throughout the run; and that it cannot be relied upon to take a loaded sidecar up absolutely any hill. The 5-6 h.p. permits of a faster average speed, and should ensure the conquest of the most abnormal gradient with the passenger seated in a normal position, but it is very distinctly more costly to run, and it presents more complex problems to its owner on those rare occasions when the engine behaves like a naughty child. Let us go more closely into the question. The real crux is that we must weigh the superior capacity of the 5-6 h.p. against the greater economy of the 3½ h.p.; and the answer depends chiefly upon what the 3½ h.p. can do in ordinary hands.

Driven by men like Marston, Haswell, or Bischoff, a 3½ h.p. sidecar outfit can do almost anything; and it must be remembered that all these men ride the 3½ h.p. by choice. They can all afford an 8 h.p. machine, if they prefer it, and I believe I am right in saying that they have all driven many miles with sidecar outfits of high power. The "chanciness" of the 3½ h.p.



A YORKSHIRE SIDECAR TRIAL.

(1) In the water-splash at North Grimston, which is immediately followed by a stiff hill, which usually causes drivers of belt driven machines much anxiety.
(2) Another sidecar charging a water-splash during the recent B.S.A. trial in Yorkshire. (3) Crossing the finishing line.

The Choice of a Sidecar Outfit.—

seems to make a keen appeal to their sporting instincts. They know there is a very distinct "if" about things when they tackle a freak hill, if not on the first day of the trial, at any rate on the fourth or fifth day, when the engine is getting a little carbonised, and some of the vital tuning adjustments have worn the edge off their original delicacy. In a word, there is nothing sporting about climbing hills with 50% of your power in reserve; and some of the crack riders adore the gamble of rushing at Amulree with only 500 c.c. under their tanks. On the other hand, we have to remember that such men probably obtain one of those "star" engines which mysteriously appear among each batch of 100 nominally identical duplicates passing out of a factory. They are adepts at tuning these engines, and tuning for freak sidecar performances is a special art, a little removed from tuning a solo mount. They are up to every trick on the board.

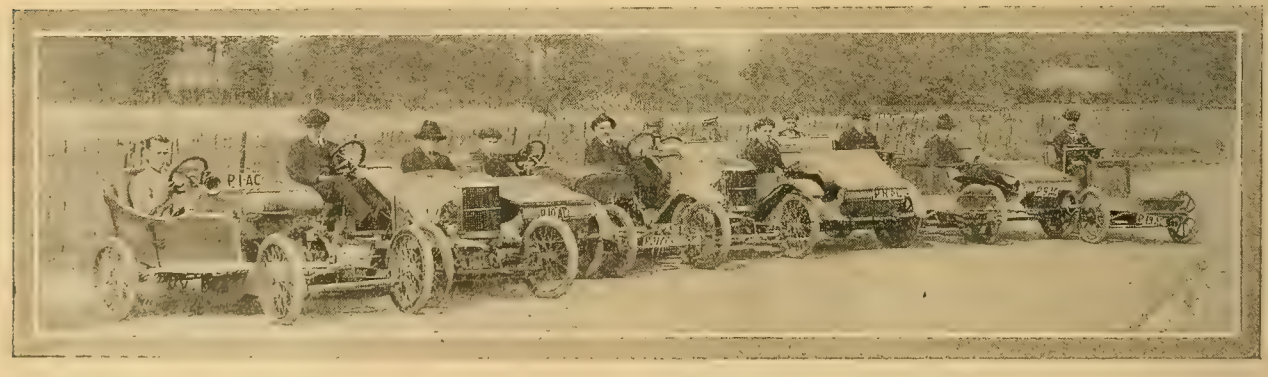
The 500 c.c. engine develops a little more power to-day than its predecessors of 1912 and 1911, but I have known sidecar experts drain their crank cases at the foot of every big hill in a trial, inject four, six, or eight pumps on their way up, and drain out the surplus at the top through a special orifice reamered out generously for the purpose. I have known them employ gear ratios so low that they were hardly applicable for ordinary touring purposes, and there were days when the sidecar crack thought nothing of carrying half a dozen belts in a week-long trial, and tugging the heart out of each of them. Furthermore, it is not everybody who can drive as the experts drive. Have we not seen the crack top the mile of gradient with his engine beats sounding out reluctantly at long intervals—one a minute or so, it felt like—and do we not know the amateur whose engine stops as soon as the pace drops below fifteen miles an hour against a grade? We may be courageous and hopeful, but we must not rely on equalling these record performances.

3½ h.p. Sufficient for Practical Purposes.

But the verdict is not given against the 3½ h.p. sidecar because we have no hope of coaxing it up Countisbury or Amulree. Great Britain is covered by such a network of roads that no tourist is compelled to take all the freak hills in his route. We can visit all the beauty spots of our islands without facing a single genuinely formidable hill. We may be content to arrange our touring so that we eschew the mountainous counties altogether, though this is a coward's policy. But it is not all the world if our 3½ h.p. outfit will not take two up the twenty or thirty really stupendous main road hills. It can be trusted to take one up. In private touring, we are not tied to a fierce time schedule. It does not matter in the least if our first rush dies out half way up; we can drop the passenger and set him, or her, to tramp to the summit while we return to the foot and make a second rush solo; there are very few hills on which both driver and passenger must dismount from a 3½ h.p.; in fact, I believe that Kenmore side of Amulree is the only climb which I have seen empty both chair and saddle of a crack 3½ h.p. with a good man up [Hugh Gibson made a clean ascent on a 554 c.c. sidecar with passenger seated in the Scottish Trial this year.—ED.], and thank goodness we do not meet Amulrees up every by-road. So—provided the passenger is equal to an occasional mile tramp up a stiff hill—the 3½ h.p. is quite usable for go-anywhere touring, though the 5-6 h.p. is much pleasanter in districts where the climbing is almost continuous.

Driving and Equipment Hints.

There are a few details which deserve meditation. A two-step drive, whether it consists of two chains or a chain and a belt, is less troublesome than a plain straight through belt. Sooner or later the day will come when the engine is out of tune, rain is teeming down, and a bad hill towers ahead. Under these circumstances the belt may slip so badly that the entire outfit may have to be pushed from the bottom to the top. A two-step drive affords a large belt pulley, on which the belt almost invariably grips well. Three speeds are much better than two, especially with a 3½ h.p. It does not take so much weight, wind, and gradient to bring a 3½ h.p. outfit off its top gear; and it is dull work grinding up a long two mile slope on a gear of 10 to 1 or less. A 3½ h.p. gives of its best when equipped with a light cane body, destitute of hood or screen, and driven by a man who keeps the weight and bulk of the luggage down to the minimum. A cabriolet body de luxe should be reserved for a 750 c.c. or 1,000 c.c. Finally, the 3½ h.p. sidecar man should gear low—5 to 1 is plenty high enough for top, and the driver should be extremely liberal with the lubricating oil.



A.C. testers in the various types of cycle cars produced by Auto Carriers Ltd., comprising the single-cylinder three-wheeled vehicle in industrial and pleasure capacities, the new four-cylinder four-wheeler and the single-cylinder four-wheeler.

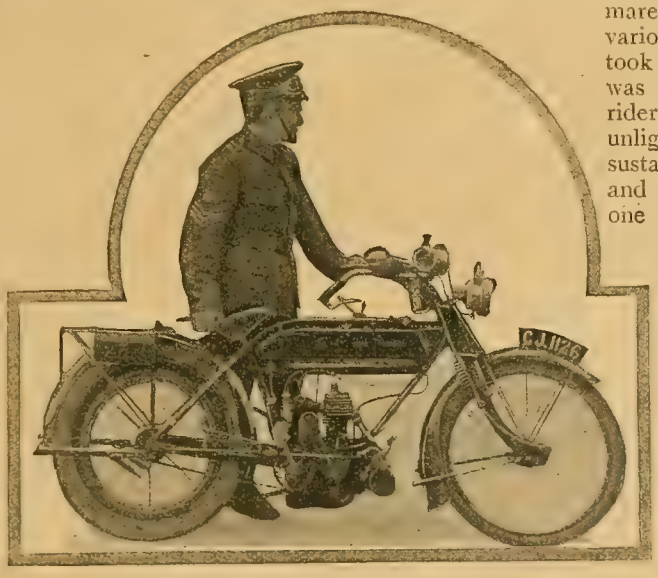
ON MANŒUVRES.

EXPERIENCES OF A MILITARY MOTOR CYCLIST.

HAVING volunteered through the A.A. and M.U. for services in the recently concluded manœuvres, on September 19th I received a letter from the War Office ordering me to report for duty to the officer in charge of the Neutral Signals at Aylesbury before 4 p.m. the next day. So accordingly Saturday, the 20th, found me approaching Aylesbury in the neighbourhood of three o'clock. Upon reporting for duty at headquarters I was assigned a room at one of the hotels, where I experienced no small difficulty in getting received. The proprietor, after escaping from an officer who kept on remarking, "I see 'garage' put up, but can't see anything more," actually informed me he wished I would go somewhere else. However, by a steady refusal to take "No" for an answer, I at length obtained a half share in quite a comfortable room by the kind consent of the other occupant, who was engaged in the same work as myself.

The Work on Manœuvres.

On reporting a second time for duty at 6 p.m., the nine of us attached to the Neutral Signals were divided into shifts of three, to be on duty for periods of four hours at a stretch, followed by a like period of absolutely free time, followed by another stretch during which we were to be near at hand in case of emergencies. I was in the first shift on duty from 8 till 12 p.m. At ten we were dismissed with the assurance we should not be wanted for another eight hours. This, however, proved to be a false rumour, for no sooner was I properly asleep than the quartermaster-sergeant, at 12.30, woke me up with a message from Bushey Hill, near Watford, the headquarters of the Brown Force. So after knocking up various unfortunates in attempts to get my machine out of the garage, where it had been locked up by someone ignorant of the ways of the Neutral Signallers, I finally got started about 1.20 a.m. After a lovely moonlit ride, I finally arrived at my destination at 3 a.m. On arrival I found the R.E. in full possession of the main corridor as both workroom and sleeping quarters—a cause of no small embarrassment to some ladies returning late from a dance that night. The R.E. welcomed my message, and nothing could be kinder than the welcome they gave me personally, so after a much appreciated sleep on a couch in their quarters and some refreshment, not to mention a fill up with petrol, free from a friendly A.S.C. captain, was able to get back to Aylesbury for breakfast.



"John de Balliol," the writer, and his New Hudson.

Spills, Skids, and Collisions.

There I found that disaster had overtaken one of my colleagues—the sharer of my room, in fact. An elated Tommy had executed a step dance in the middle of the road in front of him with most disastrous results, in the shape of two black eyes and a damaged nose to the rider and badly bent forks and lamp bracket to the machine; the Tommy seemed to have got the best of the encounter, escaping with a damaged knee. While on the subject of spills, it is interesting to note that out of the six who were on duty with the signallers to the finish, only the writer escaped without a spill of some sort, and he made up for it by three skids in 200 yards in Worcester, where tramlines, stone sets, worn tar, and steep camber all combine to make the town a perfect nightmare in wet weather. Of the various adventures which overtook the others, the most notable was the collision of a Humber rider on a foggy night with an unlighted lamp post—damage sustained, buckled front wheel and five spokes smashed, all in one place. However, the rider was not daunted, but in the small wee hours of the morning he there and then took out his front wheel and stamped the rim into a very close approximation to the spherical, stopped the gap made by the collapse of five successive spokes by taking sound ones from other parts of the wheel, and after this repair he went through the whole remaining six days with no further repair than the fitting of the necessary new spokes—surely a striking testimonial to the workmanship of those particular rims.

Some Praise and a Grumble.

I have nothing but praise for the behaviour of my little J.A.P.-engined New Hudson throughout the 661 miles I covered during the seven and a half days I spent in actual work and in riding to and from my home. In spite of miles of middle and low gear running, past troops and over vile roads, I never had any signs of overheating (in fact the hotter it got the better it seemed to go), nor was there one single misfire except one day when my wet Burberry kept brushing the plug much to my mystification till I caught the criminal, so to speak, *in flagrante delicto*. Indeed, over what was, in fact, a prolonged reliability trial I had absolutely no trouble whatever. My Armstrong gear throughout gave me every satisfaction. Perhaps I might add one word of advice to riders of this machine fitted with a B and B. standard carburetter, and that is, "take your choke tube out if you have

On Manoeuvres.—

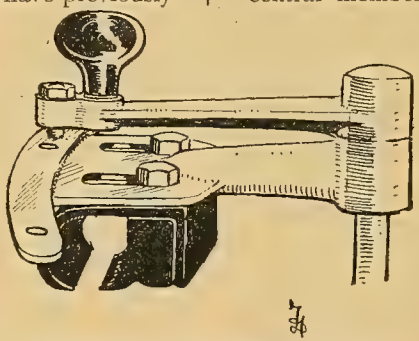
the standard jet still in." Mine was a 31 and the improvement was remarkable. I might perhaps best describe the week in Jake de Rosier's words—"This is no tea party." On the other hand, I have always found tea parties very poor sport indeed. Financially it works out that after paying all out of pocket expenses there is about £3 more or less to cover wear to belt and tyres and general depreciation to machine. In my case this worked out roughly 1d. per mile—hardly a generous allowance. The Government should be made to realise that motor cycles are very expensive and fairly delicate pieces of machinery, and that patriotism alone will not lead men to sacrifice both themselves and their time and to risk their machines when not even compensation for wear and tear and insurance against accidents are given to them by the authorities. Enough, however, of grumbling. The kindness and courtesy shown to us by all ranks of the Regulars, officers and men alike, was proof enough that those on the spot did not fail to appreciate any small services we may have been able to render; and if the work was strenuous—what of that? Surely that, too, was in its way a compliment, because only the willing and useful horse gets worked hard, and the work is also tremendously interesting, exciting, and healthy.

JOHN DE BALLOIL.

A DING DONG RACE AT BROOKLANDS.

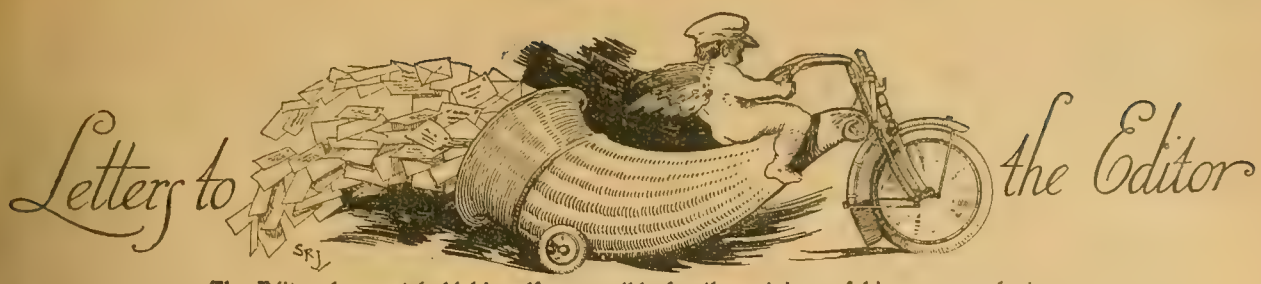
A Counter-shaft Two-speed Gear.

MESSRS. HARRIS AND SONS, of Upper Highgate Street, Birmingham, who have previously confined their gear designs to the epicyclic or revolving type, are marketing a neat counter-shaft two-speed gear suitable for fitting to many existing machines. The model shown to us has no clutch, the change-speed being effected by dog clutches only. The primary shaft runs on ball bearings, is fitted with a chain wheel for the first drive, while a large belt pulley is used for a final power transmitter. Five dogs are cut on the faces of the gear wheels, each being slightly under cut to prevent slipping out of engagement. The central member is slid from side to side by a fork mounted on a sliding rod, which, in turn, is controlled by a horizontal lever attached to the top tube. The layshaft revolves on a long stationary spindle, a bronze bush being interposed and drilled with copious oil holes. The complete gear is enclosed in a neat aluminium casting and attached to the frame by a substantial clip. A lubricator is fitted into which an oil gun can be introduced with ease. The gear and fittings are well made, and will be sold at a very moderate price.



Change speed control of new Albion two-speed gear.

The new Harris counter-shaft gear shown dissected and complete for fitting.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Shipping to Lagos.

Sir,—I should be much obliged if any of your readers who have been to West Africa could let me know if a tin-lined case is necessary in which to ship a motor cycle to Lagos. I am told that there is risk of damage by sea water in landing unless the case is tin lined. It seems an unnecessary expense if this is not so. F.C.M.

[Replies addressed care of *The Motor Cycle* will be forwarded. —Ed.]

A Curious Case.

Sir,—The cause of a peculiar firing back into the carburetter of my brother's machine baffled us for many days, and as we thought the matter rather strange, I have written to you so that perhaps some other motor cyclists might benefit from the explanation. I will put the case as shortly as possible.

Much intermittent firing after one big pop in the carburetter made us think that premature ignition was caused, and we were led to believe that the Bosch magneto was giving two sparks. This turned out to be the case, and the following explanation, I hope, will be clear.

The contact breaker casing was worn rather on the end boss of the magneto. So much so that the points of the breaker varied in distance apart as they moved round. This was due to the eccentricity of the casing and the contact breaker, which caused the points to touch again and break a second time towards the end of the cam piece, thus causing a second spark at the plug points and somewhere near the beginning of the suction stroke. Hence explosion when valve was open and intermittent firing.

A new contact breaker casing and end plate put matters right immediately. The trouble may not be new to you, but it struck us all as being most novel.

IVAN P. MILLAR.

An Undesirable Practice.

Sir,—With J. A. Allen I was surprised to read your leader on pillion seat riding in *The Motor Cycle*, though, perhaps, from a different cause.

During the last two years I have ridden 4,000 miles with a passenger on the carrier of my 3½ h.p. Ariel, and up to now I cannot attribute a single mishap to the "undesirable practice."

I have a sidecar, but the only time I have used it this year was when I was going a week's tour, and even then I was so disgusted with sidecaring after riding "undesirably," that I uncoupled after the first day and called for the sidecar coming home.

My friends, who have tried both methods of locomotion, are unanimous in voting the pillion seat the better method, while, as for hill-climbing, my machine romps up hills it would not look at with a sidecar.

From my experience, I conclude that, with care, carrier riding is quite as safe as sidecaring; and, for cornering, safer.

I have never had a skid, but your repeated warnings of this danger make me rather nervous when riding on wet roads.

In conclusion, do you think that to prohibit a practice, which, on your own showing, has "become enormously popular," would be altogether a good thing for the pastime?

HARRY SPENCER.

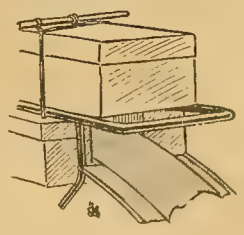
Sir,—With reference to Mr. J. A. Allen's letter, in your issue of the 2nd inst., relative to the above, I think he rather misses the point. I take it that not many people, except his circle of friends and relations, care very much whether Mr. Allen breaks his neck or not, but immediately he begins to endanger the necks of other people, then it is time for the law to step in and say what he (and, incidentally, others) shall or shall not do. How many of the fair carrier riders know the risk they are running, especially on a greasy road? Not many, I warrant, until the smash comes; and after that they are lucky to be alive to renounce their favourite pastime. Not only is the practice dangerous to the participants, but to other users of the road, in that, unless the passenger is skilled in the art, the stability of the machine must be, to a certain extent, upset—at any rate on grease. Mr. Allen refers to flying—I quite agree with his sentiments as expressed—but supposing one of the intrepid airmen was to start his evolutions over the city of London, say, what then? Would Mr. Allen condemn the practice? (I know that a law has been passed forbidding flying over congested areas, but I have taken the above more as a figurative example than anything else.)

In conclusion, I hope you will continue to set your face against a practice which, I feel sure, the main body of motor cyclists look upon as dangerous in the extreme.

LT 2734.

Tying on Luggage.

Sir,—In order to tie luggage on a motor cycle so that it will not move, pass an ordinary piece of cord round the luggage and carrier with loops at each end. Through these loops pass a fairly strong piece of wood, say 12in. long, twist the cord until it is quite tight, and then tie the end of the stick to one end of the cord, or have a small iron ring which can slip over the point of the wood. By making this tourniquet the cord can be tightened so that it would cut into your luggage.



I hope this idea will be of use to somebody. I enjoy reading your paper very much, and have done so for some time. I ride a Motosacoche, but we have very bad roads.

Argentine Republic. H. DANDRIDGE.

Power for Sidecar Work.

Sir,—As there appears to be uncertainty in many minds as to the reliability and capabilities of 3½ h.p. cycles with sidecar in the hands of ordinary beginners, starting with a new machine, perhaps my experience may be of some interest.

At the end of June, 1912, I got a 3½ h.p. Phelon and Moore with sidecar, and after a month learning to drive I took it for a tour in Scotland and the Lakes with passenger and baggage. In September we crossed to France passing through Paris, Clermont Ferrand, over the Auvergne Mountains to Carcassonne, and thence through the Esterel to Nice and Monaco, and home again over the Alps.

crossing Cols 4,500ft. high and hills eight miles long, without trouble or mechanical worries.

This year in June we took another Scotch trip, and in August another 2,000 mile French tour, the route of which was Boulogne to Rocroi, and through the Vosges to Nancy, etc., and following the frontier through the Jura to Bellegarde and Grenoble, thence up the Oisans, and over the Col de la Croix de Fer to S. Jean de M. about 4,500ft., to Pralognan 4,500ft., then to Val d'Isère 6,000ft., and over the Jura Mountains home. This completed over 10,000 miles in fifteen months, a great many of them amongst mountains.

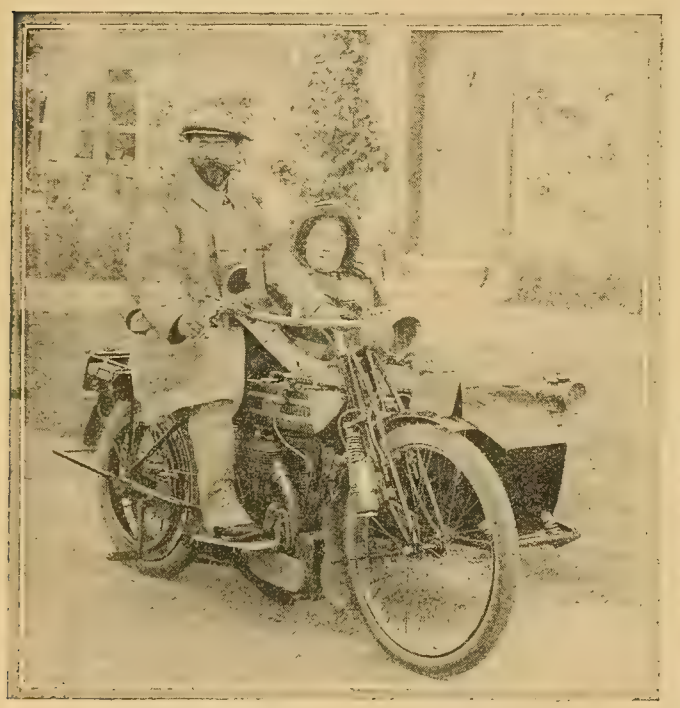
Petrol consumed for 2,004 miles was twenty-four gallons or 83½ m.p.g., and the gear chains ran over 9,500 miles before renewal. The gear has never refused to work, and the foot starter is most reliable. Of course, adjustments must be made, but again next year I hope to start off abroad for a month or six weeks carrying all baggage and spares, and shall do so without the least anxiety.

I have no interest in Messrs. Phelon and Moore, Ltd.

H. PORRITT.

An Enthusiastic Sidecarist's Advice.

Sir,—As an old reader of your valued paper, I have seen various letters and photographs published from other readers detailing their experiences with motor cycle and sidecar for pleasure purposes. I have lately bought a machine, and can now realise the pleasures of motoring. I have done 2,000 miles in three months, spending my holidays



H. Baker (Ivy-Precision sidecar). See accompanying letter.

in Wales, then I undertook a tour of eight hundred miles without the slightest trouble. In my opinion, there is nothing to come up to a motor cycle and sidecar.

There must be many, like myself, who fear to ride solo, and who would be motorists, but cannot make up their minds, and to them I say get a motor cycle and sidecar. Their pleasures will begin.

H. BAKER.

Benzole.

Sir,—I am sending you a few facts about benzole for the benefit of those of your readers who are interested in its use.

"Benzole" or "benzene" is a name applied to a hydrocarbon obtained (with many other compounds) from the destructive distillation of coal and certain oils, but chiefly coal. When pure it boils at 176° F. and freezes at 32° F to a colourless solid. The liquid is without colour, and has a specific gravity of .884 (water being 1.0). It must not be confused with "benzine," or "benzoline," which is a hydrocarbon of different constitution, and is a product of the distillation of petroleum and akin to petrol.

It is at once evident from the above that pure benzole is not suitable for an ordinary carburetter except in hot weather. Commercial benzene is sold at 90% and 50% strength, but these figures are misleading; they refer to certain standard distillation tests. 90% benzole would contain about 78% pure benzole, the remainder being chiefly toluol and some xylol hydrocarbons of much higher boiling point (230° F. upwards), but possessing the property of remaining liquid under 80° of frost. Consequently, 90% benzole will keep liquid at very low temperatures, and 50% lower still, but the high boiling point of this grade makes it harder to start up on.

Good 90% benzole should have a specific gravity of .880-.883, and should be clear and colourless. There is no simple test which will give definite results, but the following will give a fair indication of quality. Take a 4 oz. stoppered bottle and measure into it one fluid ounce of sample and one fluid ounce of pure sulphuric acid, securely stopper the bottle and shake vigorously for one minute, and allow to stand for one minute. The heavy acid will separate out, leaving a clear, or slightly cloudy, colourless layer of benzole, the acid being a pale yellow or slightly darker colour. The benzole should not diminish in volume by more than about one-fifth of its original volume. The acid should not show brown or a darker colour within five minutes. Perhaps it would be interesting to compare results obtained in practice with theory in the comparison between petrol and good benzole.

Petrol is a distillation product of petroleum, and may be taken to be composed of approximately 84% carbon and 16% hydrogen, specific gravity, say, .720; while benzole contains 92.3% carbon and 7.7% hydrogen. When we buy a gallon of petrol we get 7.2 lbs. of spirit; when we buy benzole we get 8.8 lbs. of spirit—a clear gain of 1.6 lb. on every gallon, or about 18% more fuel. Also, the higher proportion of carbon to hydrogen in benzole shows us why we must give more air than with petrol—the excess of carbon would otherwise drop out of combustion in the form of soot or black smoke.

Benzole is a powerful solvent—much more so than petrol—and if enamelling is not protected by a hard lacquer, upon which benzole has no action, the enamel will soon be dissolved.

CHEMIST.

Hub and Counter-shaft Gears.

Sir,—I have been using during the present season a 4½ h.p. Calthorpe sidecar combination. This is fitted with their own counter-shaft gear, which drives with a chain to gear box, and then by belt to back wheel. This has not given me the slightest trouble during the whole season, and the chain and belt still appear as new. There are several similar machines around here, the owners of which all speak in loud praise of this drive. Some of these machines have been ridden between 4,000 and 5,000 miles, and the original chains and belts with which these are fitted still appear to be in first-class condition, neither do the riders complain of having any trouble at all with these gears.

E. BROWN, Hon. Sec. Burnley A.C.

Sir,—May I be allowed a little space to give my favourable opinion of a three-speed hub. I own a Triumph with Sturmey-Archer three-speed gear, which up to the present has done over 7,500 miles, solo and sidecar. The gears have given every satisfaction. They change well, are noiseless, and rarely require any adjustment. A little clutch slip was at one time noticeable, due to over thick oil. As regards wear on belts and tyres, I average 5,000 miles with a ⅞in. Dunlop. I am using one at present which has 5,500 to its credit. My back tyre, a Kempshall, has nearly run 4,500, replacing a lighter cover which did over 3,000. I have no interest in any of the makers concerned beyond that of a satisfied user.

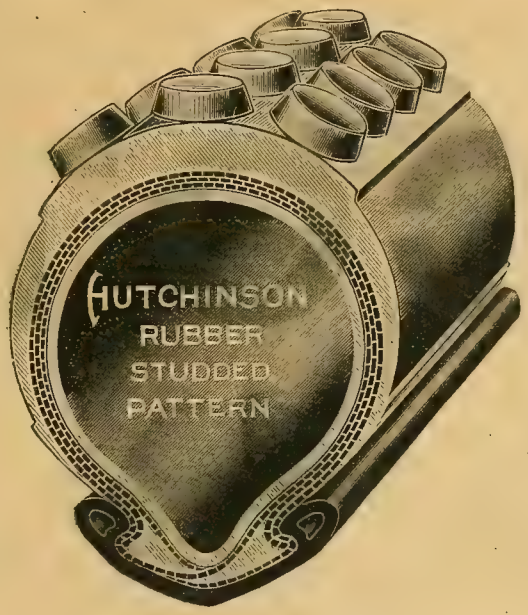
O. F. D. AIRTH, M.B., B.S.

Sir,—A season's riding of a 3½ h.p. single-cylinder with three-speed gear has not made me a hub gear enthusiast. My distrust of the three-speed hub arises not so much from my own misfortunes as from the experience of several of my friends and from the number I have seen *hors de combat* in garages and by the roadside.

I have only been hung up once; the teeth of the gear wheels had worn to such an extent that they refused to

HUTCHINSON

New Rubber Studded.



IN view of the tremendous success which our Rubber Studded patterns have achieved since their introduction on the market, we have decided to retain same for the coming season, with, however, several slight alterations and improvements.

In the new patterns the rubber studs have been placed somewhat closer together, as from experience we find that this arrangement gives considerably higher efficiency both as regards non-skidding and wearing qualities by reason of the fact that a larger number of studs are continually in contact with the road surface than is the case when studs are placed wide apart. As regards quality, the usual high standard of excellence characteristic of Hutchinson Tyres has been maintained, both in material and workmanship, and we have every confidence in recommending our new "Passenger," "Tourist Trophy," and "Brooklands" Rubber Studded grades as the last word in modern tyre construction.

Reduced Prices, now in force.

26×2	**BROOKLANDS**	**23/-**	*Cover only.*
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The above grades are made in all standard sizes. For prices see Catalogue.
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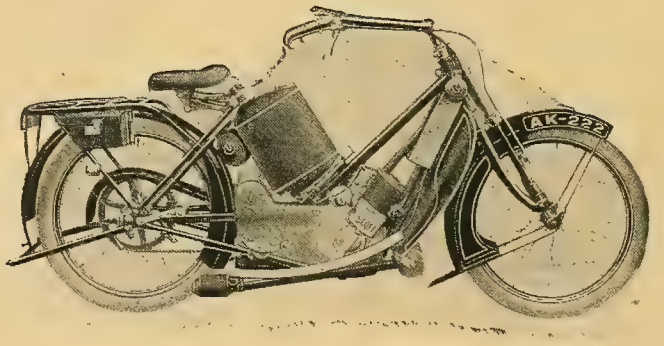
MIDLAND RELIABILITY TRIAL.

LEVIS CUP

WON by W. L. GUY on a STANDARD

SCOTT



ALSO WINNING

CLUB GOLD MEDAL

AND

SPECIAL PRIZE FOR BEST SOLO PERFORMANCE.

— THE SCOTT ENGINEERING CO., LTD.,
SALTAIRE — SHIPLEY — YORKS.

In answering this advertisement it is desirable to mention "The Motor Cycle."

drive. Up to this time I had ridden 2,300 miles (1,000 with sidecar) and the gear had needed no adjustment.

It was found when fitting new gear wheels that the clutch plates were worn through; this seemed to point to the necessity of fitting larger bearing surfaces. The tip given by some of your correspondents how to make the gear last, *i.e.*, not to use the clutch much, rather amuses me. Why not build the device to do its duty under working conditions? Has the idea of fitting the clutch in the hub and the gear on a counter-shaft, or *vice versa*, been tried and with any success? This would seem to take some weight off the back wheel, simplify the construction of the gear, and minimise the danger of skidding. I agree with "Engineer" that the gear makers do not take much trouble to explain their wares. I should have taken my hub gear down long ago and studied its "innards" if I did not look upon it as a complicated device and need my machine daily.

I am looking forward to the development of the chain cum belt three-speed counter-shaft gear.

Re belts. Many of your correspondents complain of the poor service given by rubber belts. I ran over 3,000 miles last season with a ⅞in. Dunlop, and have done well over 3,000 this year with a belt of the same make and size, using a sidecar a good half of the distance; my only belt adjustment this season has been to cut an inch off in order to lower the gear. U 6652.

Sir,—Perhaps the following complete comparison and test, which, to my mind, is conclusive, may interest your readers. One November, my brother bought a 3½ h.p. machine with chain drive two-speed counter-shaft gear. Six months later I bought a "3½" two-speed belt drive hub gear, paying £2 more, both being in the neighbourhood of £60. Both machines have now completed 5,500 miles over almost identically the same roads (all long rides have been done in company, and we have only two roads to choose from for a distance of ten miles, one of which only is used, leading nearest station and market town). My machine is the faster, his has the lesser petrol consumption. Barring new fork links for each, due, I think, to our roads, neither of us has spent 5s. on repairs to front wheel, frame, or engine. I ought to mention that I live in the Lake District, with Hard Knott Pass, The Seat, Kiln Brow, Cold Fell, Crossdale, and other Six Days Trials hills within a radius of fifteen miles. Both bicycles are in splendid condition, in fact recently we climbed The Seat, Eskdale, from both sides with the greatest of ease *in the dark*, which some riders will appreciate. Both bicycles have had an identical testing with identical results, except with regard to the rear unit, viz., transmission gear and complete back wheel, a tabulated report on which is found below:

Counter-shaft Gear.	Hub Gear.
Transmission.—Chains, untouched.	*Transmission.* — Belts: 1 Continental (worn out), 1 Lyso (worn out), 1 Dunlop (done 1,100 miles).
Tyres.—1 anti-skid Kempshall (worn out), 1 heavy Kempshall (good condition).	*Tyres.*—1 Dunlop (worn out), 1 heavy Kempshall (worn out), 1 extra heavy Bates (good condition).
Gear Replacements.—Balls and small parts, value 6s. 3d.	*Gear Replacements.*—1 hub shell complete, 1 phosphor bronze clutch, 2 back axles, wheel rebuilt twice, 1 primary sun wheel, balls and small parts (value 27s.), add to which carriage of machine in breakdowns, for repairs, telegrams, etc., 37s.
Total running cost (approx. to 5s.), £5 6s. 3d.	Total running cost (approx. to 5s.), £20 9s.

L.A.

We must say that "L.A." has had a most unfortunate and unusual experience. We now possess our sixth machine with hub gear, and only two have given trouble. —Ed.]

The Modern Reliability Trial.

Sir,—Your timely remarks last week should induce club secretaries to consider more seriously what should be the object of a reliability trial. Personally, I gained the impression over a year ago that the freak hill trial was rapidly dying a natural death, but during the last few months it seems to have acquired renewed vitality, and the most recent examples have surely reached the limit of absurdity, since they one and all tend to show the public what 90% of good machines cannot do, instead of what the majority can do under reasonable touring conditions. I refer, of course, to trade supported events, and not to trials run for purely sporting purposes.

The committee of the Streatham and District Motor Cycle Club have for nine months past been carefully considering the tests to be imposed in their open trial which will be held on November 1st next, and they long ago came to the conclusion that tests of acceleration, speed, and ability to stop and restart on a steep gradient would be more sensible and of greater value, both to the public and the manufacturers, than the results obtained by including freak hills in the non-stop sections of a trial. Our trial, which is supported by the manufacturers, should, therefore, place in the hands of the public just before the Olympia Show a considerable amount of valuable data.

The reliability course, although not including freak hills or hairpin corners, is at the same time reasonably severe, while the machines which can pass the remaining tests and can also attain the standard speeds set for the lap of Brooklands will be hallmarked as being in every way first-class touring mounts. We have also, for the first time, included a class for 300 c.c. machines, which should enable the performances of the smaller solo mounts to be judged more correctly by comparison with those in the 350 c.c. class.

FRANK L. BASSETT,
Hon. Secretary Streatham and District M.C.C.

Off for a Morning Dip.

Sir,—I beg to enclose photograph of two friends and myself, members of the Broomfield Park Swimming Club, on our way to Highgate Pond for a morning dip. You will notice the machine is a 6 h.p. Royal Enfield, and it may be of interest to readers to know that, although I have ridden 3,500 miles on the tyres provided with motor when new (Dunlops), the driving tyre appears to be good for another 2,000 miles. I have had one puncture in each tyre, and that was when holiday-making in a flinty part of Suffolk.

C. B. PETERS.

A 6 h.p. Enfield sidecar owned by C. B. Peters. (See letter.)

An Undesirable Practice.

Sir,—Being a constant reader of your journal, may I express an opinion on carrier riding? I maintain that if the passenger be a male and uses pedals or footrests it is quite a safe way of riding, but I do not think that it is wise for "flappers" to try on account of their dress, and they cannot put their feet on the pedals. My brother and I have covered a good many miles in this way, myself riding on the carrier, and I do not think my brother suffers from the "headstrong rashness of youth."

The carriers on most motor cycles are very strongly made, as the makers know that they will be used for this purpose. Your correspondent has most probably never ridden like this, and so he ought to try it before protesting against it.

W. A. COE.

A Problem.

Sir,—We have read with interest Mr. Bailey's letter in your last issue, and there are one or two points with which we cannot entirely agree. In the first place, he says the engine which he examined was timed "theoretically" right, and we presume that he means this was the makers' timing. What we cannot understand is how the makers, who have undoubtedly subjected their engine to exhaustive bench, track, and road tests, could have overlooked the slight adjustment which, as Mr. Bailey says, would result in an increase in speed of twenty miles per hour and a corresponding increase of hill-climbing powers. What we would like would be a more definite description of the changes in timing Mr. Bailey effected. In conclusion we may state that we believe with "Ixion" that, in the majority of cases like "Twin Jap's" the data provided are insufficient to enable a diagnosis to be made off-hand.

WM. BRIGGS.
D. MACDOUGALL.
G. C. WALKER.

The A.C.U. Cycle Car Trial.

Sir,—The A.C.U. has arranged an interesting trial, and one which apparently should be well within the powers of the modern cycle car. Personally, I regret that a puncture can end the chances of a promising machine, for in by-roads even the best of tyres may succumb. Against such ill-luck the only remedy is to enter more than one car. A noticeable provision is that unless twenty-five cars are entered there will be no trial. This is perfectly fair. In the Spring Trial there were sixteen cycle car entries, representing, however, only six makers. This is not a hopeful augury. But exception was then taken to some of the rules, and perhaps this may have caused some to hold aloof. There are now 150 cycle cars on the market, and as several of each of the more popular types will be entered it will need hardly more than 10% of this number to complete the entry. Twenty-four firms are exhibiting cycle cars at Olympia. It is not unfair to say that any of these which have shirked the trial (unless they have already submitted to the ordeal of a competition test) will be self-condemned. Certainly the list of entries should be published, even if the trial is not run. Of course, any reasonable excuse for absence should be noted, though in this case perhaps *qui s'excuse s'accuse*. I wish the A.C.U. could have adopted *The Motor Cycle's* suggestion to include a spin at Brooklands. I notice that the Streatham Club, in their very sporting trial on November 1st, have done so.

H. GEORGE MORGAN.

Prices of Motor Cycles.

Sir,—Replying to Mr. Gordon C. Francis, in your issue of October 9th, I, as an old rider, and consequently a buyer of motor bicycles, am naturally anxious to purchase my mount as cheaply as possible. At the same time I am not quite so inclined to eulogise Messrs. Humber, Ltd., for reducing motor bicycles by £5.

Old expert riders and racing men are fully alive to what has happened to the push bicycle through the reduction of prices, and, as experts, they can see that many eminent firms, in reducing their prices, have designed the machines solely with an eye to cheapening manufacture, and that such machines cannot be compared with the carefully constructed machines made by some of our old firms some ten or fifteen years ago.

In fact, some of the machines which are now turned out run very "dead," and "running between the strokes" (to use an oarsman's phrase) seems, in many makes, to have entirely disappeared.

As an enthusiastic motor cyclist I would prefer to see manufacturers trying to improve details, adding refinements, and studying efficiency, rather than adopting a policy of reducing prices by a few pounds, for not only is it impossible to make improvements if prices are cut, but firms will find it necessary to design their machines with an eye to reducing the cost of production—that is, of course, if any return is to be made to their shareholders.

UTILITAS.

How to Test Benzole.

Sir,—I cannot allow the criticisms of my contribution to pass unchallenged. To begin with "Technical Chemist." It is not absolutely necessary to use a water-cooled condenser for a liquid which boils about 100° C. If the liquid is distilled in drops the air will cool sufficiently well, without the additional expense of a water condenser. If any tendency be shown on the part of the benzole to escape a piece of filter paper or blotting paper moistened with water and wrapped round it will keep it sufficiently cool. I have done and have seen this done numberless times. He goes on to say that "many novices will, in all probability, use a gas ring, or something equally unsuitable, and begin to distil at such a rate that practically no condensation would take place, and the vapours would ignite." True enough; but in my article I did not mention a "gas ring or something equally unsuitable," but a "bunsen burner or a spirit lamp" to heat it, "so that it comes over in drops and not in a continuous stream." If, after that, anyone does the test by putting the retort in a furnace and complains of explosions and burns, I wash my hands of the affair. It may interest "Technical Chemist" to know that in a certain works boys of fourteen, fresh to the business, are put on to this test in a very short time, and get results as accurate as are required; it, therefore, does not require an expert manipulator; the test is too simple.

"Chemist" takes exception to my statement that there is no quick and accurate method for the estimation of sulphur in benzole, and then says that the method I give is the only way to determine the total sulphur. His account of the method of estimating thiophene is quite correct, but he is not correct in saying that carbon bisulphide "can be quickly and easily estimated with accuracy with the aid of a good balance"! It happened that, only a few months ago, several business friends and myself had occasion to want a method of estimating carbon bisulphide quickly, and we collected all the known literature, and investigated all methods given, together with some new ones of our own. The conclusion we came to was that the only satisfactory method was the stock method of forming the xanthate with alcoholic potash. We could not get concordant results with any other method. I mention this to show that my statement is not made idly. The phenylhydrazine test is purely a *qualitative* one and not a quantitative. If "Chemist" is going to judge by the precipitate formed and floating in a liquid, how much carbon he had to begin with, he does well to hide his name. Nearly all benzoles contain carbon bisulphide, but very few people would estimate the impurity any other way than by the xanthate test. Finally, there are other sulphide compounds in benzene than carbon bisulphide and thiophene.

I beg leave to adhere to my statement that "there is no quick, easy, and accurate way of testing for sulphur."

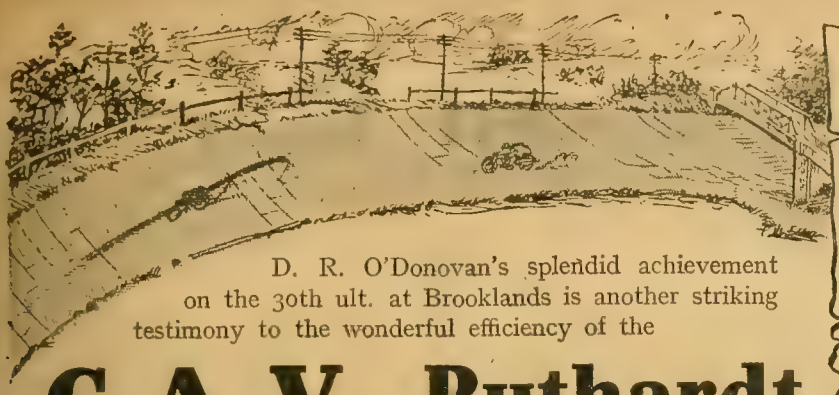
F. E. THOMAS.

SUMMARY OF CORRESPONDENCE.

LEVEL CROSSINGS.—"A Railway Signalman" writes, with reference to the complaints of Mr. G. B. Williams, that the gates have no right to be closed against the public while the signals are at danger, and that Mr. Williams's proper course would have been to report the signalman in question to the superintendent. [We should advise all readers who experience similar treatment to adopt this plan.—ED.]

NOTICE TO CORRESPONDENTS.

As we regularly receive many more letters than we are able to publish, we urge our readers to be concise and to the point. Also our correspondents are requested to note that we do not acknowledge by post letters intended for publication unless a stamped addressed envelope is enclosed. If, therefore, any letter does not appear in our pages, the writer must conclude either that it is unsuitable or that we have not space to print it.—ED.



D. R. O'Donovan's splendid achievement on the 30th ult. at Brooklands is another striking testimony to the wonderful efficiency of the

C.A.V.-Ruthardt Magneto.

Racing men, tourists, and club men know that there is not a more reliable means of ignition than the Ruthardt Magneto under all conditions of riding and in all weathers. It gives a lively spark, and is proof against dirt, damp, and water. This is the magneto you should use. It is the first self-contained type, and will not fail to give you satisfaction. **Post us a Card for Catalogue.**

C. A. VANDERVELL & CO.,
Electrical Engineers,
Warple Way, Acton Vale, LONDON, W.
Telegrams: "Vanteria, London." Telephone: 1234, Chiswick (5 lines).
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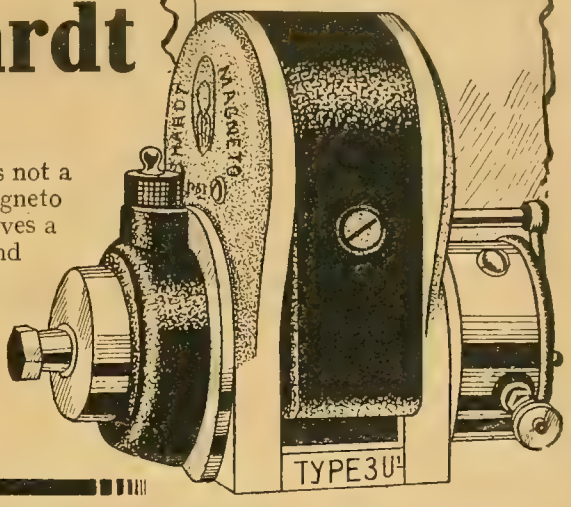
TUESDAY, Sep 30

LATEST

BROOKLANDS

D.R.O'Donovan on a Norton motor cycle with Ruthardt Magneto broke the flying 5 mile (500 cc.) record at 71½ m.p.h., and Standing 10 miles at 68,08m.p.h.



Bournville Cocoa

Cadbury

The children's choice

The Same Old Story

ANOTHER

Douglas

VICTORY.

Weston-super-Mare Speed Trials,

4th October.

Open Class, 350 c.c.

Mr. G. Fry DOUGLAS **FIRST**
Mr. W. W. Douglas „ **SECOND**
Mr. E. Kickham „ **THIRD**

Class 3. Unlimited Experts.

Mr. A. H. Alexander DOUGLAS **THIRD**
With a 350 c.c. machine.

Club Class, 500 c.c.

Mr. W. W. Douglas DOUGLAS **THIRD**
Riding a 350 c.c. machine.

Class 2. Experts, 500 c.c.

Mr. A. H. Alexander DOUGLAS **SECOND**
Mr. Alexander rode a 350 c.c. machine in this class.

Club Class, 350 c.c.

Mr. W. W. Douglas DOUGLAS **FIRST**
Mr. G. Fry „ **SECOND**

Club Class, Novices.

Mr. F. C. Wasley DOUGLAS **FIRST**
Mr. J. King „ **SECOND**

Mr. Kickham made Second Fastest Time of the day, he was only four-fifths of a second slower than the best time.

A.C.U.
SIX DAYS TRIALS.

Lest we forget—

it was a $2\frac{3}{4}$ h.p. **DOUGLAS** that was awarded the Highest Figure of Merit, irrespective of Class or Horse-power, in this the most severe trial ever held for motor cycles.

DOUGLAS BROS., Kingswood, BRISTOL.

LONDON: 39, Newman Street, W. **PARIS: 190, Boulevard Pereire.**

In answering this advertisement it is desirable to mention "The Motor Cycle."

Coventry Club's Annual Hill-climb.

Seven Events run off in Two Hours. Rain Causes Discomfort.

Douglas M. Brown (3½ h.p. Rover) starting in Class 4.

JUST as spectators began to arrive at the Coventry and Warwickshire Motor Club's hill climb it was all over, for, thanks to an early start and excellent organisation, there was no waiting between the classes, and exactly two hours sufficed to finish the competition. And it was fortunate that a start was arranged at mid-day, for, about one o'clock, the rain which had threatened on and off all the morning developed into a settled downpour, and by two o'clock the road surface was decidedly slippery. Had a later start been fixed upon the event would have suffered the same fate as the Brooklands championships.

The weighing and inspection of the competing machines were effected under cover in the spacious yard of the Red Lion Hotel, Banbury, whither all competitors were asked to congregate. Here a notice was posted giving directions to the hill, which proved to be Swerford Heath, on a by-road abutting on to the main Banbury-Chipping Norton Road. It was a well-kept secret, and the hill was generally agreed to be a highly suitable one for a competition, measuring half a mile in length, and the sweep to the left being so gradual that it could be taken at full speed. The surface in the middle portion was rather lumpy, but its composition was so soft and crumbly that, but for a few wobbles, no one was hindered. It is curious that the small section who seemed rather afraid of the surface came off best in the results.

An Unfortunate Clash of Dates.

The entry numbered nearly 150, including many well-known riders, but the combined B.M.C.R.C. and A.C.U. event at Brooklands undoubtedly affected the entries considerably, and to say that the Coventry Club Committee are not pleased at the A.C.U.'s action in refusing a permit for the original date the Coventry Club selected at the last Olympia Show, viz., September 6th, is only putting the matter mildly. It was the A.C.U. who allotted October 11th to the Coventry Club, and so caused the unfortunate clash, which should clear the Coventry Club of any blame in the matter. We suggest that the matter should be enquired into further, for the Coventry hill-climb has become one of the principal events of the year, and Saturday's event was the eighth consecutive event of the kind, and the first time (and last it is hoped) that it has been held so late in the year.

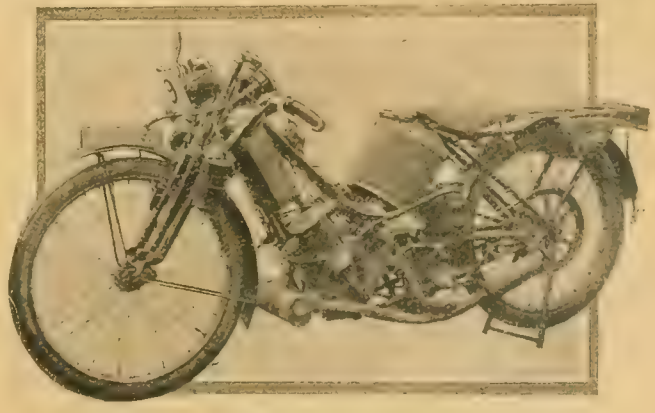
Class I. for lightweights up to 350 c.c. was expert barred, which told its tale on the entries for only three names appeared—a Connaught, Premier, and Hobart. Cocks's two-stroke was rather slow in getting away. The little Premier was very fast, and was first on time and formula, which place, however, it had to give way to Dudley's Hobart, as it had no pedalling gear, and 1¾in. tyres instead of 2in. tyres according to catalogue. The results of this class are appended:

CLASS I.

Time.	Secs.	*Formula.*	Fig. of merit.
*J. Viner (2½ Premier)	50	*J. Viner (2½ Premier)	228
J. Dudley (2½ Hobart)	52⅘	J. Dudley (2½ Hobart)	241
A. Cocks (2½ Connaught)	61⅘	A. Cocks (2½ Connaught)	372

* Disqualified.

In Class II. for standard touring machines up to 500 c.c. (expert barred) the judges were faced with an array of T.T. roadster machines and a full T.T. mount. However, the winner of the fastest time prize turned up in H. Green on a Triumph, who made a fine climb, whilst the formula award went to G. G. Barnard's 3½ h.p. Singer. Simpson's Rudge accelerated in fine style. Gorton (Rover) seemed to change gear too soon, whilst Davies (Rover), on a touring three-speeder, showed up conspicuously. Gordon Francis used the



One of the T.T. Scotts at the Coventry hill-climb. Observe the method of fixing the handlebars to the base of the steering head.

Coventry Club's Annual Hill-climb.

low gear of his Lea-Francis to good advantage at the start, and his pace was not perceptibly slower than the 499 c.c. riders. He took 43⅕s. The official times and results are:

CLASS II.

Time.		*Formula.*	
	Secs.		Fig. of merit.
H. Green (3½ Triumph)	37⅖	G. Barnard (3½ Singer)	192
D. M. Brown (3½ Rover)	39⅖	G. Francis (Lea-Francis)	196
G. Barnard (3½ Singer)	39⅗	H. Green (Triumph)	219
E. Lovegrove (3½ Ixion)	40	W. L. Davies (Rover)	225
W. J. Davies (3½ Rover)	40⅖	D. M. Brown (Rover)	226
V. Harrison (3½ Triumph)	40⅘	J. Woodhouse (Quadrant)	226

The stopping and starting test for standard touring variably geared machines was a most interesting event, though Francis was an absentee, due, it was learned subsequently, to a broken valve on the loop road to the starting line. He had no spare. This year the riders stood five

J. H. Pountney (3½ h.p. Rover) making a good restart in the stopping and starting class which he won.

seconds between the lines. Burney (Blackburn) restarted very neatly, but Pountney (Rover) was much faster (Rover three-speed machines always show up well in these tests, partly due to a sensibly designed toe and heel clutch pedal. Gorton (Rover) was too flurried to give a good account of himself. Dudley's 2½ Hobart dashed between the lines, and seemed a certain formula winner, but on receiving the signal to restart he let in his clutch pedal too suddenly, and the front wheel twice rose in the air like a bucking broncho buster, and finally tried to climb a pole supporting a rope to keep the spectators back. Lucas (Triumph) stopped and started very well, but Davies (Rover) overshot the second line and stopped his engine. He caused a laugh by pretending to misunderstand the official's instructions to continue up the hill, by returning to the starting point and successfully persuading the starter that he was to be allowed another attempt. His ruse worked well, and if he had not made his first mistake he would have been a prize winner.

CLASS III.

Time.		*Formula.*	
	Secs.		Fig. of merit.
J. Pountney (3½ Rover)	56	J. Pountney (3½ Rover)	396
R. Lucas (3½ Triumph)	59⅘	R. Lucas (3½ Triumph)	500
B. S. Gorton (3½ Rover)	68⅘	B. S. Gorton (3½ Rover)	630
C. S. Burney (3½ Blackburn)	72⅘	C. S. Burney (3½ Blackburn)	658

Speeds went up in the T.T. Class, which was splendidly supported, De la Hay (Sunbeam) leading off the ball at a tremendous pace for a 2¾ h.p. in the absence of Haswell, who was at Brooklands watching the rain come down. Gilbert Hall followed on a 3½ h.p. Scale-Jap, and the rider struck us as among the very fastest, never cutting out and bounding up the hill at express speed. By the way, Hall brought his machine from Derbyshire mounted on a special sidecar framework built to accommodate it attached to a 7 h.p. Indian. Triumphs were very popular in this event, Crawley, Green, and Cheshire, all stable companions, anxious to outdo one another. Young Crawley succeeded, and, incidentally, set up the fastest time of the day in a superb ascent averaging 50.56 m.p.h. His mount scaled 170 lbs. Clark's Ivy-Precision was not in its best fettle. Dudley's racing engine went wrong, so he used his touring mount. D. M. Brown (Rover) travelled at a fine bat. Busby, the heavyweight, on a lightweight Sunbeam, has certainly done better, but his weight enabled him to score on formula. Woodhouse, this time on a Quadrant, came up well, likewise Horsman and Dixon on their Singers. All eyes were now turned to the two racing Scotts, H. O. Wood (the T.T. winner) and A. A. Scott (the designer) up. The last named broke a chain on the starting line and made his climb after effecting a repair; Wood was not so speedy as it was expected he would be, though his riding position seemed ideal. The handle-bars were attached in an unusual position at the bottom of the steering head. Whitworth's Douglas was fast, yet hampered by misfiring.

CLASS IV.

Time.		*Formula.*	
	Secs.		Fig. of merit.
S. Crawley (3½ Triumph)	35⅗	T. C. de la Hay (2¾ Sunbeam)	161
Gilbert Hall (3½ Scale-Jap)	35⅘	V. Busby (2¾ Sunbeam)	171
C. Newsome (3½ Rover)	36⅖	H. G. Hill (2¾ Calcott)	183
H. Green (3½ Triumph)	37⅖	Gilbert Hall (3½ Scale-Jap)	197
T. C. de la Hay (2¾ Sunbeam)	37⅗	S. Crawley (3½ Triumph)	209
V. Harrison (2¾ Sunbeam)	38⅘	F. S. Whitworth (2¾ Douglas)	211
V. Horsman (3½ Singer)	39⅘	D. M. Brown (3½ Rover)	213
D. M. Brown (3½ Rover)	40	A. J. Dixon (3½ Singer)	216
P. Symonds (3½ Rudge)	40	H. Green (3½ Triumph)	219

First "general" rider on time and formula: Gilbert Hall.

The Effects of the Rain.

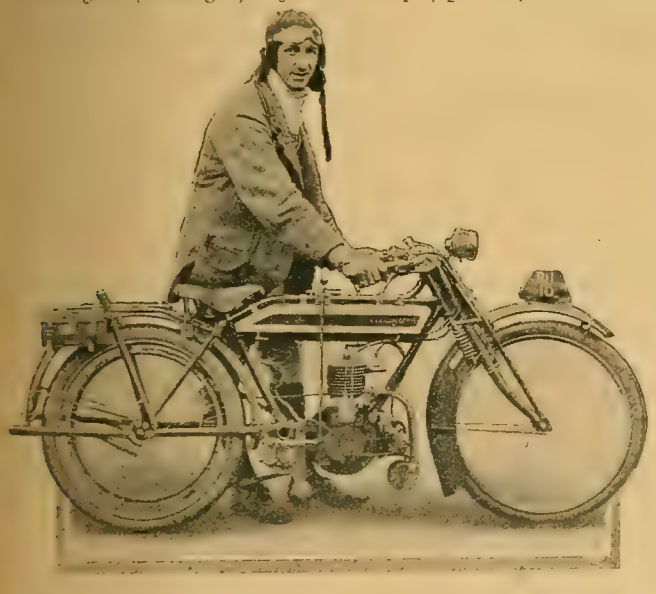
The belt-driven sidecars in the passenger class were considerably handicapped by the wet, and Griffith (8 h.p. Zenith) and S. Briggs (8 h.p. Campion-Jap), who occupied first and scond places, would have been seconds faster but for belt slipping. H. F. S. Morgan had entered his 8 h.p. Grand Prix runabout, and, unfortunately, cannoned a bank

Coventry Club's Annual Hill-climb.—

at high speed on his way to the hill, buckling a wheel and otherwise damaging the vehicle. A private owner with a similar machine happened to be among the spectators and offered his vehicle, which Morgan accepted, and though a good ascent was made, the speed was not fast enough to win. Misfortune overtook the other Morgan entered, for McMinnies, who had for some reason entered his single-seater in the passenger class, petered out on the steepest portion for reasons he could not tell us. He had a similar experience at Weston the Saturday previous. West's 8 h.p. Bat came over the brow of the hill very well, but was slow in getting up speed. The veteran Tom Silver's chain-driven Quadrant seemed to be the fastest 3½ h.p. mount, and scored a well deserved success on formula. Brown (6 h.p. Rex) was single-geared, but he sped up the hill at a fine pace. Lucas had a tiny sidecar on his Triumph pointed front and rear, and his passenger was so tight a fit, that it was suggested that a shoe horn would be necessary to extricate him.

CLASS V.

Time.	Secs.	*Formula.*	Fig. of merit.
G. Griffith (8 Zenith)	48⅖	T. Silver (3½ Quadrant)	285
S. Briggs (8 Campion-Jap)	49⅗	V. Horsman (3½ Singer)	287
G. H. Brown (6 Rex)	52⅕	C. Newsome (3½ Rover)	306
T. V. West (8 Bat-Jap)	54⅘	H. Morgan (8 Morgan)	332
T. Silver (3½ Quadrant)	56⅗	S. Briggs (8 Campion-Jap)	342
H. Morgan (8 Morgan)	57⅖	L. Newey (3½ Ariel) ...	380



The latest model 2½ h.p. two-speed two-stroke Connaught ridden by A. G. Cocks.

Owing to the wet state of the roads, by the time Class VI. was run off high speeds were impossible, and the plucky riders had some difficulty in seeing their way owing to the blinding rain. Most of those in the T.T. class were also in this event. Greatwich on a 5 h.p. Wright-Blumfield, who has now several successes to his credit, made a wonderful climb, charging through the grease and rain in fearless style. He is a "general," and beat all the experts. He was able to beat Griffith on the big Zenith, though only by ⅘s. Busby improved considerably, beating de la Hay this time. Clark's water-cooled Green was tuned up to perfection. Brown's twin Rex, which was the forerunner of the 1914 model with enclosed valves, was swift and silent, and Crawley this time toured up, his engine racing every time he opened the throttle. J. J. Cookson (8 Matchless) was not able to do himself justice in the wet. The Scotts did well again, though slow at picking up, but C. T. Newsome (Rover) was obviously among the fastest. Waring's appearance on a mudguardless W.D., likewise Lamb on a stripped Premier, can best be imagined. Result:

CLASS VI.

Time.	Secs.	*Formula.*	Fig. of merit.
H. J. L. Greatwich (5 Wright-Blumfield)	38	V. Busby (2¾ Sunbeam)	186
*G. Griffith (8 Zenith)	38⅘	T. C. de la Hay (2¾ Sunbeam)	187
J. Cookson (8 Matchless)	39	H. G. Hill (2¾ Calcott)	197
C. Newsome (3½ Rover)	39	F. S. Whitworth (2¾ Douglas)	198
E. Cheshire (3½ Triumph)	39⅕	*K. H. Clarke (2¾ Green-Precision)	225
F. Lamb (3½ Premier)	39⅖	J. Woodhouse (3½ Quadrant)	259

* First expert. * First general.

The Team Awards.

The team prize was carried off by the trio representing the organising club, the riders and their performances being

	Fig. of merit.
G. I. Francis (Lea-Francis)	196
C. T. Newsome (Rover)	204
J. Dudley (Hobart)	241
	641

The Triumph team was second and the Scott third.

A car class wound up a highly successful programme, Morris-Oxford light cars being first and second on the handicap.

The competitors appreciated the promptitude with which the event was run off.

The time results were announced by 4.30 p.m. on Saturday and the complete results next day.

Mr. J. F. Spencer was the trials hon. sec. for this event, and Messrs. Roebuck and Milligan calculated the results on *The Motor Cycle* formula.

LARGE ENGINES versus SMALL.

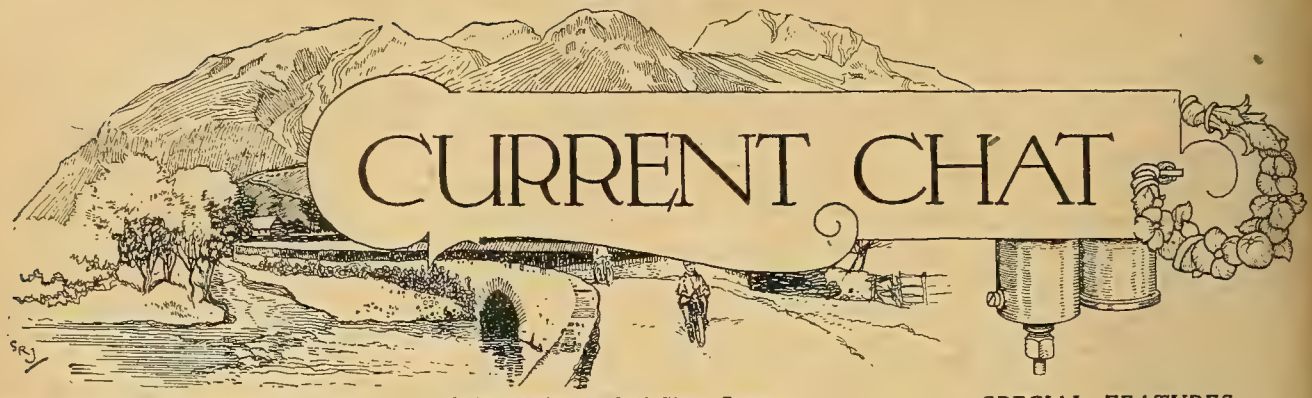
THESE last few months have seen a succession of races where the 350 c.c. twins have come very near to equalling, or even beating, the 500 c.c. singles.

First of all the T.T., where the terrific speed of Mason's N.U.T. and some of the Douglas contingent was the topic of the day. Next the Grand Prix, where, for some time, it looked as if Fenton's Clément might beat the 500 c.c. class. Again, the recent Six Hours Race at Brooklands, where a wholesale smashing of records took place. Here again it was Mason's N.U.T., and granted that both machine and rider are exceptional, yet this can be said with equal truth of at least 25% of the entries. Not only on the track has this been apparent, but many single-cylinder enthusiasts will have to own to taking the dust of, say, a T.T. Douglas this season. Lastly, as recently as last Saturday, de la Hay's 2¾ Sunbeam was only two seconds slower than Crawley (Triumph), who made fastest time of the day, beating all the big twins.

Of course the secret of this is "revs.," the small twins running at, say, 4,000 r.p.m., giving off nearly the same power as the large "one-lunger" at 3,000 r.p.m. In fact it is the old discussion, "high-revving" small engine or "slow-revving" large engine. As the high speed engine is lighter, frame design, etc., is lighter, and we have a lighter and more economical mount, and, in these days of high-priced petrol, mileage per gallon is an important factor.

Unfortunately for himself the average motor cyclist scans the accounts of races from the sporting point of view and then throws his paper aside. The engineer and designer would like to know much more, but the information is hard to arrive at. For example, what would some of us not give to know the gear ratios, weight of machine and man, maximum speed, petrol consumption, and condition of bearings, valves, etc., of Mason's N.U.T., and, say, Haswell's Triumph, after the Six Hours Race. Such private secrets as piston clearances, strength of valve springs, etc., we do not ask, although, should they be given, so much the better. Surely this is not too much to ask, and the choice of one's next year's mount would be an infinitely easier task.

NORSEMAN.



TIME TO LIGHT LAMPS.

Oct.	16th	... ...	6.4 p.m.
,,	18th	... ...	6.0 ,,
,,	20th	... ...	5.56 ,,
,,	22nd	... ...	5.52 ,,

A Motor Cyclist's Promotion.

We congratulate Rear-Admiral Sir R. K. Arbuthnot, Bart., on hoisting his flag with the Second Battle Squadron.

A Gradient of 1 in 2.44.

Continuing his search for steep hills to climb, W. H. Carson last week made a successful ascent of Vale Street, Bristol, on his Excelsior big single and sidecar. The total load was 6 cwt. 2 qrs. 12 lbs.

Caution required in Ross.

The Urban District Council of Ross, realising that the town is a dangerous one, instead of seeking to impose an enforced speed limit, have decided to write to the various motoring associations asking them to request their members, through the Press, to drive slowly through Ross, owing to the many dangerous corners in the town. The proposer, Mr. Hall, wisely thought that such steps would have greater effect than speed limit notices.

Police and Number Plates.

Motor cyclists in the Derby district will be well advised to see that their rear number plates are kept clean, as recently the police have shown some activity in proceeding against riders with partially obscured plates, and also for allowing the clothing of a passenger on the carrier to hide the rear number.

The B.M.C.R.C. and A.C.U. Championship Meeting at Brooklands.

The programme for the B.M.C.R.C. meeting postponed till next Saturday owing to incessant rain is an extremely busy one. Before lunch there will be the Third 1913 Time Trials, followed by the One Hour Cycle Car Race and the One Hour Sidecar Race. In the afternoon there will be held the Junior One Hour A.C.U. Championship Race for machines up to 350 c.c. for the Auto Challenge Cup and A.C.U. gold medal. Event V. will be the A.C.U. Championship Race for machines up to 1,000 c.c. for *The Motor Car Journal* Challenge Cup, and the Senior One Hour Championship Race for machines up to 500 c.c. for *The Motor Cycle* Challenge Cup. These three Challenge Cups were presented to the R.A.C. before the founding of the A.C.U. in 1900.

"The Motor Cycle" Show Issues.

Three special issues of this journal will be published in connection with the Olympia Show. The first on Thursday, November 13th, will deal with passenger machines of all types. The issue of the 20th November will be a guide to the Show, and will contain the complete Buyers' Guide of 1914 models—an appreciated feature of *The Motor Cycle* since 1906. The issue following will contain a complete Show report by our own staff after a stand to stand inspection of the exhibits.

FUTURE EVENTS.

Oct. 18—B.M.C.R.C. Meeting and A.C.U. Championships.
,, 18.—Herts. M.C.C. Open Half-day Trial.
,, 25.—Herts M.C.C. Open Flexibility Speed Trials.
,, 25.—Mersey M.C. Open Trial.
,, 29.—A.C.U. Open One Day Trial for Cycle Cars.
Nov. 1.—Streatham and District M.C.C. Open One Day Trial.
,, 7-15.—Motor Car Show at Olympia.
,, 24-29.—MOTOR CYCLE & CYCLE CAR SHOW AT OLYMPIA

Motor Cycle Imports in 1913.

For the nine months ending 30th September, 1913, the imports of motor cycles into the United Kingdom totalled 1,396, of a total value of £47,553. This is a very considerable increase on the corresponding period of 1912, when the number of imported machines was 1,086, valued at £35,099. It is pleasing to note that our export trade has vastly increased this year as compared with last year, the number of complete motor cycles sent abroad up to 30th September being 12,724, against 8,789 in 1912, the respective values being £548,552, against £352,668.

Sleeve Valve Motor Cycle Engines.

The makers of the Argyll single sleeve valve engines, which have been so conspicuously successful on road and track, are now, we understand, experimenting with an air-cooled motor cycle engine on the same principle, and we hear that, although still in the experimental stage, the results obtained have been so encouraging as to warrant a hope that this interesting engine will at no very distant date be on the market and available for use by motor cyclists interested in this type of engine. We hope to be able to give further particulars in due course.

SPECIAL FEATURES:

WHAT THE SHOW WILL REVEAL.

AN ORIGINAL TWO-STROKE CYCLE CAR.

ON MANŒUVRES.

Next Year's Improvements.

An article in this issue outlines in brief the improvements to be expected in 1914 pattern motor cycles. The information being based upon advance details of new models which have reached us names have had to be omitted.

A Motor Cyclist Aviator.

We hear from Mr. Ivan Hart-Davies, whose runs between John-o'-Groat's and Land's End have made him famous as a motor cyclist, that he has just taken his aviator's certificate at the Hendon Flying School. Shall we now hear of an End-to-end record on a aeroplane?

A Humber 6 h.p. Machine.

Another 6 h.p. twin-cylinder sidecar machine which will make its appearance at the Show is the new Humber. This new mount will have chain transmission, and probably a three-speed gear.

Result of a Criticism.

The mile irons on the Fosseway, which we criticised some time ago in dealing with this fine new stretch of road between Leicester and its junction with the main Nottingham-Grantham Road, have now been taken up and set so as to be readable.

A Stolen Machine.

8 h.p. Zenith and sidecar. Sidecar upholstered in red, D.A. gas cylinder on sidecar frame, new Continental tyre on back. Engine No. 16,283. The owner, Mr. E. B. Loach, 21, St. John's Park, Upper Holloway, is offering a handsome reward for the recovery of this machine.

Paris Motor Show

The South-Eastern and Chatham Railway announce the issue, on Fridays the 17th and 24th, and Saturdays the 18th and 25th October, of fifteen-day excursion tickets from London to Paris in connection with the International Automobile Exhibition which will be held in Paris from October 17th to the 25th inclusive. The price of these tickets will be: First-class, 58s.; second-class, 37s. 6d.; third-class, 30s.; by the 10 a.m. service *viâ* Boulogne and the 9 p.m. service *viâ* Calais, from Charing Cross. The 12.30 midnight service is available for the return journey.

British Victory in Italy.

A notable Zenith success is reported from Italy. J. E. Scales, who is the owner of the 8 h.p. Zenith on which G. F. Hunter set up the flying kilometre record at over 70 m.p.h., has won a race of 320 kilometres, the course including two ascents of the Col di Sestrières, which has an altitude of 6,200 feet.

Motor Cycles at the Paris Salon.

It would appear that French motor cycle manufacturers have made very little alteration to their standard mounts for 1914, judging from advance details which have reached us of motor cycle exhibits at the Paris Salon. A number of firms are adopting English fittings throughout, and hub three-speed gears are now being standardised.

The Show opens to-morrow (Friday), and will remain open until Oct. 27th.

British Victories in Spain.

The hill-climb held at Monte Iguldo, San Sebastian, proved a walk over for English machines, more especially for the Douglas, which figured prominently in every class. The results are as follows:

CLASS I. (350 c.c.).

	m.	s.
Arana (Douglas)	3	7
Sorriguieta (Nut-Jap) ...	3	14
Arellano (Douglas) ...	3	15
Badia (Douglas)	3	25

CLASS II. (500 c.c.).

Arana (Douglas)	3	10
Badia (Bat)	3	11
Arellano (Douglas) ...	3	12
Sorriguieta (Nut-Jap) ...	3	13

CLASS III. (1,000 c.c.).

E. Lauda (Indian) ...	2	56
Arana (Douglas)	3	4
Lauda (Indian)	3	10

Open Trial in November.

An interesting and novel trial will be held by the Streatham and District M.C.C., starting at 8 a.m. from the Clayton Arms, Godstone, on Saturday, November 1st. At the start an acceleration test will be held, which will be followed by a non-stop reliability test. There will be five classes for motor bicycles, ranging from 300 to 1,000 c.c.; three sidecar classes ranging from 500 to 1,000 c.c.; and two classes for cycle cars, three-wheel and four-wheel. The average speed of a competitor during the fifty yards of the acceleration test will be the basis of calculation for deciding the figure of merit. The competitor whose average speed is highest in each class will be taken as having set the standard of performance in that class. The competitor whose average speed is within 5 m.p.h. of the best average speed in his class will be held to have qualified in the acceleration test. Seventy miles will be covered before lunch, and thirty miles after lunch, which will be served at Brooklands. There will be a speed test, consisting of one lap round the track. Competitors will enter by the Byfleet gate, and must immediately turn right and commence their speed lap. Various set speeds have been settled upon for the various classes. After the speed test there will be a stop for lunch of one and a half hours. In the course of the afternoon there will be a re-starting test.

A Midland Road Improvement.

Returning from the Coventry hill climb we were pleased to note that at Ladbroke the dangerous right-angle corner had been removed and the road widened, and on the gatepost facing the Banbury Road a red reflex light has been fitted.

The Cycle and Motor Trades' Benevolent Fund Banquet.

The eighth annual banquet of the Cycle and Motor Trades' Benevolent Fund was held at the Connaught Rooms, Great Queen Street, Kingsway, on Thursday, October 9th. Mr. S. F. Edge took the chair, and a most *recherché* dinner was provided. A speech was made by the chairman, and Mr. A. J. Wilson replied. Mr. Charles Jarrott proposed the health of "The Chairman." There was a record attendance, and the sum collected by subscription during the dinner totalled an amount of £3,009 10s. An excellent musical programme proved a great success, many leading performers in the musical world singing and reciting. The dinner was a huge success, and was attended by most of the leading lights of the motor cycle world.

Saturday's Downpour at Brooklands.

The weather unfortunately marred what promised to be a very successful day's racing at Brooklands last Saturday.

We found a few riders taking shelter in the Paddock. Le Vack (3½ h.p. Motosacoche and sidecar) was bewailing the fact that he only had half a mudguard for three wheels!

We noted a machine with a twin J.A.P. engine and a wonderful freak sidecar, or rather, half a one. It consisted of a chassis and a seat to sit in, or rather lie on, with a piece of wood in front to accommodate the passenger's feet. In style it was similar to the "Earwig" model fitted to E. B. Ware's Zenith. We also recognised Baragwanath's big Matchless. The rider of an Eagle machine had broken his piston in practice and was amusing himself by sitting in a puddle removing the cylinder.

Later we saw S. Tessier on a 4 h.p. water-cooled overhead-valved Bat-J.A.P. and sidecar. The machine, fitted with a neat radiator, looked very attractive.

Many competitors had travelled a long distance to take part, Healy, for instance, having brought his Rudge from Dublin. The event is to be held next Saturday.

The Trial for Cycle Cars.

Entries for the A.C.U. trial for cycle cars close on Saturday next. The event will not be held unless twenty-five entries are received, and at the time of going to press it seemed doubtful whether the required number would be reached.

Gear Ratios in Speed Trials.

A regulation has been added that, in the flexibility speed trials, which will take place in Brookman's Park on the 25th inst. (see page 1291, October 2nd), the gear ratios in Classes I. and II., Divisions A, B, and C, must not be lower than 6 to 1.

The Triumph Balance Sheet.

The report of the directors of the Triumph Cycle Co. is most satisfactory. The profits on the season's trading after deductions for repairs and other items amount to £68,099 16s. 1d. A dividend of 6½% is to be paid on preference shares, and 20% (plus a bonus of 2s. per share, which equals another 10%) free of income tax upon ordinary shares.

Sequel to Rowdy Behaviour.

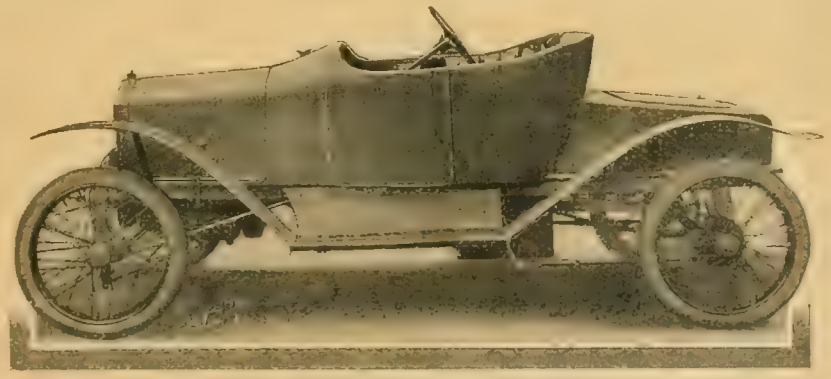
In connection with the rowdy behaviour on the occasion of the Anglo-Dutch Trial, reported at Oxford and Coventry, three prominent riders have been suspended by the A.C.U., one for six months, and two for three months, dating from October 7th, the date of the General Committee meeting.

The Enfield Balance Sheet.

The Enfield Cycle Co. have had a most successful year, the gross profits amounting to £34,684 8s. 9d. Part of this goes to necessary repairs of building, plant, etc., and large sums transferred to the reserve fund, and carried forward to the credit of next year's account. A dividend of 14% is to be paid on preference shares and 10% on ordinary shares.

The Effect of Benzole on Tanks.

There are some indefinite rumours going about that the continued use of benzole has a deleterious effect upon the tank of car or motor cycle. We have used benzole now for several months, and have noticed no such effect. We should be glad, therefore, to have first hand information on this subject from any reader who has actually experienced anything of the sort.



£78 OR £100?

The complete Ajax four-wheeler, a full description of which appeared on page 1322 of "The Motor Cycle" last week. The engine is four-cylinder, and friction drive is used. It has been stated that this French cycle car will sell for £78, though we were informed that the price would be £100.

French Motor Cycles for 1914.

THE firm of Terrot et Cie., Dijon, have made several alterations to their models for 1914. Among them are a new change-speed gear on the twin-cylinder 4½ h.p. and foot brakes to all patterns.

Peugeot Frères are inclined to be very reticent concerning their future plans, but in all probability they will adopt the Armstrong hub gear for next year. A new change-speed gear, of Peugeot's own design, is also talked of. The agent in France for Kempshalls, Mr. J. Sheen, is marketing a motor cycle for 1904 with three speeds and clutch. This is a lightweight 1½ h.p. and fitted with a Franklin engine; the weight is stated to be under 50 lbs. and the price £24.

The new model Alcyons are a 3½ h.p. and 5 h.p. twin with two speeds and chain transmission, the gear box forming part of the crank case casting. The makers of the Debaune motor cycle, which is fitted with the Della Ferrera engine, have a new model, with 650 c.c. engine, for sidecar work.

The Clément, which is one of the French models conforming most to British ideas in design, will not alter in appearance appreciably. The steering head and lugs for the tubes radiating therefrom are made in one piece, which gives great rigidity, particularly for sidecar work. The front and rear hubs are provided with hollow spindles, so that a pin passed through the hollow part secures the wheels in the forks and allows them to be quickly dropped out when required, a very useful and desirable feature.

The Motosacoche, so well known to British readers, will, so far as the French models are concerned, be practically the same as the English ones, but the 3 h.p. (54×75 mm.) and the 6 h.p. (64×77 mm.) will be fitted with kick starting devices.

The Jouve Cycle Car.

The Jouve cycle car is of French origin, and will be exhibited at the Salon, which opens to-morrow, Friday, the 17th inst. It is fitted with a V twin J.A.P. air-cooled engine (85×85 mm. = 964 c.c.), Claudel carburetter, and Bosch magneto. The transmission is by enclosed chain to a three-speed and reverse gear box, thence by another enclosed chain to a cross-shaft, and finally from this cross-shaft to the rear wheels by two enclosed V belts. The enclosing of the transmission is an excellent feature. The steering pillar is raked considerably, and the steering box is provided with a worm and wheel steering gear. The frame is tubular, and carries Lanchester type front springs. The rear wheels are not sprung, but the two-seated side by side torpedo-shaped body is suspended at the rear on C springs, which are shackled to the seats like a sidecar. The hand brake lever applies contracting bands to the rear hubs, and a foot brake is also provided. This chassis closely follows English cycle car practice.

650×65 mm. tyres are fitted to wire wheels, and the selling price is £140.

New Smith Speedometer.

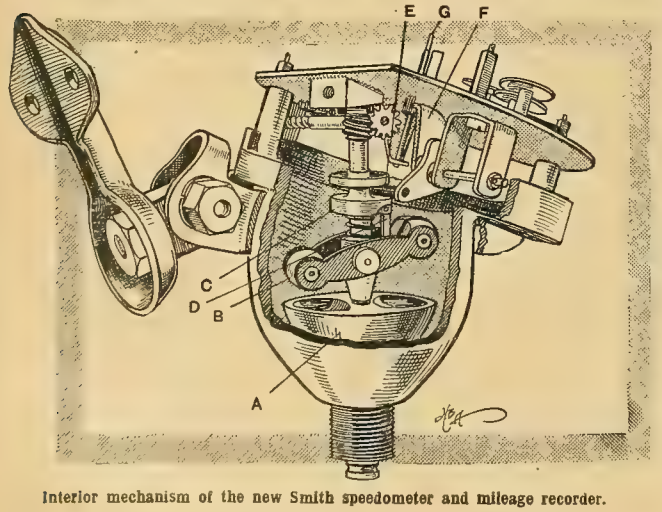
THE speedometer we are about to refer to is the production of Messrs. S. Smith and Sons, the well-known watchmakers in the Strand, who have lately opened extensive showrooms and works at 185, Great Portland Street, W. Every part of these instruments is manufactured with the greatest care at the company's factory, which is situated above the showrooms, and we were particularly impressed by the excellent finish of the article and the up to date methods of manufacture. In general, the Smith speedometer follows the lines of others which work on the centrifugal principle. In detail, however, especially as regards the governor, the design has been altered. The sectional drawing which accompanies this short article clearly shows the working. The governor is provided with a cup-shaped flywheel A, which has a sort of gyroscopic action and ensures steady running. Fixed to its spindle, and revolving with it, is the governor proper, B, which consists of two steel cross members provided with brass weights at each end.

Normally, when at rest, it assumes a more vertical position than that shown. As the speed of the shaft increases its position tends to become more horizontal, and in course of doing so it moves the double collar C which is connected to the governor proper by the short shaft D. The spindle E, which runs between the faces of the double collar, is likewise carried up the shaft, and, being attached to the toothed quadrant F, and meshing with a pinion fixed to the spindle G, conveys motion to the indicator hand which is attached thereto.

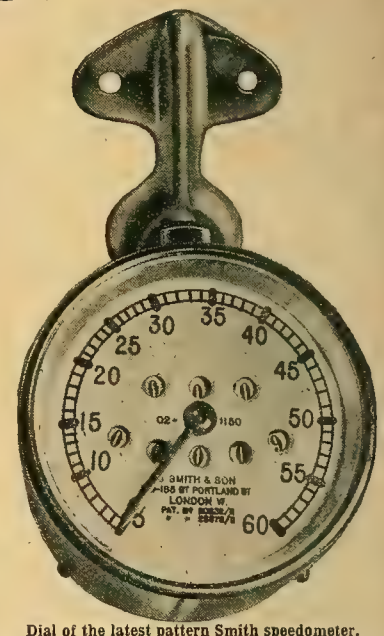
Mileage and Trip Recorder.

The mileage recorder and trip mechanism are driven by the worm at the top of the shaft. The governor shaft is ground after hardening with the greatest accuracy, and the double collar is a perfect fit on the shaft. The latter runs in ball bearings top and bottom, and the working parts are lubricated from a small grease cup at the top of the instrument. The clearness of the dial and the arrangement of the mileage recorder figures are shown in the accompanying photograph.

The clip fitted to the speedometer illustrated herewith is not the motor cycle type, but is designed for cycle cars. It is ingenious and has practically a universal movement, which greatly facilitates fitment. It must not be thought that Messrs. Smith and Sons only confine their attention to speedometers. Being watchmakers they sell excellent motor cycle watches, and glancing through their new catalogue, which is now in course of preparation, we noticed a new sidecar lamp, a new generator, and a very practical tool roll among the more lately introduced accessories.



Interior mechanism of the new Smith speedometer and mileage recorder.



Dial of the latest pattern Smith speedometer.

THE "CUT-OUT" REGULATIONS.

From reports received it appears that the L.G.B. Order rendering it compulsory for efficient silencers to be fitted, is being strongly enforced, a large number of motor cyclists having received summonses. It is, therefore, advisable that motor cyclists should satisfy themselves that the methods employed for the prevention of noise are suitable and sufficient.

PETROL CONSUMPTION.

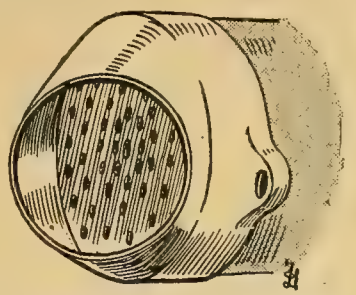
TWO METHODS OF CHECKING RESULTS.

A FORTNIGHT ago we published the results of the petrol consumption test held by the Sutton Coldfield and Mid-Warwickshire Automobile Club, and it will be remembered that the mileage per gallon accredited to the winners was so extraordinary that it was somewhat difficult to believe. The motor bicycle class, for instance, was won by T. Pollock, on a 3½ h.p. twin James, who averaged 334 m.p.g., Dixon, who was second on a similar machine, doing 320 m.p.g. The mileages of the winners of the sidecar and cycle car class, Howard Smith (10 h.p. Singer) and P. W. Hill (5-6 h.p. A.C.), were given as 87 and 101 m.p.g. respectively. As old motorists we could hardly believe some of the figures, and considered that if such really economical results were possible, the performances were deserving of further publicity.

Noticing our comments, Messrs. Howard Smith and P. W. Hill offered to repeat the performance under our observation, and we willingly accepted this sporting offer. As Mr. Smith was the first to write us, we communicated with him, and incidentally mentioned that we should prefer the second test carried out in a rather different way, viz., by using a separate petrol tank holding, say, a quart of spirit. It may be remembered that the Sutton Coldfield Club's method of measuring the petrol used was for the competitor to come to the starting point with his tank full, cover the course of twenty-four miles, the officials subsequently replenishing the tank and checking the amount of petrol required to fill it.

Now, in our opinion, this method is open to many inaccuracies, for such small points as tyre inflation and sag of the springs would affect the level of the petrol and also the result. Besides that, there is the possibility of air locks in the petrol tank. We do not see that any good purpose would be served by our observing another test carried out on the lines the organising club adopted, because our figures would likewise be open to inaccuracy, and it would further appear that we doubted the ability of the officials of the Sutton Coldfield Club to check correctly the results by the method adopted, which is by no means the case. Mr. Smith, on the other hand, is not agreeable to using a separate tank as we suggest, and which we consider the only reliable method of testing the consumption, and consequently the test will not be proceeded with.

We regret that the matter must end there, unless our conditions are agreed to, which is unfortunate, as the discussion has aroused considerable interest, and a number of letters have reached us expressing the different writers' pleasure at our having taken the matter up.



Silencer end seen on a successful Triumph at the Coventry Club's hill-climb. The curved outer plate screens the exit holes.

The Limit Reached.

The result attained by the Singer (87 m.p.g.) is equivalent to a ton milegae of 58.725. Now Mr. Poppe in his article on K fixes the absolute limit of consumption at 59 ton miles per gallon with a petrol consumption of .65 pint per horse-power hour. Taking the gear of the Singer as 4 to 1, K for this car works out at 205—a rather high value, which should enable a gradient of 1 in 9 to be climbed on top speed—and the ton miles for this value of K amount to 24, making the actual mileage 35.5. All these figures are for a good macadam road. Thus, according to Mr. Poppe, the absolute limit for the 10 h.p. Singer in miles per gallon is 87.4.

THE ANTI-GLARE VISOR CAP.

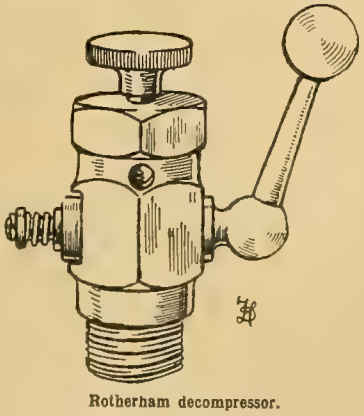
What cyclist or motor cyclist has not at some time or other received a fright on passing a car with glaring head lights?

We illustrate herewith a special cap for motor cyclists, the invention of Mr. Henry Sturmey, the object of which is to enable riders to face the glare of motor car head lights without being dazzled. The cloth cover is clipped back at night, and when a car is encountered the peak is pulled down, so that the eyes are shaded by it from the bright light. Some difficulty was met with in the selection of a suitable colour, that finally decided upon being a certain shade of orange which effectually subdues dazzling rays and yet does not obscure one's vision of the road ahead. The cap will be marketed under the name of the "Anti-glare Visor Cap," and sold by Messrs. Bramco, Ltd., 1, Ellys Road, Coventry.

The Bramco Anti-glare Visor cap.

ROTHERHAM DECOMPRESSOR.

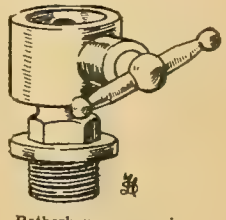
This decompressor, which has a valve which allows a portion of the gases to get away under compression, so reducing the pressure in the engine, is of the flat type, and when forced against the upper seating by the compression, the gas escapes through holes in the side of the decompressor body. The handle which operates it has a fibre ball on the end, which enables it to be handled when hot.



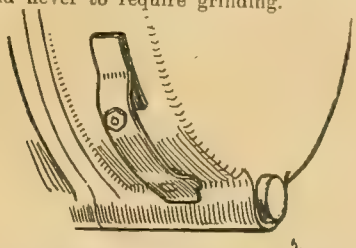
Rotherham decompressor.

NEW COMPRESSION TAP.

The gunmetal compression tap we illustrate has been purposely designed by Messrs. Rotherham to suit motor cycles where there is little head room between the tank and the cylinder. It is also constructed with a screw-down ball tap instead of the usual type, some of the latter having given trouble through the handles breaking off, due to the constant contraction and expansion affecting the metal. The screw is also more certain in action because it cannot stick, and the joint, which is formed by a ball and seating, cannot leak and is said never to require grinding.



Rotherham compression tap.



New spring oil drain plug noticed on a trade Triumph entered for the Coventry hill-climb.

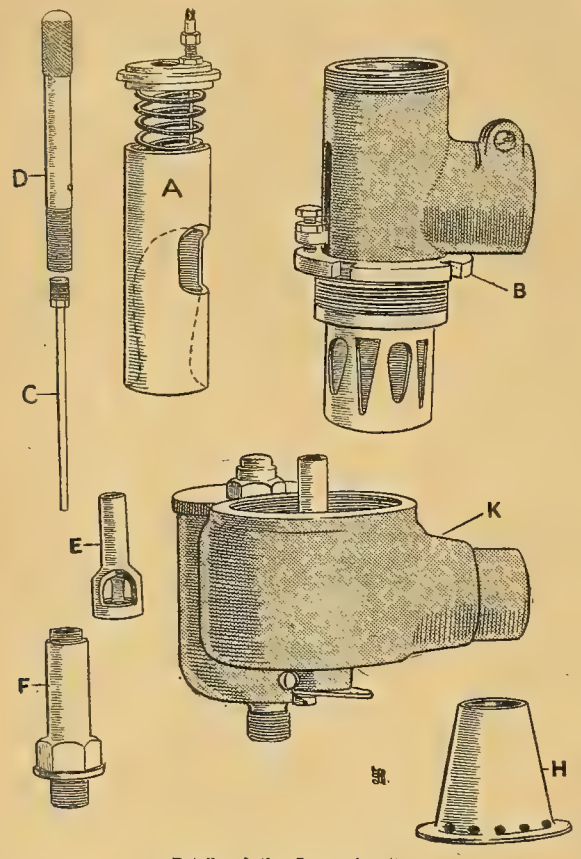
The Cox Streamline Carburetter.

A Single Lever Instrument of Ingenious Design.

ONE of the simplest automatic carburetters we have yet seen was recently shown us by Mr. A. Cox, whose name is well known to those motorists who have followed car competitions.

The principle of the carburetter is to obtain an automatic balance between the throttle opening, air opening, and jet orifice. This effect is produced in the following manner:

The body of the carburetter is a plain vertical pipe having a mixture outlet at right angles to the bore of

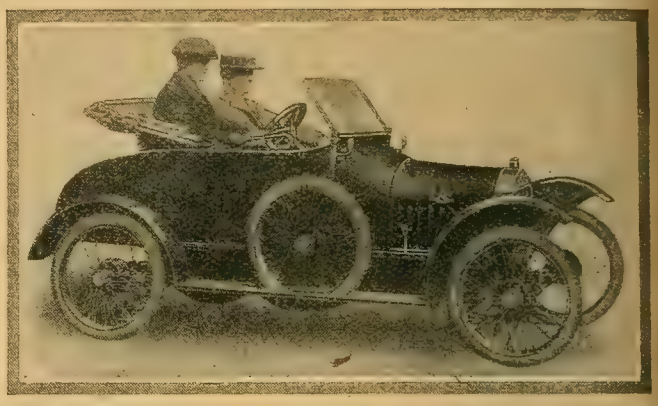


Details of the Cox carburetter.

A. Throttle barrel.
B. Carburetter body.
C. Jet needle.
D. Needle carrier.
E. Needle guide.
F. Jet.
H. Air choke tube.
K. Float chamber and hot air intake.

the pipe. In this body slides a throttle barrel of peculiar shape A. It will be noticed by reference to the sketch that the air passage (as shown by dotted lines) is arranged to give a streamline effect, hence the name of the carburetter. The throttle barrel is normally held down by the action of a coil spring, but may be raised by means of a Bowden cable, thus uncovering the throttle port and at the same time opening the air ports seen at the bottom of the body B.

Now the throttle barrel carries with it the jet needle C, which by means of the screwed needle carrier D can be raised or lowered in relation to A by simply turning the milled head from the outside. The effect of this is to vary the pick up of the engine, for the jet needle is only taper for a short distance, there being



The 1914 model 8 h.p. Enfield Autolette which, as will be seen, has a new and improved type of body. The chassis has been improved in detail only, but the Autocar Enfield Co. will introduce an additional four-cylinder model for 1914

two long parallel sections, one at each end, which control the size of the orifice. Thus it will be seen that the action of opening the throttle and air also increases the amount of petrol which is allowed to flow and automatically corrects the mixture. A special guide E is screwed on to the top of the jet F and keeps the needle central, while the jet orifice is faced with nickel to prevent undue enlargement. A small amount of air for slow running reaches the jet through the cone H, and the quantity may be regulated by the small lever at the base of the hot air jacket K. The small adjustment visible, projecting from the slot in fig. B acts as a stop to prevent the throttle being entirely closed, and so regulates slow running.

The carburetter we inspected was designed for passenger machines, and we are told that it has proved very satisfactory, and we are looking forward to a trial at an early date, as so simple a carburetter as the Cox Streamline should have a big future. The device is to be handled by the Electric Ignition Co., of Sampson Road North, Birmingham.

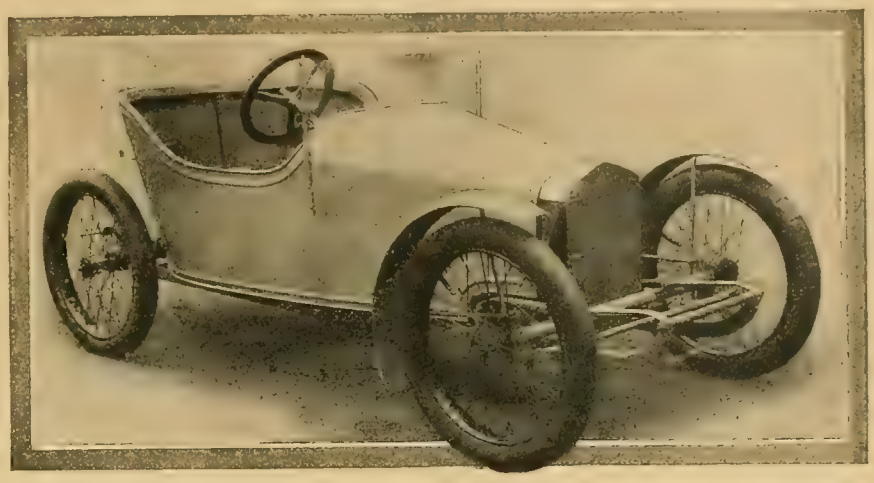
The latest model 10 h.p. four-cylinder A.C. four-wheeler at the summit of Swerford Heath Hill in the Coventry club's hill-climb.

An Original Two-stroke Cycle Car.

Features: Two-cylinder, Two-stroke Engine; Three Speeds and Reverse; Foot-starter; One-piece Body.

WE have just inspected one of quite the most interesting cycle cars that it has been our lot to come across up to the present. It is manufactured by Messrs. Ralph Jackson and Edwards, Altrincham. The designer is an eminently suitable person to undertake such work, for he was responsible for the Eagle runabout, which obtained such a vogue some seven or eight years ago, and which in its day supplied a link between the car proper and the motor cycle, and thus was one of the precursors to the modern cycle car.

Any vehicle coming from Mr. Jackson's designs is likely to strike an unconventional note, and this is the case with the Jackson cycle car, but in calling it unconventional we do not in the least imply that it is in any way freakish. Quite the contrary, in fact, for practically every detail incorporated is well tried, and the novel fitments are all on the lines of ingenious improvement.



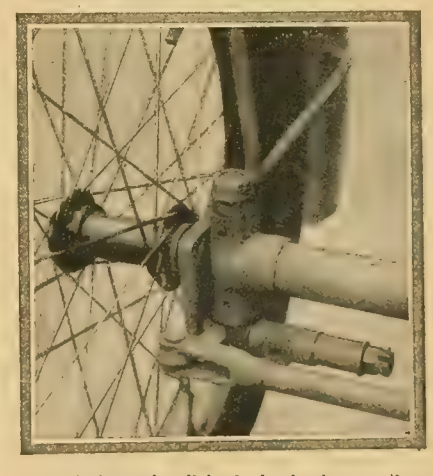
The complete 8 h.p. underslung Jackson, showing one-piece body, large wheels and tyres and neat radiator.

The Engine and Foot-starter.

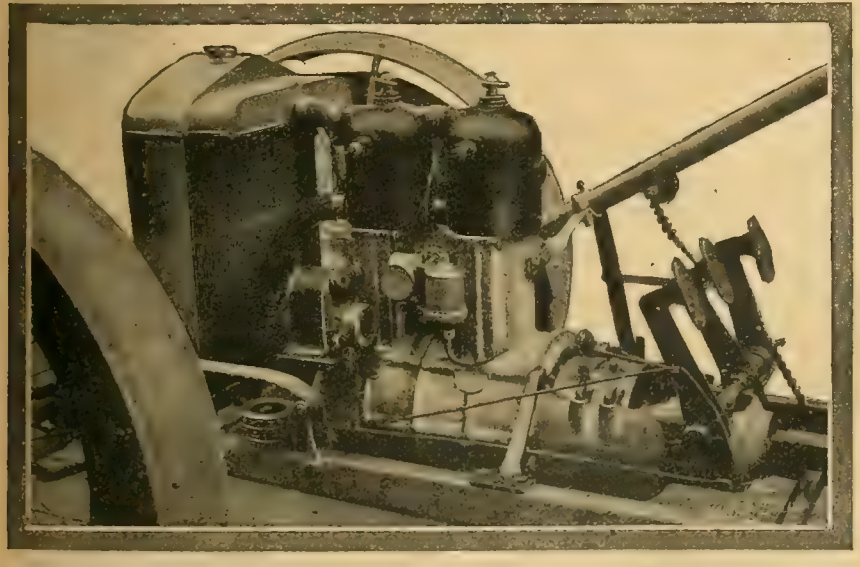
To start with the motor is a two-cylinder two-stroke placed vertically in front. The cooling of the motor is by thermo-syphon circulation of the water in conjunction with a very neat design of radiator made up by plain straight copper tubes without gills. One of the cleverest things about the motor is the casting of the base chamber to come up and meet the cylinders, the aluminium base having the transfer ports cast integral. The gas is supplied by a Senspray carburetter, delivering the mixture into the base chamber extension to the cylinders. Ignition is by Bosch magneto, chain-driven from the front end of the crankshaft. —Lubrication is by force pump, delivering oil to all bearings under a pressure of about 30 lbs. This is a great advance on general cheap car design. Another great improvement is the entire removal of a starting handle, the motor being started from the driver's seat by means of simply pressing down the left pedal, which has stamped on its face the word "Start." This is effected by the pedal being connected rigidly to a yoke, so that when the pedal is depressed the top half of the yoke moves forward and the bottom half rearwards. At the two ends of the yoke are cables connected to a chain running on two horizontal rollers, and thence carried round the forward end of the crankshaft. It is obvious that pressure on the pedal causes the chain sprocket to revolve, carrying the crankshaft with it, and as the yoke is long, considerable leverage is obtained, and the shaft is easily rotated at sufficient speed to start the engine.

Transmission and Springing.

The gear is a three-speed and reverse arranged on the epicyclic principle, the gear bands and drums being encased in an extension of the base chamber casting, close up to the engine, thus ensuring perfect alignment. There are no side levers of any description on the chassis, the control throughout being by pedals. From the gear box the drive is by a long shaft to the worm driven back axle, the worm being underneath its wheel, but there is no angularity on the propeller-shaft which would entail wear on the universal joint, for the whole chassis is under-slung, front and rear. This naturally gives great stability, and at the same time allows the side members of the frame to be kept narrow and straight throughout. One of the most striking points about the rear axle is the absence of brakes on the wheels themselves, but two internal expanding brakes are fitted inside the differential box. The effect of this design is to give great neatness to the rear end of the chassis, but the obvious disadvantage is the possibility of small metal particles worn from the brake shoes



Patent hanging link shock absorber on the Jackson two-stroke cycle car. The hub link swings radially on the long bearing.



Jackson two-stroke engine showing starting device which is worked by the driver's left pedal.

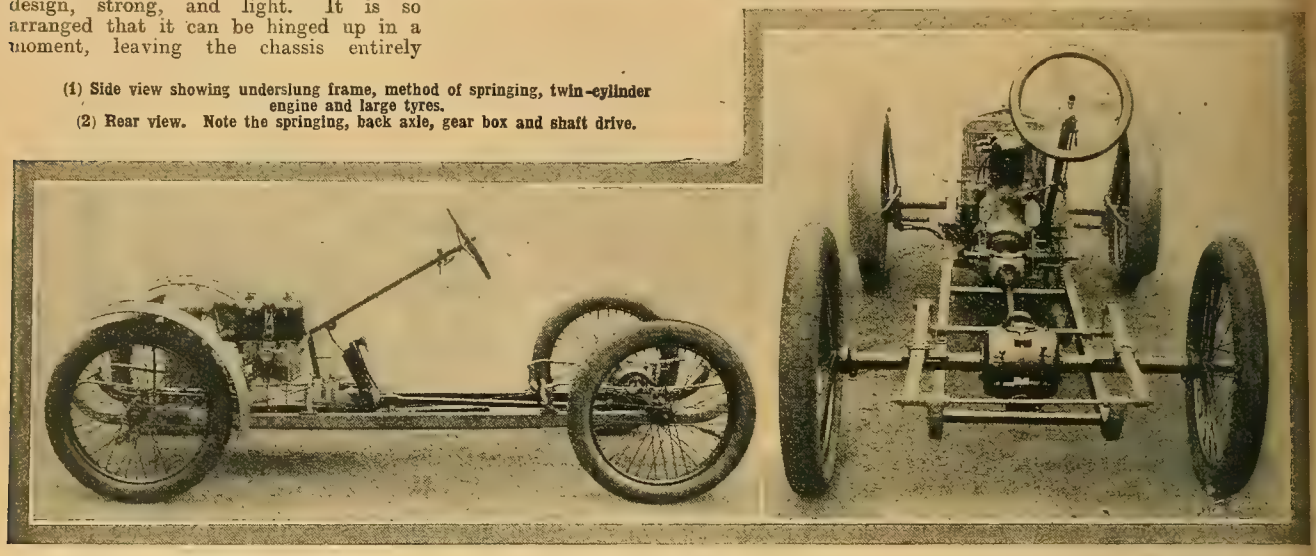
An Original Two-stroke Cycle Car.—

Another excellent effect obtained is that of rendering all four wheels detachable and interchangeable.

The coachwork is a remarkable piece of work, even in these days of clever panel beating, for it is all in one piece with the scuttle dash, and is both graceful in design, strong, and light. It is so arranged that it can be hinged up in a moment, leaving the chassis entirely exposed for cleaning or adjustment. This type of body ensures an absence of all irritating little rattles, so difficult to avoid on most light coachwork.

The Jackson will be made with two different engine sizes, though the chassis will be standardised. Although of staunch construction, the chassis weight, we are assured, is considerably under 6 cwt.

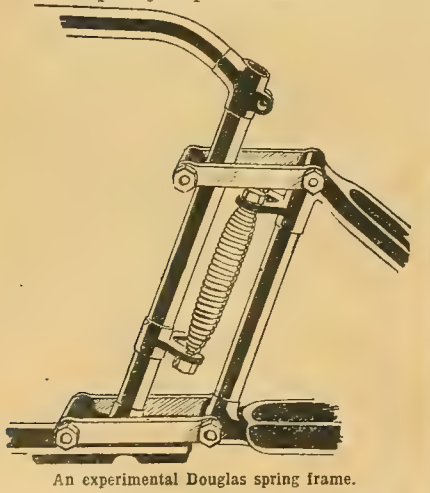
One final point should be noticed. The little car is provided with tyres of 90 mm. section, the designer realising, evidently, that the speed obtainable with this class of machine makes a generous tyre size advisable, and in the long run economical.



(1) Side view showing underslung frame, method of springing, twin-cylinder engine and large tyres.
(2) Rear view. Note the springing, back axle, gear box and shaft drive.

AN EXPERIMENTAL SPRING FRAME.

The subject of spring frames and their desirability on motor cycles has many times been discussed in these pages, consequently it was a great pleasure, when on a recent visit to the Douglas works, to notice a 2¾ h.p. mount fitted with a spring frame. Mr. Douglas impressed on us the fact that it was a purely experimental model and



An experimental Douglas spring frame.

that nothing will be marketed without thorough test. As will be seen from the accompanying sketch, the springing is on similar lines to those of the Douglas front fork, that is to say, the rear part of the frame has shackles top and bottom, and its movement is controlled by double coil springs in tension, which support the rider and the rear part of the main frame, and allow the back wheel to rise and fall over inequalities in the road.

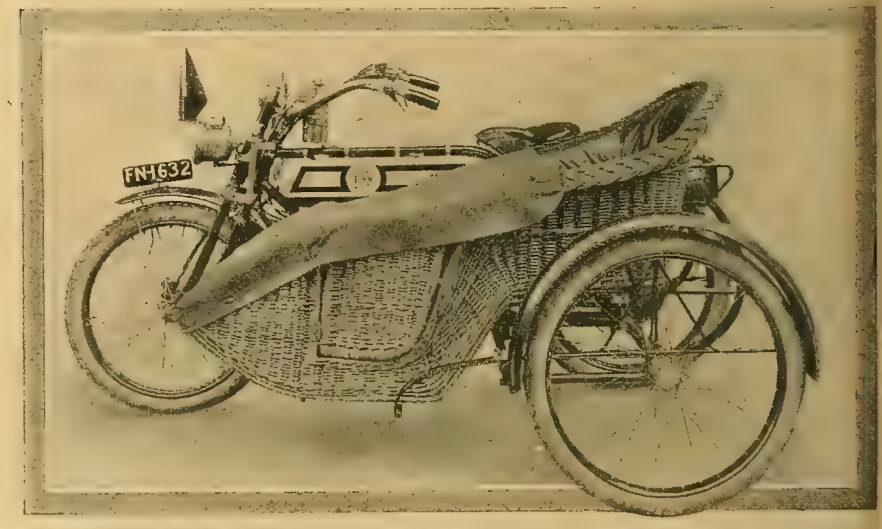
F.N. SIDECAR FOR 1914.

A complete F.N. sidecar outfit is to be marketed in 1914. A standard design of sidecar has been settled upon of the wicker variety, and it will retail at £10 10s. There are a number of special features about it, including double parallel tubes to the frame, particularly easy "C" springs, and a specially strong mudguard security. The method of security can be seen in the photograph, the stays all terminating at one point, and, in fact, forming an inverted "V."

The four-cylinder two-speed F.N. is largely used for sidecar work, and this fact has naturally induced the makers to market the complete vehicle.

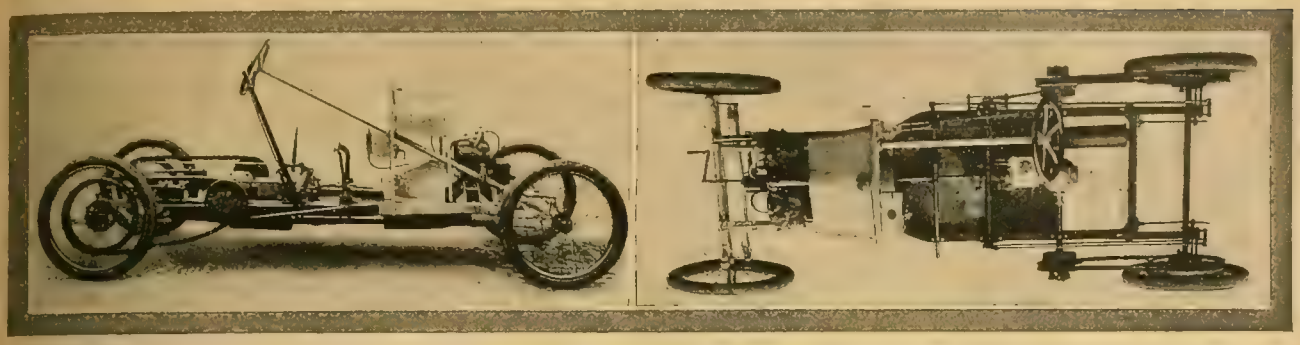
G.W.K. 1914 MODELS.

The G.W.K. firm is one of the few cycle car manufacturers who have been successful with the design of their vehicle from the very first, and consequently it is not strange to have to record that the 1914 models have been but slightly altered. The engine head is now domed instead of flat so as to provide an extra water space, a centrifugal instead of a geared pump is to be fitted, wider timing chains are now supplied, and the back axle and bevel are of B.N.D. steel. As, during the year, the G.W.K. had a magnificent record of successes to its credit, it is absolutely in the front rank of cycle cars.



A new departure for the F.N. Co. is the 5-6 h.p. complete sidecar outfit illustrated above. Observe the strong mudguard stays to the sidecar wheel.

Another New Cycle Car.

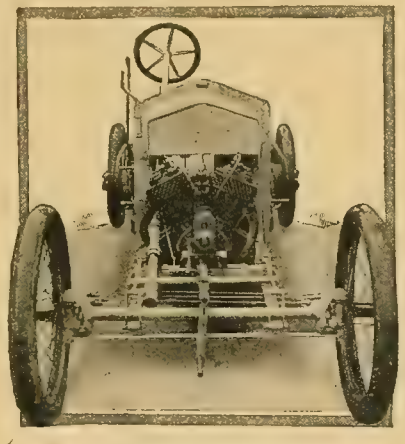


THE 8 h.p. WATER-COOLED DEPTFORD.

Side view of chassis. Plan view showing gearbox and transmission-shaft.

THE Deptford Motor Co., 2, Evelyn Street, Rotherhithe, S.E., have introduced a new cycle car, which is really the outcome of the Duo, as Mr. de Peyrecave, having severed his connection with the latter company, has now devoted his attention to the production of a new vehicle, which is to be known as the "Deptford." The model which we inspected the other day was not quite in its final state. The first chassis is fitted with a Precision engine, while the new type will be driven by an 8-10 h.p. Blumfield, 88 × 90, twin-cylinder, either air or water-cooled. The magneto will be gear-driven and forced lubrication will be fitted. At the present time the carburetter is the Claudel-Hobson, but the final type of carburetter has not yet been decided upon.

The chassis is of channel steel, inswept at the front and strengthened by cross members. The engine is set transversely in front of this, and the drive is through a large 13in. leather to metal cone clutch, and between it and the gear box the power is transmitted by means of a shaft provided with a leather universal joint at each end. The gear box contains two speeds and reverse. There is only one moving pinion, which slides on a feathered shaft, and engages the top speed by meshing with an internally toothed ring, while movement in the other direction slides it into engagement with the second speed wheel on the lay-shaft. The reverse pinion is carried underneath. Both gearshafts have ball bearings, and the power is transmitted to the cross-shaft by means of a bevel gearing. This shaft is supported where necessary on ball bearings. On each end of the shaft are pulleys, the two flanges of which are pressed up against one another by means of an internally enclosed spring. The old Duo system of pivoting the back axle so as to take up any slack in the belt is retained, and the effect of tightening the belt beyond the normal is to force the latter down the pulley, and, consequently, give a lower gear ratio. If the lever be moved to its fullest extent it operates the cam of the internal expanding brakes, thus bringing them into action. In the final model the brake drums will be very wide, and two brakes, both internally expanding, will be carried side by side.



Front view of the Deptford chassis.

As in the earlier type Duo, wire steering is fitted and the chassis is slung on quarter-elliptical springs fore and aft.

It is interesting to note that vanes are fitted to the periphery of the female member of the clutch. The latter is enclosed, and creates a forced draught so that the cooling should be effective. Undershields are fitted both beneath the engine and gear box as far as the bevel.

The gear ratios on top speed given by the adjustable pulley can be varied between 4 and 6½ to 1, and on the low speed between 10 and 14 to 1.

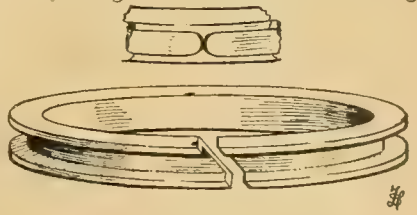
THE CYLCLEAN CLEANING PROCESS.

Although many motor cyclists prefer to take down their own engines and remove the carbon deposit themselves, there are numerous others who would gladly pay a few shillings to be saved the trouble, and it is for these that the Cylclean process is especially welcomed. In the case of a much used machine it is better to remove the cylinder, but this process can be recommended to anybody who has a new engine, in which case the internal mechanism is bound to be in good order. Recently, after a tremendous grinding in the Six Days Trials, we had one of our machines cleaned out by this process, which is, of course, an enormous saving of time. As soon as the oxygen was applied, together with the gas jet, the carbon burnt up with extraordinary rapidity, starting with a brilliant flame and ending with a shower of sparks; but the most interesting part of the process was when the oxygen was applied to the exhaust pipe, which, in this instance, was a long one possessing a curve and a flattened end, which rendered it practically impossible to clean out even with the aid of a brush. On the application of the oxygen the immense amount of oil and soot which had collected burnt so fiercely that it began by smoking like a factory chimney, followed by a burst of flame, and ending with a shower of sparks. After a few minutes' application of the oxygen every particle was burnt out, and it was absolutely clean. The cause for the engine being in this condition was due to the excessive amount of oil given to it, firstly because it was brand new, and secondly because the exigencies of the country required an abnormally low gear to be obtained through the adjustable pulley. The operation above referred to was most satisfactorily carried out by Messrs. Sully and Co., Old Town, Clapham, S.W., one of the pioneers of the Cylclean process.

The cost of cleaning a single-cylinder engine by the Cylclean process is 3s. 6d., a 2¾ h.p. twin 4s. 6d., and twins of 5-6 h.p. to 7-8 h.p. 5s.

A DOUBLE PISTON RING.

A sample of a patent piston ring has been sent us by Mr. A. E. Mengue, of Victoria Works, Englefield Green, Surrey. The device consists of a main ring on the usual lines, but recessed to take a second smaller ring within it. The smaller ring



The Mengue double piston ring.

is kept from rotating by a stop formed in the groove within which it lies, thus the diagonal slot is always covered. It is claimed that this gives better compression and tends to keep the cylinder clean. The ring has already been well proved on the Continent.

Freak Ascents of Normal Mountains.

THE adventurous motor cyclist may wake up one morning, find his engine in remarkably good tune, pack his machine before breakfast on his one thousand horse-power aeroplane, and before lunch find himself at the foot of Mont Blanc. An hour or two later will see him landing at the summit, the cynosure of the envious foot toilers. Yes, he may do this in the wonderful twenty-first century to come, but I do not think he will carry out such an expedition any time much nearer than 2000 A.D.

But he has gone quite a way towards training for such a project. Already Ben Nevis, Helvellyn, Snowdon, and Skiddaw have had to yield the peace of their rugged sides to the all pervading on-rush of the petrol engine. Where a man, mule, sheep, or goat can go, there it would seem can a motor cycle if geared low and driven by a skilful resolute driver. But, seriously, is it not about time to call a halt in this mountain scaling enterprise? One hears a great deal of the inclusion of freak hills in competitions, but when all the mountains in the kingdom are overcome, what is a miserable little rise of one in three for a few hundred yards at a time and then downhill again, perhaps, to cool the exhausted engine.

This super-climbing can be overdone. One can almost imagine nature calling out for protection against these "freak" riders. "We are quite normal mountains," Helvellyn might whisper to Skiddaw, "why then must we be tackled in this extraordinary manner?" "Yes," answers Skiddaw, "but our little brother Gastack Beck can still cause them a lot of trouble!"

There still remains a few little test hills to be conquered. The fitting of a helicopter device should make Nelson's Column quite rideable. An easier, but none the less meritorious climb, would be the several hundred steps of the Monument. There are several other likely "test hills" that could be mentioned.

FROM COAST TO COAST OF AMERICA BY MOTOR CYCLE AND SIDECAR.

The above photographs were taken during the first Trans-continental trip undertaken by Mr. and Mrs. Leroy Snodgrass on a four-cylinder Henderson, and give some idea of some of the many and varied difficulties encountered.

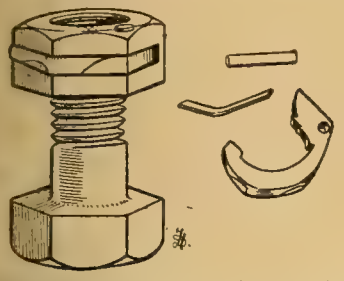
But the cold fact remains that many very ordinary motor cyclists, despite the heroic acts of the mountaineers, will continue to fail on ordinary hills, albeit mounted on apparently similar mounts, which gives one to think that the man, more than the machine, is the agent on these freak climbs.

SPARKS.

AMONG THE ACCESSORIES.

A Lock Nut Device.

We recently examined, and illustrate herewith, a device for locking nuts on pins and bolts which is automatic in action and not only locks the nut securely on the thread in such a way that it cannot turn back without a catch being released by the spanner, but the device enables the nut to be unscrewed and



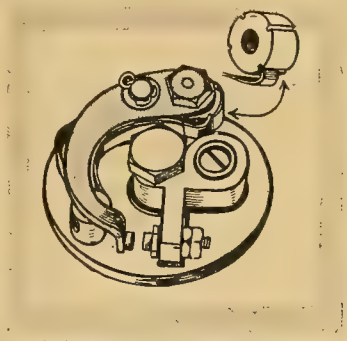
screwed up again any number of times without impairing the safety of this lock. It does not require any special tool, pin or unlocking device, and can be unlocked by the application of a jaw or box spanner from any direction. This lock nut is made by the Rex Lock Nut Co., of 40, Winchester House, Victoria Square, Birmingham. The nut is slotted at the side and carries therein a pawl, which engages with the thread on the pin On screwing up the nut the pawl over-runs until the nut comes to rest. If the nut has any tendency to unscrew the pawl engages and prevents the nut moving. To release the nut the pawl is disengaged by the application of the spanner, when the nut can be easily turned off. It is being made in all motor cycle sizes from ¼in. upwards.

The Splitdorf Magneto.

A new magneto which has made its appearance in this counrty is the Splitdorf, made by the Splitdorf Electrical Company, Newark, N.J., whose London offices are 6, City Road, E.C. The magneto may be known by name to some of our readers who have followed the motor cycle movement in the States. It is particularly well-made and is absolutely waterproof.

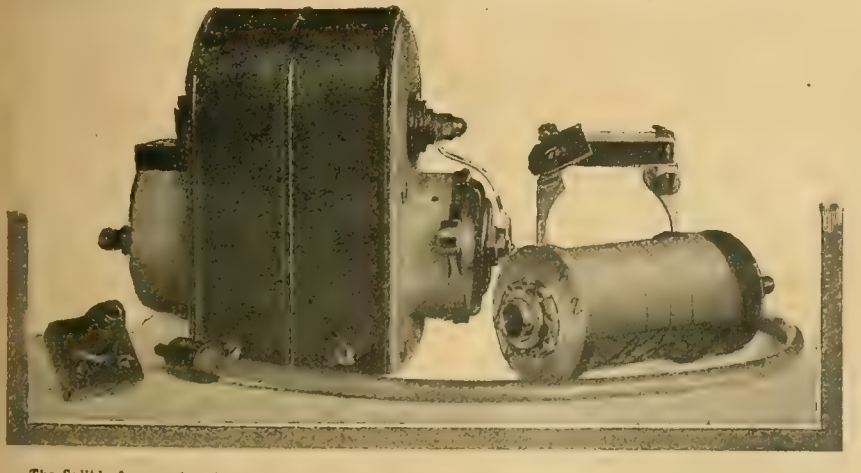
The whole follows lines usually adopted in motor cycle magneto construction, and the finish of the interior portions is distinctly good. Both ends of the armature are supported on cage ball bearings, while the condenser is carried over the armature, as will be seen from the accompanying illustration.

As regards the contact breaker; owing to centrifugal action the platinum points come into contact in a positive manner at high speed, thus permitting the use of a weaker spring and lessening the wear on the cam, while the fibre roller is adjustable for wear, the fibre being divided into sections, so that in the event of one portion being worn it may be turned round so that an unworn part comes into action. These sections are held in position by means of springs. The contact breaker is so arranged that in the fully retarded position the current is short cir-



Contact breaker of the Splitdorf magneto showing adjustable rollers.

cuited and the magneto put out of action, thus earthing the primary current from the condenser. This is brought about by means of the pin inside the contact breaker cover, which comes in contact with the spring conducting the current from the condenser. The main bearings of the magneto are provided with oil cups, which retain sufficient oil for one thousand miles. Particular care has been taken to render the high tension terminal watertight. On the whole, we are distinctly pleased with the manner in which this magneto is designed and built.



The Splitdorf magneto showing the complete magneto machine, the pole pieces with the condenser situated above, the armature, and the waterproof high tension terminal.

Spencer-Moulton Tyres.

The new Spencer-Moulton tyres, manufactured by Messrs. George Spencer Moulton and Co., Ltd., 77, Cannon Street, E.C., are excellent examples of the tyre manufacturer's work. The three-ribbed cover which we illustrate herewith is a favourite pattern. It has a long flap inside to protect the tube. There are three layers of canvas and the tread is of ample thickness. Owing to the ventilation of the tread afforded by the circumferential grooves it keeps extremely cool.

The Spencer-Moulton three-ribbed tyre.

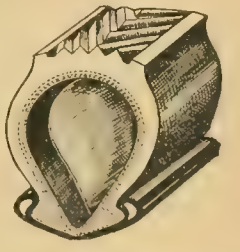
Quite a novelty is the introduction of the combination rubber and steel-studded cover, a section of which we illustrate. The tread is composed of alternate rubber lozenges and steel studs, so arranged that both rubber and steel are in contact with the road at the same time, thus ensuring a grip of the road whatever may be the condition of the surface, holding equally well on country roads and on stone setts.

Spencer-Moulton rubber and steel studded tyre.

Messrs. Spencer-Moulton have many testimonials in their books as to the excellent running of these tyres on motor cycles, and are now pursuing a vigorous policy towards making them popular among riders.

New Bates Non-skid.

Messrs. W. and A. Bates, Ltd., St. Mary's Mills, Leicester, have just introduced a new motor cycle tyre. The tread, it will be noticed, is of the herring-bone pattern, and is provided with ridges at the side, which, we are told, are excellent preventives against sideslip, rendering the tyre most suitable for winter riding. This cover will be made in the special heavy type only, 26 × 2¼, at £2 7s. 6d. per cover.



RACING AT PORTMARNOCK.

The racing season at Portmarnock was brought to a conclusion on Saturday last when the fifty miles open handicap, which had been postponed from two previous meetings, was run off, together with a six miles scratch race. The scratch race resulted in a win for F. J. Walker (Rudge), who beat C. B. Franklin (Indian) somewhat easily. There would have been a very good race in the fifty miles handicap between F. J. Walker and W. Curtis, who were both on the five minute mark, but Walker's machine was sluggish in starting and he lost a good two miles in the first five minutes. Although he ran a neck and neck race with Curtis for nearly thirty miles, he was never able to recover lost ground and ultimately was beaten by nearly five minutes.

We append the results:

SIX MILES SCRATCH RACE (500 c.c. machines).

		Time.
1.	F. J. Walker (3½ Rudge)	7m. 18⅕s
2.	C. B. Franklin (3½ Indian)	7m. 42s
3.	W. Curtis (3½ Indian)	7m. 51s.

FIFTY MILES OPEN HANDICAP (500 c.c. machines).

		Start.		Time.
1.	W. Curtis (3½ Indian)	5m.	...	1h. 6m. 0⅘s.
2.	F. J. Walker (3½ Rudge)	5m.	...	1h. 10m. 50s.

Only the above two finished.

CLUB NEWS.

"THE MOTOR CYCLE" DIARY.

Oct. 18th.—Birmingham M.C.C. Annual Autumn Trials begin.
,, Cycle Car Club Fast and Slow Hill-climb at Tilburstow Hill, near Godstone.
,, Liverpool A.C.C. Hill-climb.
,, Walthamstow M.C. Run to Harlow.

Islington and District M.C.C.

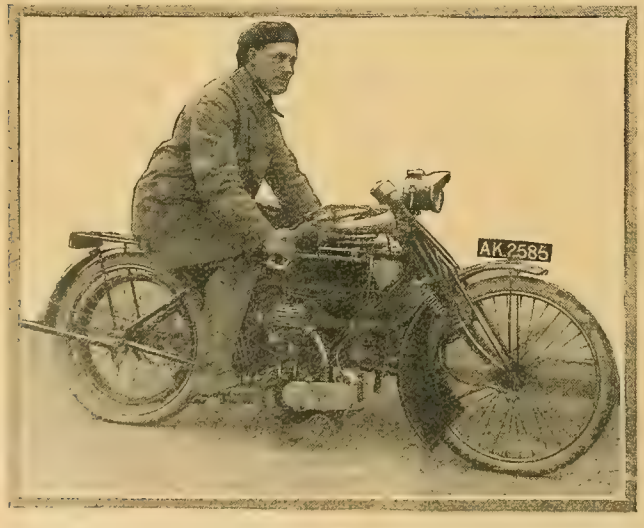
The recent reliability trial to Clacton and back resulted as follows: 1, A. G. Peppercorn (3½ Bradbury); 2, A. E. Hicks (3½ Ariel sc.); 3, H. Peppercorn (2¾ Chater-De Dion); 4, W. Briggs (7-8 Chater-Lea sc.); 5, A. Jennings (3½ Win-Precision sc.); 6, H. Ward (4¼ Grandex-Precision sc.).

Walthamstow M.C.

The W. S. Low Cup Competition was held over a course in Essex of seventy-five miles, which had to be covered twice. Competitors had to ride at 20 m.p.h. non-stop, and the nearest to schedule at checks was the winner of cup and gold medal. Some very steep hills and acute bends were encountered, and with plenty of rain falling the competitors had a very strenuous time. The results were as follows:

	Rider and machine.	Time error. m. s.
1.	G. Bax (3¾ Scott)	0 20⅕
2.	F. W. Applebee (3½ B.S.A.) ...	0 34⅖
3.	A. G. Peppercorn (3½ Bradbury)	1 54⅖

J. W. Percival, the holder (6 Chater-Lea sc.), made best time (1⅖s. error), but was disqualified for stopping on Low Hill.



F. Dodson, of Shipley, Yorks., with the 3½ h.p. Elswick and sidecar, on which he has been singularly successful in past competitions, his latest success being the fastest time in solo class, and winner of the Roland Winn trophy at the Bradford M.C.C. recent speed trials.

Malvern and District M.C.C.

The Kidderminster, Dudley, Cheltenham, and Malvern clubs are taking part in the speed trial at Blackmore Park on the 18th inst. at 2 p.m. There will be seven classes, on time and formula. The distance is roughly threequarters of a mile, with a flying start, and plenty of room to pull up, the whole distance being perfectly straight and almost dead level. The surface is in good condition, and electrical timing will be used.

Bradford M.C.C.

A hill-climb was held on the 11th inst. on Beaulah Hill, near Leeds. There were four classes to be decided—Class I., solo machines, any c.c., on handicap; Class II., any sidecar combination, on handicap; Class III., solo machines, scratch; and Class IV., sidecar combinations, scratch. Unfortunately, owing to the number of entries (over fifty) and the shortness of the afternoon, Classes III. and IV. had to be postponed until next Saturday. Results:

Class I., for the Triumph Challenge Cup.—1, J. W. M. Sproulle (3½ P. and M.); 2, S. Todd (3½ P. and M.); 3, G. Hawkin (3½ T.T. Rudge).

Class II.—1, C. Sydney (3½ Bradbury sc.); 2, Ellison Hawkes (5-6 Rudge sc.); 3, E. Stocks (5-6 Rudge sc.).

As the result of good handicapping there were some exceedingly good finishes.

H.A.R.C.

A hill-climb took place at Closney Hill, Tring. The event began in a pouring rain, the road therefore being very slippery. Results:

CLASS A.—350 c.c.

		m. s.
1.	J. T. Ganda (Douglas)	1 58

CLASS B.—500 c.c.

1.	P. Burgess (J.A.P.)	1 45

CLASS C.—1,000 c.c.

1.	S. Bhan (Zenith)	1 30

Mid. Bucks. M.C.C.

A members' speed trial took place in Aston Clinton Park, near Aylesbury (by kind permission of Lady Battersea), on the 9th inst. Results:

CLASS I.—Motor Cycles up to 350 c.c.

		Time.	Formula.
1.	H. S. Knowles (2½ Torpedo-Precision)	36⅗s. ...	1,312
2.	M. W. Allen (2¾ Douglas)	35⅕s. ...	1.387

CLASS II.—Motor Cycles over 350 c.c. and up to 600 c.c.

1.	C. H. Wright (3½ Rudge)	29⅗s. ...	1,156
2.	E. H. Littledale (3½ Ariel)	32⅘s. ...	1,187

CLASS III.—Passenger Machines.

1.	J. W. Tollady (3½ Singer sc.)	38⅕s. ...	1,356
2.	E. G. Eborn (3½ Eborn-Green-Precision)	44s. ...	1,648

The above three classes were decided by *The Motor Cycle* formula.

CLASS. IV.—Motor Cycles of Unlimited Capacity. For Douglas Challenge Cup and Zenith Gold Medal.

		Actual Time.	Handicap.	Net Time
1.	*J. W. Tollady (3½ Singer) ...	28⅖s. ...	1s. ...	27⅖s.
2.	C. H. Wright (3½ Rudge) ...	30⅕s. ...	2⅖s. ...	27⅘s.

* Winner of club gold medal.

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Dear Sirs,

I wish to thank you for the prompt delivery of the Sidecar I received from you, and must say I am highly pleased with it in every way. It is a well made and highly finished car, and all who have ridden in it say how comfortable it is.

All my friends say "**WHAT A NICE SIDECAR,**" and I agree with them.

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Yours sincerely,
W. M. GRAY.

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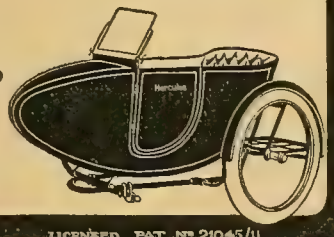

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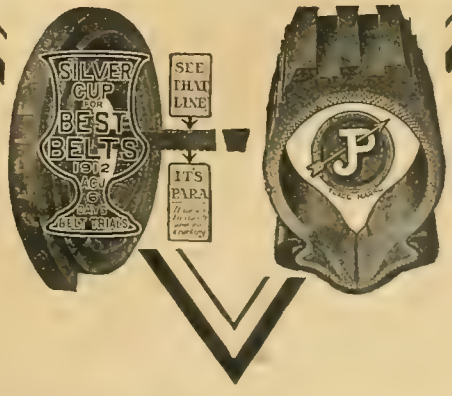

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Club News.—

Wrexham and District M.C.

This club was formed last week, with headquarters at the Imperial Hotel, Wrexham. Hon. sec., Mr. J. R. Hardwick. It is proposed to affiliate to the A.C.U.

Harrogate and District M.C.C.

The weather was not very satisfactory when the above club held their members' hill-climb on the 4th inst., at Snowden Bank, between Otley and Blubberhouses. The hill, which has an average gradient of about 1 in 8 for nearly half a mile, was in splendid condition. Results:

CLASS I.—Lightweights.

Rider and machine.	Fig. of merit.
1. G. Hill (2¾ Sunbeam)	132
2. C. Falkenbridge (2¾ A.J.S.)	135

C. Falkenbridge fastest time, 26s.

CLASS II.—Single-cylinder Touring Machines.

1. W. E. Grange (3½ Bradbury)	147
2. C. A. Nettleton (3½ New-Hudson)	154

W. E. Grange fastest time, 22⅘s.

CLASS III.—Single-cylinder Sidecar Machines.

1. C. A. Nettleton (3½ New-Hudson)	138
2. R. Swift (3½ Bradbury)	147

R. Swift fastest time, 37⅕s.

CLASS IV.—Multi-cylinder Sidecar Machines.

1. W. Fawcett (5-6 A.J.S.)	145
2. W. N. Fawcett (6 Zenith)	152.5

P. Lister fastest time, 25s.

FINAL CLASS.—For the Pilcher Trophy, presented to the club by Messrs. Pilchers, Ltd. To be won three times in succession. The winner of each class only to compete, and the greatest improvement on time previously made to constitute the winner.

	Improvement.
1. C. A. Nettleton (3½ New-Hudson)	1⅘s.
2. G. Hill (2¾ Sunbeam)	1s.

C. A. Nettleton becomes the possessor of the Pilcher Trophy, having won it three years in succession.

Dumfries and District M.C.C.

The reliability run for the Irving Cup was held on the 2nd inst., and the results are as follow: 1, J. Smith (3½ B.S.A.), 200 marks; 2, I. Dinwiddie (5 Rex), 190; 3, T. K. Newbigging (6 Rex and sc.) and Jos. Wilson (7 Indian), 185. There were fourteen entries, but two did not turn up. T. Edgar completed the course without loss of marks, but mistook the route and was disqualified in consequence. The machine ridden by Ian Dinwiddie is six years old, with accumulator ignition.

North Staffordshire M.C.

The last event of the season, a hill-climb, was held at Winkhill, and the results appear below.

CLASS I.—Up to 600 c.c.

On formula.	*On time.*
1. J. Sproston (2¾ Sunbeam)	1. J. Sproston (2¾ Sunbeam)
2. H. W. Teeton (3¾ James)	2. C. Knight (3½ Triumph)
3. A. Miller (3½ Rudge)	

CLASS II.—Unlimited.

1. J. Sproston (2¾ Sunbeam)	1. C. Knight (3½ Triumph)
2. A. Miller (3½ Rudge)	2. J. Sproston (2¾ Sunbeam)
3. H. W. Teeton (3¾ James)	

Oxford M.C.C.

The members' hill-climb was held at the beginning of the month at a hill out of Letcombe Basset. The winners were as follows:

CLASS A (350 c.c.)—L. Eastwood (2¾ Douglas), silver medal, figure of merit 89.15.

CLASS B (500 c.c.)—S. A. Rowlandson (3½ Rudge), figure of merit 81.65; G. Blagrove (3½ Rudge), Triumph gold medal, 89.23; F. G. Alden (3½ Triumph), 93.19; F. H. Barton (3½ Triumph), novices' bronze medal, 107.26.

CLASS C (multi-cylinder, 350 c.c.)—A. James (6 Zenith), figure of merit 114.36; H. G. R. Slingo (5-6 Clyno), 127.59.

CLASS D (passenger).—H. R. Annis (3½ New Hudson sc.), Morris silver cup, figure of merit 90.42; H. G. R. Slingo (5-6 Clyno sc.), 99.79; R. Holloway (8 Bat sc.), 104.08.

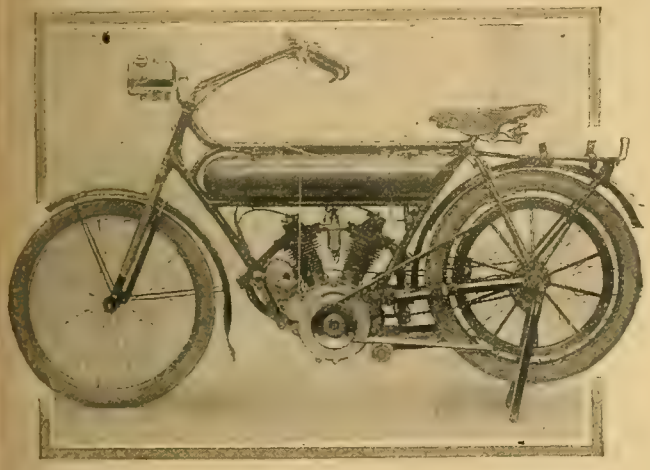
CLASS E (cars and cycle cars).—W. R. Morris (10 Morris-Oxford), figure of merit 75.13.

THE 499 c.c. TWIN MAGNAT-DEBON.

The accompanying illustration shows the latest example of the Magnat-Debon motor cycle.

The machine is a 4½ h.p. twin, the cylinders of which are set at forty-five degrees, the bore is 66 mm. and the stroke 73 mm., the c.c. being 499. The engine is a high speed one and designed to turn over at 3,000 r.p.m. Both valves are arranged on the top of the cylinder. The total weight is about 130 lbs. The machine is provided with a plate clutch in the rear hub and also with an automatic pulley.

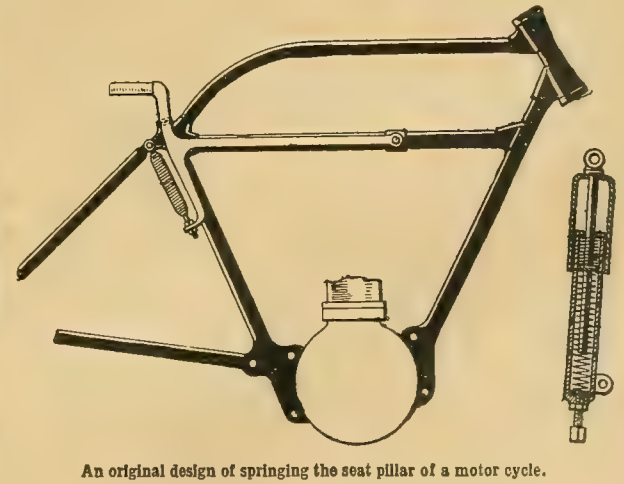
The diameter of the pulley increases according as the work absorbed is equivalent to that given out by the engine. The pulley varies in diameter from about 3½ inches to 5¼ inches.



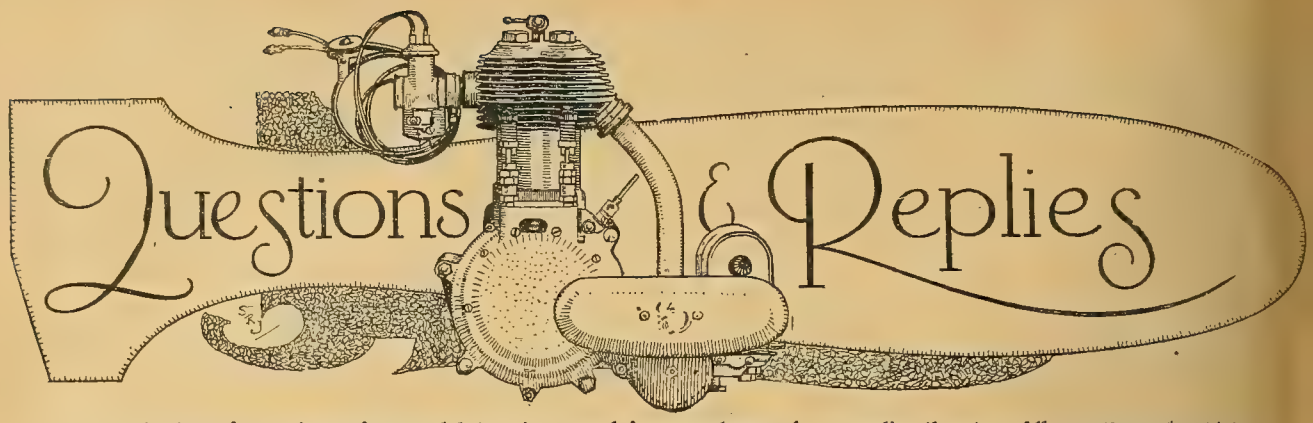
Belt side of the latest pattern 4½ h.p. Magnat Debon twin cylinder machine.

A SPRING SADDLE PILLAR.

An interesting design of spring saddle pillar is illustrated herewith. As will be seen from the sketch, the pillar is carried on long arms pivoted to the lower tank tube and suspended by tension springs from the back stays. An alternative design shows the rear end supported on compression springs. Either of these forms of suspension coupled with the usual saddle springs should give a most luxurious riding motion. The smaller illustration shows a method of enclosing the actuating springs, a recoil spring being fitted in this design. This should make the working parts weatherproof without materially increasing the weight. The fitting will shortly be marketed by Messrs. Beard-Brown and Co., Doddridge Street, Northampton.



An original design of springing the seat pillar of a motor cycle.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Walsall to Leeds.

I should be much obliged if you would kindly give me the best route from Walsall to Leeds *via* Cleckheaton.—E.V.C.

Your best route would be as follows: Walsall, Lichfield, Abbots Bromley, Uttoxeter, Ashbourne, Hartington, Buxton, Chapel-en-le-Frith, Glossop, near Holmfirth, Huddersfield, along the Leeds Road until half way to Leeds, where branch off for Cleckheaton, whence Leeds is easily reached.

A Question of Jet Sizes.

I shall be obliged if you will tell me—(1.) What are the usual sizes of jets in the Triumph carburetter? (2.) Please give the corresponding sizes on the imperial standard wire gauge or in decimal parts of an inch. (3.) The jet I am using is something between .032 and .028, but I have had to reduce the diameter of the choke tube. Should this give more economical running than using a bigger jet with the choke tube as fitted (1910)?—F.B.B.

The usual size of jet used in the Triumph carburetter is .032. The nearest corresponding size on the Imperial Standard wire gauge is No. 0, the exact size of which is .0324. The figure .032 is the equivalent in decimal parts of an inch. We should say that the combination of small jet and small choke tube will give you the greatest economy and coolest running.

A Tour in Scotland.

A friend and I are taking a tour to Scotland, making our headquarters Drumnadrochit (fifteen miles from Inverness). I should like to know the most direct route to Inverness from Nottingham, main roads only, and the distance? What would you recommend as an alternative route? As we wish to do the largest half of the journey on the first day, where would you recommend staying the night?—E.A.L.

Your best route would be as follows: Nottingham, Mansfield, Worksop, Tickhill, Doncaster, Ferrybridge, Aberford, Wetherby, Boroughbridge, Leeming Lane, Scotch Corner, Barnard Castle, Middleton-in-Teesdale, Longtown, Gretna Green, Lockerbie, Beattock, Abington Inn, Symington, Lanark, Carluke, Newmains, Cumbernauld Station, Denny, Stirling, Callander, Lochearnhead, Killin, Aberfeldy, Ballinluig, Pitlochry, Blair Atholl, Dalwhinnie, then by the direct route to Loch Laggan, Spean Bridge, and along the chain of lochs to Fort Augustus and Drumnadrochit. This is the prettiest road. The most direct route is to go straight up the Great North Road (which is signposted by the R.A.C.); after Scotch Corner make your way to Darlington and then go through Nevill's Cross, Newcastle, Alnwick, Berwick, Dunbar, Haddington, Edinburgh, by ferry to Burntisland, then through Kinross, Perth, Dunkeld, Blair Atholl, Dalwhinnie, Kingussie, Carrbridge, and Moy to Inverness. The distance is approximately 416 miles. If you go by route 1 you could stop the first night at Moffat, which is just off the main road by Beattock. You will find a good hotel here. If you go by the other route stop the night at Alnwick.

To Prevent Water Freezing.

I shall be glad of information respecting the following: (1.) Will an addition of glycerine prevent water in the radiator, etc. freezing; if so, about what proportion to the gallon? (2.) What is the advantage of an adjustable wind screen on a cycle car? Would it not be as well to have the screen fixed so as to have as little wind resistance as possible, say, at about 45° to 60°?—W.J.

(1.) The addition of glycerine to the cooling water can be added until the specific gravity of the mixture is 1.1. This means approximately 30% of glycerine. This will be proof against freezing down to zero, but below that the mixture will freeze. Probably you will find the best course to pursue is to use ordinary water, and to drain out the radiator and cylinder when there is danger of a frost. (2.) The only advantage of a wind screen such as you describe is that it can be made more comfortable, and constructed so that it keeps draughts off the driver. If you wish to decrease wind resistance to a minimum the best thing to do is to have no adjustable screen at all but a small fixed screen at an angle such as you suggest, which would, of course, largely combine the advantages of screen and little wind resistance.

A 1 in 3 piece of road on to Rodborough Common, near Stroud. The machine climbing the gradient is a B.S.A., ridden by Kenneth Holden. The sidecar is the one used at Brooklands.

Cheshire to Bucks.

I shall be obliged if you will mention: (1.) The best route from Runcorn to High Wycombe direct. (2.) Ditto, *viâ* Leicester. —N.G.S.C.

Your best routes would be as follows: (1.) Runcorn, Tarporley, Whitchurch, Hodnet, Wellington, Bridgnorth, Kidderminster, Alcester, Stratford-on-Avon, Banbury, Deddington, at Sturdy's Castle inn turn left and go through Bletchington, Islip, Wheatley, and on through Stokenchurch to High Wycombe. (2.) To go *viâ* Leicester go through Northwich, Congleton, Leek, Ashbourne, Derby, Leicester, Market Harborough Northampton, Wolverton, Winslow, Aylesbury, Princes Risborough, to High Wycombe.

How to deal with a Fire.

A few days ago my carburetter suddenly caught fire, and I am at a loss to know the cause, as the inlet valve was not sticking at all. Perhaps you can help me. The facts are as follows: The machine is a 1909 Triumph fitted with 1913 Triumph cam wheels, giving greater lift on the valves, B and B. adjustable carburetter, with jet on full—probably leaking slightly, as it wants a new needle; gauze cap on air inlet taken off. The carburetter took fire thirty or forty yards after starting, when engine was quite cold. Perhaps you can also tell me what you advise doing in such a case, after turning the petrol tap off -whether to get on and ride fast until the petrol is exhausted, or to smother the flame with cap and coat. I took the latter course, but did not lay the machine down on its side, which, I suppose, I should have done.—AB 69.

Unless the inlet valve stuck and there was a blow-back, we cannot account for the fire. The best plan in a case of this kind is to turn off the petrol and knock out the flames with your cap. Do not, whatever you do, lay the machine on its side. This might cause the petrol to leak out from the filler cap, which would naturally considerably aggravate the danger of a serious conflagration. If the flames get a real hold the only way to put them out is to smother the machine with sand or earth.

Continuous Running and Overheating.

A friend of mine, whilst the modern motor cycle engine was under discussion, stated that it could not be run for hours on end owing to overheating. I denied this, instancing the long periods the Messrs. Colliers and Martin and others have put in on tracks. I believe a ten or twelve hours record was put up and the times given in your paper about five years ago. We shall be glad if you will please give us your decision on this point.—C.H.

A well-tuned engine will run for an indefinite period without overheating. The longest record is that put up by H. A. Collier—700 miles—which he accomplished at Canning Town in twenty-four hours, on May 5th and 6th, 1909. As a matter of fact an engine is just as hot after fifteen minutes' running as at the end of twelve hours' running.

High Petrol Consumption.

I should be much obliged if you would give me advice on the following points. My machine is a 1911 T.T. Bat (overhead valves). It will not fire regularly at less than 40 m.p.h., and does 35 m.p.h. with the throttle lever in the fully closed position. When the lever is moved towards "open" about ½in., the engine practically ceases to fire, but when opened further it is perfectly all right. The carburetter is of a well-known make, which I have taken to pieces, and which seems all right, though the slide and barrel are worn, to which I attribute the gas leaking through, with the lever in the "closed" position. The carburetter is often wet as though with perspiration, and sometimes I hear a noise like the discharge of an air gun in the region of the carburetter. This only continues intermittently for a few yards and is then all right again. The petrol consumption is enormous, about twenty-five miles to the gallon. It has been like this since I bought it, but as it is very fast and really runs very well, I have not worried about it.—G.M.

The carburetter seems hopeless, and we feel sure you would do better with a change. If you want absolute controllability, you should buy one of the newer automatic type, which, however, might be not quite so efficient, but would be far more economical and would enable the machine to be throttled down much more. The condensation is due to the absence of any warming device, which is, of course, highly desirable, especially at this time of the year.

READER'S REPLY.

Loss of Power in New Hudson.

I think if "J.A.H." will look to his timing gear he will find the trouble. I recently had the same symptoms, and found that a small collar on the bell crank lever actuating the exhaust tappet was broken up, causing the valve to receive about half its usual lift. The owner had driven several hundred miles with his machine in this state, and there was nothing to indicate the trouble till the lift of the two valves was compared. —H. BRAITHWAITE.

EXPERIENCES WANTED.

"J.C." (Holborn). — Morgan. Reliability, springing, and upkeep.

"Limit Gauge" (Cheshire).—Suitable costume for lady riding a Scott.

"A.W." (Droylsden).—General experience of Wolf 2½ h.p. and Levis.

"H.S.H." (Kent).—Lighting obtained by a small dynamo or dry cells. Efficiency of light, and reliability of outfit.

"H.O.M.L." (London). — Mileage obtained from back tyre of 7 h.p. Indian with sidecar.

"S.P." (Stroud Green).—Humber 2 h.p., single-speed. General capability, wear of belt, etc.

"E.R." (Manchester). — Four-cylinder F.N. and various 5 h.p. twin and single-cylinder machines.

"F.W.N." (Bessbrook).—Auxiliary 1 h.p. motor. Reliability and cost of upkeep.

"A.H.W." (London). — Lomax non-skid band. General reliability and anti-skid properties. Is its use detrimental to the tyre?

"H.W.W." (Hassocks).—7-9 h.p. Peugeot engined motor cycle. Hill-climbing, consumption, speed, and reliability.

"J.S.D." (Altham). — Sturmey-Archer three-speed gear on 3½ h.p. sidecar combinations.

MIDLAND OPEN RELIABILITY TRIAL.

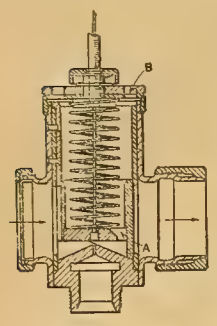
(1) J. Dudley (2½ h.p. Hobart) starting the ascent of Flagstaff Hill, near Abberley.

(2) Group of competitors lined up for the flexibility test.

(3) G. A. Gregson (Bat-Jap) on the bad corner of Farlow Bank. Gregson has performed very consistently in this year's competitions.

The Single-lever Amac Carburetter.

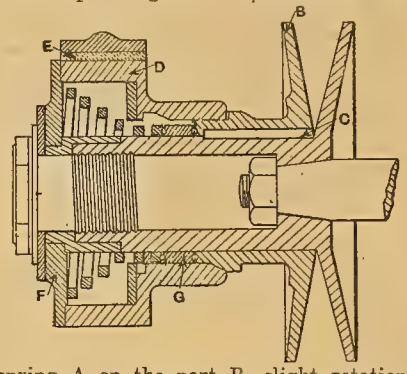
In this carburetter the jet outlets are arranged at the centre of a horizontal air passage, and above this moves vertically a sliding piston engaged by a spring and actuated by a Bowden wire. The air passes through the carburetter in the direction of the arrows, the pistons serving to control the admission of air to the jet nozzles and the passage of gas from the carburetter. In the piston is formed a leak device A, whereby air entering through the adjustable holes B can be caused to dilute the gas just before it leaves the throttle. This feature is the secret of the successful operation of the carburetter at low speeds.—F. H. de Veulle, No. 20,237, 1912.



A Philipson Pulley Improvement.

In the pulley illustrated the spring operates in a different manner from that of the original construction. The movable flange B is free to slide on a key C on the boss of the fixed flange, and has a quick thread connection with the governor member D, which in this case is provided with a brake band E. Between the outer plate F and the movable member B is the compression coil spring A above referred to, and the inner end of this spring exerts its pressure through a ball thrust ring G. In operation, when the member D is retarded by the brake band E, its screw

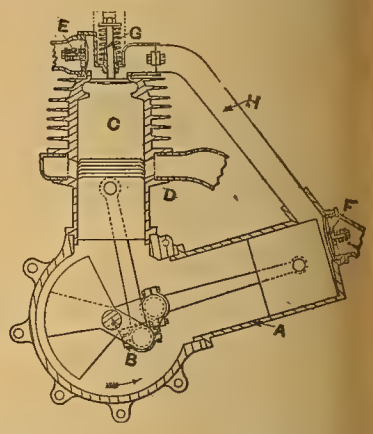
thread connection with the part B will move the latter outwards, compressing the spring A. It has been found that the return movement can be effected by the simple longitudinal pressure of the



spring A on the part B, slight rotation of the governor member D, of course, taking place at the same time. Thus a simplified construction is afforded.—W., T. W. H., and P. C. Philipson, No. 20,797, 1912.

A Two-stroke Scavenging Engine.

The difficulty with the ordinary type of two-stroke motor is to get rid of the burnt gases before the fresh charge is admitted to the cylinder. In this engine a separate pump cylinder A is employed for this purpose, and driven from the crankshaft B in correct relationship to the power cylinder C. The exhaust ports are shown at D. The engine is assumed to run in an anti-clockwise direction. On the suction stroke of the pump piston air is drawn into the pipe H through the valve E, and at the same time mixture from the



carburetter enters at F. On the compression stroke of the pump piston, and just as the piston in the power cylinder C has uncovered the exhaust ports D the valve G is timed to open, allowing the mixture compressed in the pump cylinder A and pipe H to pass into the working cylinder, expelling the remaining exhaust gases. By this time the power piston has again covered the exhaust ports on the return stroke, and a full charge of fresh gas is compressed for the next explosion.—J. L. Rhys, No. 22,000, 1912.

New Use for a Garage.

The garage of the Bentinck Motor Co., Trent Bridge, Nottingham, is at present being converted into a picture palace.

Irish Motor Directory.

We have received a copy of the latest edition of the Irish Motor Directory. This book has grown considerably in size and is sold at 2s. 6d. net. The bulk of the book is given over to a list of owners of cars and motor cycles registered in Ireland, together with the numbers.

West Country Guide Books.

The Homeland Association, Ltd., 15, Bedford Street, Strand, W.C., have sent us three handbooks, being the official guide books to—(1) Bath Abbey, (2) Fowey, and (3) Liskeard and Looe. These handbooks are published at 6d. net, and contain several views of the places in question.

Cycle Car Engines.

In our description of the Dorman engine in the issue of October 2nd we stated that these engines were being used by Messrs. G.W.K., Ltd. Messrs. W. H. Dorman and Co., Ltd., inform us that this is not quite correct, as the G.W.K. engine is a special production of the latter firm's design, and is not obtainable except on their cars. The G.W.K. and the Dorman engines are both of the twin-cylinder vertical water-cooled type, but otherwise are not similar.

The Self-sealing Rubber Co., Ltd.

The eighteenth annual report of the directors of the Self-sealing Rubber Co., Ltd., discloses a net profit for the year ending August 31st, 1913, of £3,185 8s. A dividend of 10% and a bonus of 5% is declared.

The "Earwig" Sidecar.

W. F. Guiver, of the Haven Motor Works, 739, Old Kent Road, S.E., informs us that he was the designer of the sidecar body called the "Earwig," used by E. B. Ware at the last B.M.C.R.C. meeting and the Brighton Races.

Parcelcars in London.

Messrs. Sydney Westall and Co., Ltd., 143-145, Great Portland Street, W., inform us that they have taken over the sole agency for London and the South of England for the Wall Parcelcar. They will carry a large stock of spares for these vehicles. In addition to selling Wall Parcelcars, they will also undertake their total maintenance either at their works at Chelsea or at their garage near Hyde Park Corner.

Bargains in Accessories.

In the annual autumn sale at Gamages Holborn, E.C., we note various bargains in the motor cycle line.

Catalogues Received.

The Dunlop Rubber Co., Ltd., Aston Cross, Birmingham, send us a copy of their latest price list of motor cycle tyres and accessories.

A Good Lamp Essential.

On the occasion of the recent non-engine-stop run from London to Edinburgh by Rex Mundy on an 8 h.p. water-cooled Williamson and sidecar, it was imperative that the driver should experience no lamp troubles, and also have a really bright and clear illumination of the road. Mundy used the F.R.S. head lamp, and experienced not the slightest difficulty with it, and was able to travel at a good speed.

The Watford Speedometer.

We have had one of these excellent speedometers in use for something over 5,000 miles. During this service it has never given a moment's trouble, nor has the bracket become loose on any single occasion. The hand is dead steady at all speeds, and when the speed is constant it might be to all appearance a black line drawn on the face of the instrument. We have several times tested it against the watch at various speeds, and have found it remarkably accurate.

Brandon House,
Little Holland,
Clacton-on-Sea.
6/10/13.

Messrs. The Rex Motor Mfg. Co., Ltd.,
Coventry.

Dear Sirs,

Having been initiated into the wonderful pleasures of Motor Cycling, I don't think I can do better than follow in my Brother's footsteps.

As you are doubtless aware, he has ridden Rex Motor Cycles since 1902 and travelled over 94,000 miles. On his various Rex machines he has won five Gold Medals in five London - Edinburgh - London competitions. Although I am quite a novice I find your Sidette the limit of reliability and comfort, it is simplicity itself to manage, and its appearance has been highly admired by everyone.

I have much pleasure in enclosing photo, showing myself driving with my Brother as passenger.

Wishing you every success in the coming season,

Yours faithfully,
GRACE WHITE.

Price £75.

The above letter speaks for itself. One of the principal charms of the **1913 TWIN REX** with its wonderful Two-speed Gear is its **absolute simplicity.** *Write for catalogue and booklet—"Further Tales of the Road."*

THE REX MOTOR MFG. CO., LTD., COVENTRY.

BLUEMEL'S MASCOT PLUG.

The **Plug** with the perfect gas-tight joint. Never misses fire, no matter how slow the engine is running or how weak the mixture. Obtainable at all first-class garages.

Price **3/6** each.

MOTOR LIST POST FREE.

BLUEMEL BROS., LTD., WOLSTON, nr. Coventry.

LEVIS CUP TRIAL

THE

CONNAUGHT

2½ TWO-STROKE LIGHTWEIGHT

Ridden by Mr. C. Taylor who was an **Absolute Novice,** was the only Two-stroke Lightweight to survive, and gained a

GOLD MEDAL

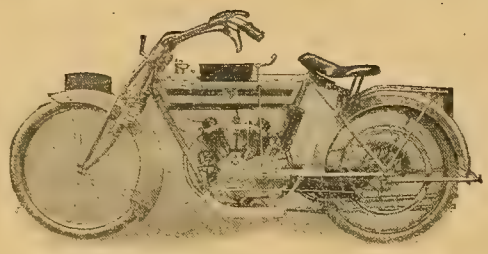
The smallest machine in the trial to finish.

TRUSTY, TRUE, & TRIED.

PRICES, Fixed Gear, **£33 10 0**
3-speed **£44 0 0**

Made by
The BORDESLEY ENGINEERING Co., Ltd.
BIRMINGHAM.

MOTO-REVE



4 h.p. Twin, chain drive, two speeds, clutch, 58 guineas.

2½ h.p. Single, 3 speeds, clutch, 43 guineas.

2 h.p. Single, free engine ... 32 guineas.

CHAMPIONSHIP OF ITALY, 500 c.c. class.

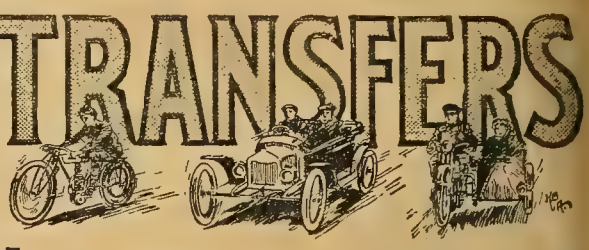
4 h.p. MOTO-REVE 1st.

20 OTHER BRITISH Machines Competed.

Distance 180 miles. Winner's time over 50 m.p.h.

MOTO-REVE CO., LTD., ALPERTON.

TRANSFERS



for **Motor Cycles**
Sidecars
Cycle Cars

Registration Letters ... and Numbers, ... Monograms, etc. ..

Artistically Designed and Neatly Printed.

Makers and agents requiring Transfers are requested to send particulars of wording required, upon receipt of which we will submit, free of charge, a specially prepared design.

¶ *When asking for gratis design please state the colour of the background upon which the transfers will be affixed.*

ILIFFE & SONS LTD.,
TRANSFER SPECIALISTS, COVENTRY.
London: 20, Tudor St., E.C.

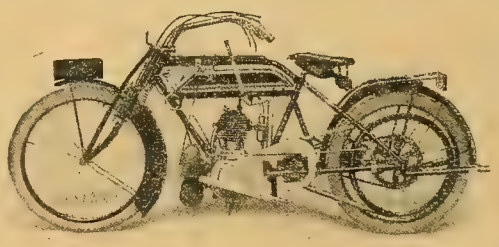
"LINCOLN ELK" New Models, 1913.

Manufactured Completely by

J. KIRBY,
Broadgate, LINCOLN.

Telephone: 484. Telegrams: "ELK," LINCOLN.

Wholesale Agents for Scotland:
The North British Machine Co., Ltd.,
56 & 58, Great Clyde Street, Glasgow.



4½ h.p. 2-speed Model	£46	0	0
3½ h.p. Standard ,,	£35	0	0
3 h.p. ,, ,, ,,	£31	10	0
2¼ h.p. ,, ,, ,,	£29	10	0

All Models fitted with Palmer Tyres, Bosch Magneto, and Footrests. "Druid" Spring Forks.

Sole London Agent:
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378-384, Euston Road, N.W., and
173, Great Portland Street, W.

SHE'LL GO BETTER AND LAST LONGER FITTED WITH

SKEFKO.SKF

PATENTED MADE IN ENGLAND. (TRADE MARK.)

SELF-ALIGNING DOUBLE ROW **BALL BEARINGS**

Made from finest Swedish steel. Automatically self-aligning Take axial as well as radial loads. One-piece ball-cage. No rivets or screws.

Write to-day for catalogue and full particulars.

The SKEFKO BALL BEARING CO., Ltd., HEAD OFFICE & WORKS: LUTON, ENGLAND.

Telegrams—"Skefko, Luton." *Telephone 418 Luton.*

London Office: Carlton House, Regent St., S.W. *Telephone—9641 Gerrard. Telegrams—"Skefko, Piccy, London."*

STAR MOTOR CYCLE

"THE MOTOR OF MANY MERITS."

¶ YOU WILL NOT FIND IN ANY OTHER MAKE quite the same novel and unique features that are embodied in the Star Motor Cycle. It is designed and constructed on entirely new lines, and is in every respect an

ABSOLUTELY RELIABLE

machine. Answering perfectly to every demand made upon it, it is equally a machine FOR THE NOVICE and the PRACTICAL MAN.

OLYMPIA STAND 81

4¼ h.p. Single-cylinder Engine, Chain Drive throughout. —— 3-Speed Free Engine in Gear Box. —— Leather to Metal Clutch. —— Engine Shaft with Clipping Clutch on Counter Shaft. Car Practice Adopted throughout.

Send for full Specification.

OLYMPIA STAND 81

THE STAR CYCLE CO., Proprietors: The Star Engineering Co., Ltd., WOLVERHAMPTON.

London and District Agents: E. S. Thomas & Co., 154b, Great Titchfield Street, London, W.

STAR MOTOR CYCLE

Oil for Winter,

must be fairly light in body and free from any tendency to gum up on standing. Objectionable, wasteful petrol injection should not be necessary. The oil must be rich in refined neutral fatty matter to compensate for the light body and to give efficient lubrication under severe conditions.

WINTER

Huile De Luxe

is ideal for chilly, damp weather when ordinary oil gums up the engine or runs like water directly it warms up.

Write for H. L. Literature to—

PRICES' COMPANY LIMITED,

BATTERSEA, LONDON, S.W.

END OF SEASON CLEARANCE AT HARRODS

All Motor Cycles and Sidecars written down and must be cleared.

NO SECOND-HAND MACHINES.

The following makes included:

BRADBURY, BAT, ENFIELD, HUMBER, MATCHLESS, SINGER, TRIUMPH, ZENITH.

Write, stating your requirements, and we will quote you.

HARRODS, LTD.,

By Special Appointment to H.M. the Queen,

LONDON, S.W. *Richard Burbidge, Managing Director.*

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To insure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmorland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

HAUCHOPE'S

9, Shoe Lane, Fleet St., LONDON, E.C.

'Phone—Holborn, 5777 Wires—"Opificer, Londo n."

MUST HAVE ROOM

For their New 1914 Models, and to ensure quick clearance have marked down prices to the most attractive bargain figures ever quoted for machines of such all-round excellence.

New and second-hand motor cycles, perfect and ready for riding, fully guaranteed at most unprecedented quotations for cash, exchange, or easy terms.

Ask for to-day's list. Call and make your choice.

7561.	3½ h.p. 1910 2-speed **TRIUMPH** ..	£30 0
7564.	6 h.p. 1912 2-sp. **MATCHLESS** and Sidecar	£55 0
7568.	3½ h.p. 1912 2-sp. **P. & M.** and Sc.	£50 0
7570.	6 h.p. 1912 **A.C. SOCIABLE**.....	£60 0
7571.	2¾ h.p. 1912 2-speed **DOUGLAS**, Model K.	£38 0
7572.	3½ h.p. 1913 2-speed **BRADBURY** and Sidecar	£47 10
7573.	3½ h.p. 1913 Standard **TRIUMPH**	£42 10
7574.	8 h.p. 1912 3-speed **CHATER-LEA** and Sidecar	£60 0
7537.	7 h.p. 1912 2-sp. **INDIAN** and Sc.	£52 10
7538.	6 h.p. 1913 3-speed **CLYNO** and Clyno Sidecar	£75 0
7544.	5-6 h.p. 1913 **RUDGE**, Multi	£55 0
7548.	3½ h.p. 1913 3-speed **TRIUMPH** ..	£48 0
7549.	1913 **GLORIA** Projectile Sidecar, 30 Gns. Model	£17 10
7550.	3½ h.p. 1913 F.E. **ROVER**	£40 0
7551.	3½ h.p. **REX**	£12 10
7556.	2¾ h.p. 1912 2-speed **ENFIELD** ...	£35 0
	2¾ h.p. 1909 **DOUGLAS**	£18 0
7470.	3½ h.p. **V.S.** and Sidecar	£20 0
7471.	4 h.p. 1912 2-sp. **SINGER** and Sc.	£45 0
7480.	4 h.p. 1912 Tourist **REX**	£35 0
7506.	3½ h.p. 1911 F.E. **TRIUMPH**	£33 0
7507.	6 h.p. 1912 **REX-JAP** and S'car .	£60 0
7513.	3½ h.p. 1913 3-speed **PREMIER** ..	£42 10
7515.	3½ h.p. 1911 F.E. **TRIUMPH**	£33 10
7521.	5-6 h.p. 1911 4-cyl. **F.N** and S'car .	£25 0
7525.	6 h.p. 1913 3-speed No. 2 **BAT** ..	£55 0
7535.	3½ h.p. 2-speed **ROC** and Sidecar ..	£17 10
3248.	1¼ h.p. 1909 **MOTOSACOCHE**	£12 10
4230.	4½ h.p. twin **MINERVA**	£15 0
4813.	5-6 h.p. 1911 4-cylinder **F.N.**	£26 0
4833.	5-6 h.p. 1911 4-cylinder **F.N.**	£28 0
5596.	3½ h.p. 1911 **KERRY-ABINGDON**	£27 0
6170.	3½ h.p 1911 tourist **REX**	£28 0
6179.	3 h.p. 1912 2-speed **N.S.U.**	£30 0
6276.	8 h.p. 1912 **ZENITH-GRADUA** ..	£55 0
6343.	8 h.p. 1911 3-speed **CHATER-LEA** and Sidecar	£58 0
6378.	6 h.p. 1911 **ZENITH** and Sidecar	£48 0
6421.	3½ h.p. 1908 **MINERVA**	£18 0
6516.	8 h.p. 1911 3-sp. **CHATER-LEA**	£47 10
6543.	3½ h.p. 1911 2-sp. **ALLDAYS** & S.c.	£35 0
6799.	7 h.p. 1911 2-speed **INDIAN**	£40 0
6863.	3½ h.p. 1910 **BAT**	£27 0
6900.	3½ h.p. 1912 F.E. **ROVER**	£38 0
6976.	2 h.p. 1910 **MOTO-REVE**	£12 10
7080.	6 h.p. 1912 2-sp. **CLYNO** & S'car	£50 0
7098.	3½ h.p. 1911 **ZENITH** and Sidecar	£37 10
7108.	3 h.p. **GIVAUDAN**	£20 0
7116.	3½ h.p. 1912 2-speed **BRADBURY**	£39 0
7186.	4½ h.p. 1913 2-sp. **LINCOLN-ELK**	£33 10
	6 h.p. 1910 2-speed **MATCHLESS** and Sidecar	£45 0
	6 h.p. 1912 2-sp. **KERRY** & S'car	£50 0
7216.	2¾ h.p. 1912 2-sp. **ROYAL ENFIELD**	£36 10
7283.	8 h.p. 1913 2-sp. chain-drive **BAT**	£55 0
7281.	3½ h.p. 1910 2-speed **P. & M.**	£32 10
7318.	6 h.p. **ANTOINE**	£15 0
7332.	8 h.p. 1913 **HUMBERETTE**	£99 0
7343.	5-6 h.p. 1908 2-sp. **N.S.U.** & S'car	£30 0
7356.	6 h.p. 1912 2-speed **REX** Sidette	£50 0
7383.	2¾ h.p. 1912 3-speed **HUMBER** ...	30 Gns
7395.	2¼ h.p. 1910 2-speed **F.N.**	£28 0

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" O... When this is desired, 2d. will be charged for registra... and three stamped and addressed envelopes must be ... for forwarding replies. Only the number will appe... the advertisement. Replies should be addressed, "... ooo, c/o 'The Motor Cycle,' Coventry" or if "Lond... is added to the address, then to the number given, ... "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown per... may deal in perfect safety by availing themselves o... Deposit System. If the money be deposited with "... Motor Cycle," both parties are advised of this receip...

The time allowed for a decision after receipt of ... goods is three days, and if a sale is effected we remit ... amount to the seller, but if not we return the am... to the depositor, and each party to the transaction ... carriage one way. For all transactions exceeding £1 ... value, a deposit fee of 2s. 6d. is charged, when t... £10 the fee is 1s. All deposit matters are dealt wit... Coventry, and cheques and money orders should be ... payable to Iliffe & Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receiv... answer to their enquiries are requested to regard ... silence as an indication that the goods advertised ... already been disposed of. Advertisers often receiv... many enquiries that it is quite impossible to reply to ... one by post.

MOTOR BICYCLES FOR SALE

SECTION I.

Northumberland, Cumberland, Durham, ... Westmorland.

TRIUMPH, 1910, good order, lamp, horn, ... speedometer, tube, etc.; £25.—Daniel, Park ... Sunderland. [X ...

RUDGE Multi, 3½h.p., 1913, guaranteed as ... inspection invited; £49.—Smith, 48, Clifton ... West Hartlepool. [X ...

DOUGLAS, 1911, splendid running order, Kem... on back, new Dunlop belt; sacrifice £22.—W... Midland Bank, Ambleside. [X ...

1913 Triumph Motor Cycle, 3-speed model, not ... much used; a bargain, £46.—Turvey and ... The Motor House, Sunderland. [X ...

LATE 1912 Scott 2-stroke Motor Cycle, 2-speed ... in magnificent condition; great bargain, ... Turvey and Co., The Motor House, Sunderland. [X ...

1912 Triumph, clutch, free engine model, in ... class condition, not done much riding; ... tion and trial invited; a bargain, £38.—Turvey an... The Motor House, Sunderland. [X ...

1913 Triumph Motor Cycle, 3-speed, new in ... fitted with Cowey speedometer, lamp, gen... horn, watch, Mead and Deakin Canoelet sidecar, p... grey, fitted with waterproof cover; cost over £... bargain to clear, £55.—Turvey and Co., The ... House, Sunderland. [X ...

8 h.p. Williamson, 1913, and sidecar, only been ... for demonstration purposes, £80; 3½h.p. Tri... 1913, 3-speed, Cowey, lamps, etc., £50; 3½h.p. Tri... T.T., 1910, very fast, £22; 2½h.p. Atlas, 1913, ... 3½h.p. N.S.U., £12; 3½h.p. Ivy, T.T. racer, 1912, ... £35; all the above in absolute perfect order. W... give immediate delivery of any model Douglas.—... Reed and Lockerbie, 16, New Elvet, Durham. [X ...

SECTION II.

York and Lancashire.

LIVERPOOL, Birkenhead, and Manchester.

COLMORE Depots, 31, Renshaw St., Liverpool; ... 261, Deansgate, Manchester.—New and 2nd ... at the leading depots for the north, Colmore D... Manchester agents for Douglas, Scott, Mast... Premier, etc. Liverpool agents for Douglas, Bat, ... New Hudson, etc., etc.; also agents for A.C. and M... runabouts.—Colmore Depots, 31, Renshaw St., ... pool, and 261, Deansgate, Manchester. [X ...

3½ h.p. 1913 New Hudson, new 2 weeks ago; £... [X ...

2¾ h.p. Overhead Valve New Hudson-Jap, 3 speed ... clutch; £33; new back tyre just fitted, ... condition.

8 h.p. Minerva, 1912, Bosch, B. and B., Saxon ... with sidecar; £34.—103, Derby St., Bolt ... [X ...

1913 J.A.P., 4h.p., T.T. model; bargain.—Cu... ham, 24, Castle St., Clitheroe. [X ...

DOUGLAS, 2-speed, 1911, excellent condition; ... Lamb, 31, King's Rd., Doncaster. [X ...

TRY THIS.

New 1912 6 h.p. 2-speed **REX** de Luxe, 77½ × 95, handle starting, magneto, spring forks, Cantilever seat, 26 × 2½ non-skid tyres, inch belt, stand, carrier, inflator, tools and toolbag **£62 10s.**

WRITE for our special cash price, or we will quote you a keen exchange. Very many pounds saved.

LIGHTWEIGHTS.

HUMBER, 1912, 3 h.p.	£25 10
GRANDEX PRECISION, 2¾ h.p., 1912	£26 10
REX, 2¾ h.p., magneto	£15 10
MOTOSACOCHE, magneto	£15 10
MOTOSACOCHE, 1911, 2 h.p., M.O.V.	£19 10
MOTO-REVE, 2 h.p., twin, magneto	£15 10
SINGER, 1911, magneto, lightweight	£19 19
MINERVA, 2 h.p., very low, magneto	£11 0
WERNER, Twin, new tyres	£12 10
NEW HUDSON, 2¾ h.p., 3 speeds	£31 10

MISCELLANEOUS MACHINES.

Cash, Exchange, or Easy Payments.

ARIEL, 1912, 3½ h.p. 3-speed	£39 10
P. & M., 3½ h.p., 1911, specially good	£38 10
NEW HUDSON, 1911, 2¾ h.p., as new	£31 10
SINGER, 3½ h.p., 3-speed MARK VI. Armstrong	£35 10
CLYNO, 1912, and special cane Sidecar	£49 10
J.A.P., 6 h.p., M.O.V., free engine, spring fks.	£34 10
ARIEL, 1911, 3½ h.p., magneto, Druids	£25 0
HUMBER, 3½ h.p., 2-speed, free engine	£26 0
BRADBURY, 1912, 3-speed Sturmey	£47 10
QUADRANT, 1912, free engine	£35 10
N.S.U., 3½ h.p., magneto	£17 10
N.S.U., 1911, 3 h.p., 2-speed, as new	£29 10
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31 0
QUADRANT, 1908, 3½ h.p., magneto	£17 10
V.S. twin, h.b. control	£16 10
JAMES, 3½ h.p., 1910, magneto	£16 10
WOLSELEY, 4-cylinder 2-seater car	£19 19
F.N., lightweight, battery ignition	£9 10

REX BARGAINS.

REX, 1912, 2-speed, Twin, brand new	£53 0
REX, 1912, 4 h.p. Tourist (brand new)	£34 0
REX, 1913, 2-speed Twin, little used	£45 10
REX, 1913, 4 h.p., 2-speed de Luxe, chain drive, done about 100 miles	£49 10
REX, 1911, 2-speed Twin Sidette, M.O.V. engine, chain drive	£47 10
1911 Twin 2-speed **REX** and Mills-Fulford coach-built Sidecar. Fine condition	£42 10
REX, 3½ h.p., magneto, spring forks	£19 10
REX, 3½ h.p., 1909 model, magneto	£22 10
REX, 3½ h.p., magneto, 1910 model	£24 10
REX, 1912, 4 h.p., 84½ × 95, 200 miles	£31 10
REX, 1909-10, 2-speed Twin de Luxe	£29 10
REX, 1909, 2-speed Twin de Luxe	£27 10
REX, 1908 2-speed Twin and Sidecar, wants slight attention	£19 10

£3 deposit and 5/- weekly secures any of the following machines. All are guaranteed in running order.

MOTOSCOCHE, £14 10 . 3 h.p. **HUMBER**
½ **REX** ..... **£10 10** . 3½ **P.F.** **£11 0**
½ **REX** ..... **£12 10** . 2¾ **F.N.** **£9 10**
Twin **WERNER £12 10** . Twin **MINERVA £12 10**

PERFECTION SIDECARS.
£5 5s. to **£10 10s.** List on application.
Best value obtainable.

1913 **REX** and **WILLIAMSON** Machines to clear. Get our exchange quotation.

£5 deposit and **7/6** week secures any of these magneto machines. All are guaranteed in running order:

½ twin **Rex** ... **£19 10** . 3½ 2-sp. **Peugeot £16 10**
5-6 **Peugeot** .... **£16 10** . 5-6 twin **V.S.** .. **£16 10**
½ **Simms** ..... **£16 10** . 1910 3½ **James**.. **£16 10**
½ **N.S.U.** ..... **£17 10** . 3½ **Quadrant** ... **£17 10**
½ **N.S.U.** ..... **£22 10** . 3½ **Rex** **£19 10**
Despatch on receipt of deposit and signed agreement.

The Halifax Motor Exchange
Largest Rex Dealers,
6, WESTGATE, HALIFAX.
'Phone 766. Telegrams: "Perfection."

MOTOR BICYCLES FOR SALE.

BARGAINS at Bury.—Rudge, 5-6h.p. (August, 1913), with Canoelet sidecar and luggage grid, £70; Rex-Jap, 8h.p. (June, 1913) Roc gear, family sidecar, £60; Triumph, 1911½, F.E. model, with Montgomery sidecar, £32; Humber, 2h.p., £15; lightweight Minerva, £7, or exchange small gas engine, lathe, or tools.—20, Stanley St., Bury. [X3133

NORTHERN Depot, Ltd., Everything Motorish, Leeds St., Liverpool.—End of season sale. New 1913 machines. 6h.p. Rex-Jap combination, list price £87/3, sale price £77; 4h.p. Rex-Jap, clutch model, list price £54/12, sale price £48. Second-hand: demonstration, Smith's 1h.p. lightweight, £16/10; 1911 2¾h.p. Douglas, £23. Special clearance lines, new goods: F.R.S. back rests and lamp sets, Xl'all saddles, Millers large lamp sets, Lucas horn, N.D.L. special green oilskin motor suits, 30/6, sold elsewhere at 45/-; approval against cash. Few sidecars, chassis, and bodies, 33⅓% off. [X3326

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SCOTT, 1913 model, unused, slightly shop-soiled; bargain, 57 gns.—Moss, Wem. [X3184

MOTO-REVE, 1910-11, 2h.p., single, new condition; £15.—20, Wellington Rd., Rhyl. [2845

1912 Zenith, 3½h.p., excellent order, little used; £32, lowest.—Harold Potts, Broseley. [X3152

WALSALL Garage.—Triumph, 3-speed, shop-soiled, £52; Triumph, 1912, free engine, £32.

WALSALL Garage.—Bradbury, 1911¾, lamp, horn, and sidecar, in splendid condition; £22.

WALSALL Garage—1911 7-9h.p. Bat-Jap, £20; 5h.p. blue Indian, £22; both in guaranteed order.

WALSALL Garage.—3½h.p. Sun-Precision and sidecar, Sturmey-Archer 3-speed, lamp, horn, etc.; cost £75 in February, accept £38.

WALSALL Garage.—A.J.S., 1914, 6h.p. models, two for delivery at the show; let us have your order now.—The Walsall Garage, Wolverhampton St., Walsall. [X3301

DOUGLAS (date of registration May, 1912), perfect; £22.—41, Church St., Blaenau Festiniog. [X3168

ROVER, 3½h.p., 1911, free engine, splendid condition; £28.—Gould, High St., Brierley Hill. [X3270

11h.p. Minerva, low frame, mag., B. and B. carburetter; £10, bargain.—Operator, Kino, Clay Cross. [X3215

£13.—3½h.p. Triumph, 1907, good tyres and belt; any trial; photo; must sell.—Waters, Canon St., Shrewsbury. [X3104

1911 Douglas, model C, splendid condition, all accessories; £20, bargain.—Meredith, Davenham, Northwich. [X3170

TRIUMPH, 1913, 3-speed, brand new, £52; Douglas, 1913, model P, new, £42.—Parker's Garage, London Rd., Derby. [X3269

TRIUMPH, late 1912, all accessories, unscratched, scarcely used; £36.—Kaye, 24, Sandringham Drive, New Brighton. [X3169

1911 Triumph, perfect condition, new tyre, belt, F.R.S. lamp, accessories; £25; going abroad.—Smith, 14, Edith Rd., Seacombe. [X3085

END of Season.—Clearance sale. A rare opportunity to secure a bargain. We invite your offers. No reasonable offer refused.

1913 2¾h.p. 2-speed A.J.S., specially tuned up; 1913 Douglas, model R, only done 400 miles; 1913 free engine Rover; 1913 A.S.L. (riding on air), Precision engine, 3½h.p., only been used a few times for trial runs; 1912 T.T. Rudge, very fast; 1913 3h.p. N.S.U., single-cyl. (shop-soiled); 1912 3½h.p. Zenith and sidecar, splendid condition; 1912 B.S.A., 2 speeds, and sidecar, perfect; 1912 4h.p. 2-speed Singer and sidecar; 1912 2¼h.p. T.T. Singer (hot stuff); 1912 Bradbury, beautiful condition throughout; 1911 8h.p. 2-speed Matchless-Jap; 1912 Rudge Multi, just been overhauled; 1909 Triumph, all complete; Humberette, complete, latest brown model, only been used for demonstrating, just like new; what offers? good second-hand sidecar, £4.

THE North Wales Motor Exchange, Holt St., Wrexham. Tel.: 283. [X3327

1913½ Triumph, T.T. roadster, F.E., decompressor, Lucas, spares, run 1,500; offers.—Dawson, Cartre, Westminster Park, Chester. [X3246

2h.p. Motosacoche, Druids, mag., Whittle, T.T. bars, Lucas horn, tyres good; £15, or exchange and £5 for 3½h.p.—Railway Tavern, Hatton, Foston, Derby. [X3207

LATE 1910 Free Engine Triumph, brand new, heavy Kempshall, good Dunlop and belt, £10 recently spent engine, fully equipped, accessories, fast, reliable; £30.—W. Marshall, Chirbury, Salop. [X2949

PREMIER, 1913, 3½h.p., Armstrong 3-speed, spare belt and inner tube, in Brooks case, Garner alarm, horn, etc., only done 3,000 miles, condition as new; £47.—Studd, Hollies, Hopwas, Tamworth. [X3212

1913 Matchless, T.T. model, 5h.p., overhead valve J.A.P., Gradun gear, specially tuned engine, very fast, Amac and Senspray carburetters, with spare jets, spare belt, Brooks latest leaf spring saddle, ridden only 1,000 miles, and only 2 months old; £55, cost over £70.—4,293, *The Motor Cycle* Offices, Coventry. [X3178

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The noted firm. Established in the Motor Trade since **1900,** and known throughout the country for quickest delivery of any Motor Cycle or Cycle Car.

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SHOP-SOILED BARGAINS.

3½ h.p **Lincoln Elk £29 10**	5-6 h.p. No. 2 **Bat** **£53**
½ h.p. 2-speed **Singer**.. **£50**	6 h.p. **A.J.S.** **£59**
3½ h.p. T.T. **Singer** .. **£40**	8 h.p. Air-cooled **Williamson** **£63**
3½ h.p. 3-speed „ **£48 10**	3½ h.p. **Zenith,** kick start, and clutch .. **£53**
3½ h.p. 2-spd. **Bradbury £48**	
T.T. **Rudge,** 750 c.c. .. **£47**	

Cycle Cars for Immediate Delivery:
MORGANS. **G.W.K.** **A.C.**
HUMBERETTES. **SINGER.**

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Motor Cycles and Sidecars.

TERMS ON APPLICATION.

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£16.	**F.N.,** 4-cylinder 1910	**£18.**	5 h.p. **V.S.**.... 1910
£25.	Std. **Triumph**.. 1909	**£26.**	**Rex-J.A.P.** .. 1912
£18.	Twin **Moto-Reve** (lady's) 1910	**£29.**	3½ h.p. **Trump-J.A.P.** 1912
£38.	6 h.p. **Zenith** and Sidecar 1911	**£40.**	6 h.p. **Zenith** .. 1911
£26.	Std. **Triumph**.. 1910	**£29.**	T.T. **Corah** .. 1912
£22.	**Rex** 1910	**£62.**	8 h.p. **Zenith** and Millford coach-built Sidecar..... 1913
£22.	F.E. **Singer**. .. 1911	**£50.**	4h.p. **Singer,** new 1912
£26.	3½ h.p. **Bradbury** 1912	**£27.**	8 h.p. **Bat** .. 1910
£2½.	T.T. **Triumph** 1911	**£30.**	3½ h.p. F.E. **Triumph** 1911
£15.	Std. **Triumph**.. 1906		
£32.	2½ h.p. **Levis**.. 1913		
£26.	F.E. **Triumph**.. 1909		

Sole London Agents for—
Canoelet Sidecars from.. .. £12 12
Swan Sidecars from £13 10
Middleton's Record Breaking Sidecars, from £5 5s.

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20 amp. **6/11.**	25 amp. **7/6.**
30 amp. **10/-.**	40 amp. **11/-.**
60 amp. **14/6.**	

SPECIAL.
A few lines, soiled, but otherwise perfect.

1913 Variable Jet B. and B. Carburetter	18/-
1913 Amac Carburetter	22/6
1913 Senspray Carburetter	26/-
XL'All Saddle	24/-
700 × 85 Michelin Cover	19/-
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26 × 2½ Avon Sunstone Cover	38/-
Garner Whistle	9/6
Jones' Speedometer	52/-
Cowey Speedometer, done 3,000	40/-
Stewart Speedometer	45/-
Cowey Speedometer	65/-
Mabon Clutch, S.H.	15/-
A.K. Knee Grips	4/9
26 × 2¼ Pedley Cover	37/-
26 × 2¼ Bates Extra Heavy Cover	42/-
Bowden Valve Grinder	6/6
1913 Triumph, 3-speed	£51
1913 P. & M., latest model	£50

⅛ Lycett Belts	foot 11d.
26 × 2¼ Guaranteed Red Tubes	4/9
Sidecar Aprons	4/6 and 7/6
Tubular Footrests, fit 1¼in., rubber ends	3/11
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Patchquick Outfits	10½d. and 1/10½
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GET our LIST.
Special prices quoted.

Motor Cycling Caps, with ear rolls	1/6
Tan Leather Caps, with ear rolls	4/6
Rubber Goggles, with spare glasses	pair 5½d.
Sidecar Lamp Brackets	1/6
Canvas Tool Rolls	1/3

We allow up to **12/-** on old covers when new ones are purchased.

SUITS—Waterproof, double-breasted, high storm collar, dust and windproof, fawn, double texture (worth 25/-) **16/6**
LEGGINGS only pair **5/6**
SEATLESS TROUSERS only pair **9/6**
Exhaust Valves, to suit all engines each **2/3**
PEDLEY ⅞in. BELTS } Wear guaranteed. foot **1/9**
PEDLEY 1in. BELTS } foot **2/3**
PEDLEY 1¼in. BELTS } foot **2/6**
2/6 allowance for old belts.
LEATHER BELTING, 3-ply, ⅞in. **10½d.**, 1in. **1/-** ft.
SILENT SILENCERS, the Grose, **2/6.**
PISTON RINGS **9d.**

ARMSTRONG 3-speed and Free Engine Hub, Mark III., complete with levers and controls, and belt rim new. **£5 5**

SPECIAL.
HUTCHINSON 1913 COVERS,
soiled, but guaranteed—
Brooklands 26 × 2, **12/6**; 26 × 2¼, **15/6.**
Tourist Trophy, 26 × 2¼, **21/6**; 26 × 2½, **22/6.**
Passenger, 26 × 2¼, **27/9**; 26 × 2½, **28/9.**
Cash returned if not satisfied.

1913 MOTOR CYCLES in Stock.
Model R **DOUGLAS** **£52 0**

SECOND-HAND MOTOR CYCLES.
1912 **B.S.A.**, free engine **£30 0**
1909 **TRIUMPH**, bargain **£18 18**
Complete stock of B.S.A. Motor Cycle Parts.
Motors taken in exchange. Est. 1876.
TERMS—Nett Cash. **WRITE FOR LISTS.**

MOTOR BICYCLES FOR SALE.

END of Season; offers wanted.—Humber, 2h.p., usual cash prices, £35; B.S.A., £60; James, 3-speed, chain drive, £63; Triumph, £60; Campion-Jap, 3-speed, £58; all absolutely new.—Campion, London Rd., Derby. [2490

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

B

COLMORE Depots, 31, Colmore Row, Birmingham; 49 John Bright St., Birmingham; and 62, High St., Leicester.

NEW and second-hand at the leading depots for the Midlands; agents for Douglas, Scott, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, Birmingham and Leicester. [X6047

COLMORE.—Douglas, 1910, fixed engine, tyres and belt good, paint and enamel as new; £22.—Colmore Depot, 31, Colmore Row.

COLMORE.—Douglas, 1910, twin, fixed engine, tyres and belt in good order, whole machine overhauled; £55.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Douglas, 1912, 2-speed, model K, guarantee; £37.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Premier, 1911, 3½h.p., free engine; £24.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Ariel, 1912, Armstrong 3-speed gear, with coachbuilt sidecar, in almost new condition; £35.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Premier, 1912, 3½h.p., 3-speed, in very fine order, guaranteed; £35.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—New Hudson, 1913, 3-speed Armstrong gear, only been about 150 miles, condition as good as new; £50.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Precision, 1913, 3¾h.p. Villiers free engine clutch, Hutchinson tyres, Saxone spring forks, 6 weeks old; £34.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—New Hudson, 3½h.p., 3-speed, and Canoelet sidecar, 1913; £39.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—F.N., 4-cyl., 1908, magneto central intake; £14.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Matchless, 1913, 3-speed, tuned, a lovely purry little mount, only used about 100 miles; £52.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Scott, 1913, 3-speed gear, used only by our own expert, one of the finest tuned Scotts upon the road; £58.—Colmore Depot, 31, Colmore Row, Birmingham.

COLMORE.—Enfield, 2¾h.p., 2-speed, twin, footboards, kick starter, every refinement, soiled only; £43.—Colmore Depot, 31, Colmore Row, Birmingham. [X3087

STOCK must be cleared.—All bargains offered below

1913 Rex de Luxe Twin, with Sidette and coachbuilt body, shop-soiled only; accept best offer.—Below.

REX de Luxe 1912 Twin, 6h.p., Roc 2-speed and free engine, fine sidecar machine; £30.—Below.

CLWYD-PRECISION, 3½h.p., 1912 standard model, Druids, Bosch, dropped frame, excellent condition; £18/10.—Below.

WILL send on "The Motor Cycle" approval system.—A. Holland, Clarendon St., Coventry. [X3316

TRIUMPH, 1907, 1912 cylinder, piston; £17, or offers.—Ivy Cottage, Atherstone. [X3050

SINGER, 1913, 3-speed, 3½h.p., cost £60, sell £40.—Pattison, 16, Mickleton Rd., Coventry. [X3057

ARIEL, 3½h.p., variable gear, decompressor, equal new; £25.—12, Bull Ring, Birmingham. [X3294

ROVER, 1913, T.T., with Phillipson, shop-soiled only; £45.—P. J. Evans, John Bright St., Birmingham. [X3227

ZENITH, 1913, 3½h.p., variable gear, as new; £45.—P. J. Evans, John Bright St., Birmingham. [X3230

JAMES, 4¼h.p., 1913, Bosch, free engine, practically new; £34.—12, Bull Ring, Birmingham. [X3295

A.J.S. 6h.p. Twin, brand new 1913, free engine, 2 speeds; bargain, £52.—12, Bull Ring, Birmingham [X3290

HUMBER, 3½h.p., free engine, 2 speeds, mag., spring forks; bargain, £22.—12, Bull Ring, Birmingham. [X3293

CAMPION-J.A.P., 3½h.p., free engine, 2 speeds, Bosch, Druids; sell £24.—12, Bull Ring, Birmingham. [X3285

ZENITH Gradua, 6h.p., 1912, with accessories; £45, or exchange Douglas.—B. Rhodes, Moortown, Lincoln. [2676

DOUGLAS, 1911, just overhauled, fine condition, fast; £22/10.—Meggitt, Market Chambers, Mansfield. [X3193

Quality DOES count That's why FARLOW sidecars Satisfy.

Mark 1 .. £6 5

Mark 2 .. £9 10

Mark 3 .. £8 10

Mark 4 .. £10 10

CARRIAGE PAID and complete with mat, stand, etc.
FARLOW Sidecars are constructed with a view to real hard service;
YET they are light, smart, and exceptional value
TRY ONE ON APPROVAL.
OUR list is YOURS for asking.

The following are complete with sidecars:—

1913 6 h.p. **REX** Sidette, done 300	£55
1913 3½ h.p. **BROWN**, Bowden Gear	£33
1912 6 h.p. **CLYNO** and Sidecar	£45
1912 6 h.p. **REX** and Sidette Sidecar	£45
7 h.p. **ROC**, 2 speeds, and Sidecar	£29
1911 4 h.p. 2-sp. **QUADRANT** and Sidecar	£33
1909 5 h.p. **REX** de Luxe and Sidecar	£30
1908 5 h.p. **REX** de Luxe and Sidecar	£28
1910 5 h.p. 2-speed **VINDEC** and Sidecar	£30
1911 5 h.p **REX** de Luxe and Sidecar	£38

All have variable gears.
We will sell any machine without sidecar.

THIS WEEK'S BARGAINS.

1913 6 h.p. **A.J.S.**, 3 speeds, new	69 guine.
1913 3½ h.p. **P. & M.**, 2 speeds, new	£65
1913 2¾ **SUNBEAM**, 2 speeds, new	£63
1912 3½ h.p. **RUDGE MULTI**, good	£39
1912 6 h.p. **REX** de Luxe, 2 speeds, free engine	£37
1912 Cycle Car, 7-9 Blumfield engine, 2 speeds	£35
1912 3½ **ARIEL**, variable gear	£29
3½ h.p. **ENFIELD REX**, M.O.V.	£10
1912 6 h.p. **CLYNO**, 2 speeds, kick starter	£42
1910 5-6 h.p. **VINDEC**, 2 speeds	£27
5-6 h.p. **REX** de Luxe, 2 speeds, etc.	£27
3½ h.p. 1907 **TRIUMPH**, magneto, spring fks.	£23
One Ditto, very good	£24
4 h.p. 1911 **QUADRANT**, Roc 2 speeds	£30
3½ h.p. 1909 **REX** Tourist, good	£21
3½ h.p. 1908 **REX** Tourist, 1909 engine	£19
3½ h.p. 1910 **REX**, fine goer	£23
5-6 h.p. **REX** de Luxe, 1908, 2-speed model	£25

EASY PAYMENTS

Any of the following can be had on Easy Terms. Let us know which you would like and we will quote.

3½ h.p. **N.S.U.** mag. £15	3½ **TRIUMPH**, mag. £2
3½ **ENFIELD REX** £10	3½ h.p. mag. **REX**, £1
5 h.p. mag. **REX**, £19	2 h.p. **MOTO-REVE** £1
3½ h.p. 1910 **REX** £23	1912 3½ h.p. **ARIEL** £2

MISCELLANEOUS BARGAINS.

New Best and Lloyds drip feeds, complete, 6	
Good Second-hand Sidecar	£3 1
New twin Bosch Magnetos, D.A.V. models	£2 19
Ditto D.A.I.V models	50/- ea
New Bosch Magneto, suit single-cyl. engine	£3
Good Second-hand Sidecar	£3 1
Cowey Speedometer, done 3,000	£3
Cowey Speedometer, done 100, perfect	£3 1
New Rubber-studded Covers, 26 × 2¼, beaded	17
Triumph Pattern Handle-bar, new	6

Farrar's Motor Exchang
19, 21, 23, 25, Hopwood Lane
Telephone 919. **HALIFAX** (Two minut from G.P.O

MOTOR BICYCLES FOR SALE.

SECTION VI.

orcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

9 07 Brown, 3½h.p., h.b.c., splendid condition; £12. —Camden, Abergavenny. [2775

9 10 F.N., 2¼h.p., 2 speeds, good condition; £15, cheap.—Thacker, Ledbury. [2829

6h.p. F.N., 4-cyl., 2 speeds, Rom tyre; £20.—Birks, Hempstead, Sketty Rd., Swansea. [2706

OUGLAS, C, new March, 1911; cheap, cash — Daniel, 4, Attica Gardens, Cardiff. [X3347

OUGLAS, 1911, perfect condition; £25, or near offer.—12, St Martin's Rd., Knowle, Bristol. [2721

RIUMPH, late 1910, head light, accessories, little ridden, perfect —46, Woodfield Rd., King's Heath. [X3189

9 07 Triumph, 3½h.p., makers just overhauled, complete, all spares; £23.—Camden, Abergavenny. [2776

IGHTWEIGHT, 2½h.p., dry ignition, low, good condition.—Smith, 229, Marryale Rd., Bournville. [X3293

9 11 T.T. Triumph, little used, fast, perfect condition, complete; £31.—A. Wilson, Rockfield House, ford. [X2685

RIUMPH, 1912½, free engine, in splendid condition lamp and accessories; expert examination invited; —Preece, 152, Widemarsh St., Hereford. [X3052

RIUMPH, 3½h.p., Sturmey-Archer 3-speed and free engine, T.T. model, with semi T.T. bars, complete h lamp, horn, and full kit of tools, in excellent order; —James Fryer, Ltd., Hereford. [X3197

EW Hudson, 2¾h.p., J.A.P. engine, variable gear, clutch, free engine, condition perfect, enamelling, tyres excellent, all spares, machine been well ced after; £36.—Chapman, 4, Broad St., Ludlow. [2827

.S., 2¾h.p., 1913, May, unscratched, absolutely as new and done only 500 miles; owner buying 6h.p. make; cost with very complete set accessories and list sent, £58, bargain, £48.—Jenkins, The , Bridgend, Glam. [X3211

SECTION VII.

ucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

AYTONS.—Scott, 1913, slightly shop-soiled; £60.—Laytons, Bicester, Oxon. [X3263

N., 1910, 2¼h.p., new tyres, spares; £15.—Guest, Southfield Park College, Fareham. [2704

OTT, latest 1913 model, brand new; £58, great bargain.—Ginger, Motors, Banbury. [X1881

OUGLAS Lightweight, 1911, in good condition; £20.—H. Kelly, High St., Tisbury. [X3112

IUMPH, 1912½, F.E., perfect condition; £37.—Motor, 2nd Floor, 22, George St., Oxford. [2709

AYTONS.—Douglas, 1913, model O, shop-soiled only; £42, catalogue price £48.—Laytons, Bicester. [X3264

p. Singer, mag., B. and B. carburetter, tyres excellent; £12, or near offer.—Wicks, Dairy, Melksham. [X3113

AYTONS.—Zenith, 6h.p., 1913, complete with lamp, horn, speed indicator, etc.; £57.—Laytons, Bicester, [X3261

ATCHLESS, 1913 models for immediate delivery.—Sole Oxfordshire agents, The Morris Garage, Oxford. [0313

IUMPH, free engine, 1911, XII-All, Hutchinson, Kempshall; £25.—8, Drummond Rd., Bournemouth. [2803

IELON and Moore, 1913 models for immediate delivery.—Sole district agent, The Morris Garages, Oxford. [0203

IFT, 3½h.p., 1911, free engine, first-class order; £24, or near offer.—Heath, Wiltshire, Ltd., Calne. [2820

h.p. Free Engine Rover, White and Poppe engine, mag., good order, lamp, tools; £12.—R. Cross, t, Berks. [2697

13 3½h.p. Twin Matchless, brand new, just delivered; list £63, accept £58.—Balfour, Market , Banbury [X3300

YTONS.—Premier, 1912, 2½h.p., 3-speed, free engine, very nice order; bargain, £25.—Laytons, r, Oxon. [X3259

13 3-speed Matchless-Jap, 4h.p., counter-shaft pulley, new condition; £42/10.—Davies, 15, ton St., Bristol. [X3283

YTONS.—Triumph, 1913, 3-speed model, shop-soiled only; £51, catalogue price £59/15.—Laytons, Bicester, Oxon. [X3262

YTONS.—Zenith, 3½h.p., 1913 model, really worth buying, complete with lamp, horn, etc.; £43.—, Bicester, Oxon. [X3260

h.p. Lightweight Minerva, Bosch, B.B. carburetter, adjustable pulley; particulars, photo; £11, bar-6, Manor Rd., Oxford. [X3304

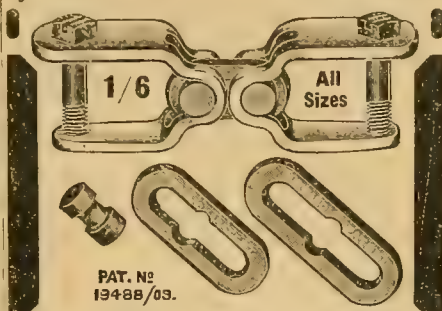
YTONS.—Triumph, 1911¾, clutch model, excellent condition, complete with lamp, horn, etc.; Laytons, Bicester, Oxon. [X3258

MORE RECORDS BROKEN

with the "FORWARD" FASTENER

Flying Five Miles .. **71.54 M.P.H.**
Standing 10 „ .. **68.08 M.P.H.**

by Mr. O'DONOVAN on a **"NORTON."**



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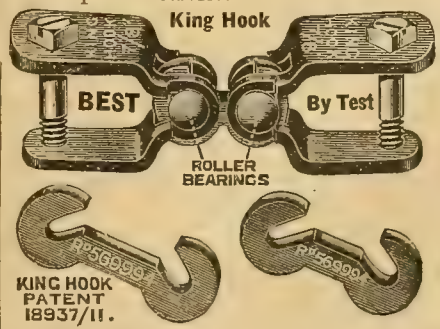

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FORWARD MOTOR CO., Summer Row, B'HAM

MOTOR BICYCLES FOR SALE.

DOUGLAS, 1913½, T.T. model, perfect condition, very little used, heavy Kempshall rear tyre; cash £37.—Heybourn Motors, Maidenhead. [2905

19 12 Grandex-Jap, 2½h.p., Xl'all saddle, Brampton gear, re-bushed, lamp, horn, spares, excellent condition; £27 cash.—Klitz, Lymington, Hants. [X3115

SINGER 1¾h.p. Lightweight, Bosch mag., pump, horn, thoroughly reliable machine; bargain, £12/10.—Thornbury, Frome Rd., Trowbridge. [X3305

HARTWELLS' Garage, Chipping Norton.—Triumph and Douglas agents; also agents for Swift cycle car for Banbury, Burford, and Chipping Norton.

TRIUMPH, 3-speed, 3½h.p., free engine, clutch; in stock: £59/15.—Hartwells'.

DOUGLAS model O, £48; in stock model R, £52. —Hartwells'.

ENFIELD Autolette in stock, £138.—Oxfordshire agents, Hartwells'.

TRIUMPH, 1912, free engine, in fine order throughout, new 1in. Dunlop belt, lamp, horn, and tools; £39.—Hartwells'. [1786

19 13 Singer, 3½h.p., 3-speed, free engine, perfect condition, lamp, horn, only run 400 miles; £50; owner buying car.—Cordner, Tumbledown Deck, Farnborough. [X3109

LIGHTWEIGHT N.S.U., 2h.p., Bosch mag., B. and B. carburetter, spring forks, finished black, lined red; bargain, £10.—Diamond, 4a, St. Leonards Rd., Bournemouth. [X3095

DOUGLAS, only 3 weeks old, T.T. model, 2-speed; this is a special racing machine, tuned up, exceptionally fast, complete with lamp, tools, etc.; accept £45.—Eliot, Rectory, Slough. [2754

LAYTONS.—Douglas, 1911, 2-speed, free engine model, engine just overhauled, whole machine in good order, lamp, horn, etc.; £26/10.—Laytons, Bicester, Oxon. [X3257

REX, 6h.p., Bosch, new B. and B., carburetter, lately overhauled, 2 speeds, lamp and horn; £30, bargain.—Barker and Stuttard, Motor Corner, Stoke Rd., Gosport. [2801

FOR Sale, a T.T. Douglas motor cycle, in first-class running order, similar to the one used in this year's Tourist Trophy race; £34.—Apply, W. Rossiter, 23, South Rd., Kingswood, Bristol. [X269

19 11 3½h.p. Premier, fixed engine, entirely overhauled July, new back tyre and belt fitted, first-class running order; £25, or near offer. — Apply to Salisbury Plain Motors, Amesbury. [X3210

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

19 13 Motosacoche, 2½h.p., free engine, variable gear, Lycett saddle, Palmer tyres, as new, bought September, ridden 200 miles, perfect condition; £30.—Dr. Crowther-Smith, Standlord, Bordon, Hants. [2791

3½h.p. Magneto Rex, B. and B., lamp, horn, footboards, thoroughly overhauled and rebushed, guaranteed, bargain, £15, any trial; also 1912 standard Bradbury, French grey, lined blue, as new, accessories, £32.—Mayne, Sonning, Reading. [2896

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

TOTTENHAM.—1913 3-speed Humber, new; £50.

TOTTENHAM.—1913 2½h.p. Hobart, like new, and exceptionally fast; £29.

TOTTENHAM.—1913 8h.p. F.E. Zenith, Millford Corvette sidecar, lamp, horn; £67.

TOTTENHAM.—1912 3½h.p. 2-speed Humber and sidecar; £39.

TOTTENHAM.—1912 Bradbury, N.S.U. gear, and clutch, in back wheel, with sidecar; £41.

TOTTENHAM.—1911 F.E. Singer, in fine order; £30.

TOTTENHAM.—8h.p. Bat-Jap, new tyres, and belt; £23.

TOTTENHAM.—3h.p. accumulator Triumph, in perfect order; £12. 'Phone: 1982.—The Stamford Hill Motor Co., 128, High Rd., South Tottenham, N. [X3319

19 13 7h.p. Indian, used 3 months; £45.—8, Queen's Rd., Tunbridge Wells. [2696

RACING 2¼h.p., all grey; bargain, £7/10, offer.—165, Kempton Rd., East Ham. [2774

19 13 B.S.A., 2-speed model; 40 gns.; older bike part. —Sinclair, East Molesey. [X3239

P. and M., new, uncrated, must realise; £59.—B., 3, Queen's Av., Winchmore Hill. [2448

19 11 Zenith-Gradua, 6h.p., perfect, £35.—Purcell's (see displayed advertisement). [2898

ZENITH, 1911, 3½h.p., £25; with sidecar, £28 — Tyson, 169, Sloane St., London. [2790

2¾h.p. Brown, Amac, h.b.c., Saxon forks, new tyre, £8.—Farmer, Woodbank, Erith. [2677

MOTOR BICYCLES FOR SALE.

MORGAN and Maxwell.—A.J.S., 1912, 2½h.p., 2 speeds; £30.

MORGAN and Maxwell.—Bat, 2¾h.p. De Dion, spring frame; £10.

MORGAN and Maxwell.—Bat, 7-9h.p., 1913, 2 speeds, all accessories; £60.

MORGAN and Maxwell.—Bat, 8h.p., and sidecar, 1913; £60.

MORGAN and Maxwell.—Bradbury, late 1912, accessories; £33.

MORGAN and Maxwell.—Clyno, 5-6h.p., late 1912, 2 speeds, Binks, and coachbuilt sidecar; £40.

MORGAN and Maxwell.—Humber, 1913, 3½h.p., and folding sidecar, 3 speeds; £62.

MORGAN and Maxwell.—Indian, 1913, 7-8h.p., as new, and sidecar; £75.

MORGAN and Maxwell.—Lincoln Elk, 4¼h.p., 1913, 2 speeds; £32.

MORGAN and Maxwell.—Matchless, 8h.p., 1912, 2 speeds, and Canoelet; £70.

MORGAN and Maxwell.—Minervas from £5 each.

MORGAN and Maxwell.—Motosacoche, 2½h.p., 1912; £22.

MORGAN and Maxwell.—N.S.U., 1910, 6h.p., 2-speed, and sidecar; £30.

MORGAN and Maxwell.—P. and M., late 1911, 2 speeds, Kempshalls, accessories; £42.

MORGAN and Maxwell.—Premier, 2½h.p., 1912; £22.

MORGAN and Maxwell.—Rex, 5-6h.p., and Chater-Lea sidecar, 1909; £32.

MORGAN and Maxwell.—Rudge, 3½h.p., free engine; £27.

MORGAN and Maxwell.—Singer, 2½h.p., T.T., 1912, 3 speeds, Bosch; £28.

MORGAN and Maxwell. Triumph, T.T., 1911, de-compressor, special engine and fittings; £32.

MORGAN and Maxwell.—Triumph, 1911, Tourist, fine condition; £30.

MORGAN and Maxwell.—Triumph, 3½h.p., latest 1913, 3 speeds, brand new; offers invited.

MORGAN and Maxwell.—Zenith, 6-8h.p., 1913, barely soiled, Gradua gear, Hutchinsons, Bosch, head light, speedometer, complete with Gloria new Projectile £30 sidecar, all tools, lamps, fittings; price £100, with insurance policy.

MORGAN and Maxwell's Miscellany.—A.S.L. seat pillar, as new, 21/-; Binks 2-jet carburetter, also B. and B.'s, 21/-; Triumph back wheel, 10/-; free engine back wheel, £3; N.S.U. 2-speed gear, £6; 2-speed and reverse gear box, complete, £7; Albion pulley, 5/-; Rushmore lamp and automatic generator, 30/-; Endrick decompressor, 5/-; Lodge plugs; Shamrock and leather belts, cheap; Cowey and Smith speedometers, almost new lamps, etc.; write us.—Morgan and Maxwell, 80, High Rd., Streatham, London. [X3171

3½h.p. T.T. Zenith, late 1912, spares, done 1,000 miles; £36.—Gems, Weybridge. [2445

QUADRANT, 3½h.p., in splendid condition, very fast. —Metcalf, Heath Park, Romford. [2690

BARGAIN.—1912 Bradbury, 2-speed, fine condition; £28.—53, Brownhill Rd., Catford. [2828

SINGER, 1912, 3½h.p., clutch model, splendid order, with accessories; £32 cash, or easy terms.

BRADBURY, 1912, fitted with latest type N.S.U. 2-speed gear, adjustable pulley, Binks carburetter, good order; £34 cash, or easy terms.

N.S.U., 1913, July, 3½h.p., 2-speed gear, free engine, large Lucas lamp, generator, and horn, new condition throughout; £38 cash, or easy terms.

ELCE and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [2911

N.S.U., 3½h.p., m.o.v., magneto, runs well; must sell, £10/10.—1, Ebner St., Wandsworth. [X3238

F.N. Lightweight, mag., horn, Lucas lamp, spares; £15.—Bond, 245, Euston Rd., London. [X3177

REX, 3h.p., drop frame, B. and B., Dunlops; £6.—Garaged 73, Church St., Camberwell. [2857

DOUGLAS, 2¾h.p., 2-speed, 1911, just overhauled; £30.—Walsh, 9, Guilford Lawn, Dover. [2808

DOUGLAS, T.T., 1913, new end of June; £42, or near offer.—R. Ward, High Rd., Byfleet. [2867

VINDEC Special, 3½h.p. 2-speed, F.E.; £20, no reasonable offer refused.—Lamb's (below).

HUMBER, 2¾h.p., twin, 3-speed, quite new, 1913 model; usual price £52/10, offer wanted.—Lamb's (below).

DOUGLASES.—Keenest prices; immediate deliveries; E.P.'s ¼ down and 12 payments.—Lamb's (below).

BROWN Lightweight, 2½h.p., F.E., lightweight, quite new; £39, offers wanted.—Lamb's (below).

MOTO-REVE, 1913, 2½h.p., 3-speed, ridden under 500 miles; £35, or offers.—Lamb's (below).

JAMES, the big single, at keenest cash prices; immediate deliveries; E.P.'s ¼ down and 12 instalments; send a p.c.—Lamb's 151, High St., Walthamstow. [2427

To the prospective purchaser of a second-hand mount the

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is EXCEPTIONALLY INTERESTING. It runs:

"We guarantee every second-hand motor cycle we sell to be in good and usable running order at the time of the purchase, considering always its make and age, and that no apparent fault exists to our knowledge in connection therewith (errors in design always excepted)."

Now this is a clear and straightforward undertaking, and the Colmore depot, with 20 years of clean and fair trading record, stands behind every word.

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MATCHLESS, 3½ h.p., 3-speed twin, a lovely little mount £50
ENFIELD, 2¾ h.p., 1913, shop-soiled only £42
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PREMIER, 3 speed gear, 1912, fine order, and coachbuilt sidecar.....£42
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Standard Model **MORGAN** Cycle Car, finished grey, complete with accessories, 1913 .....£75
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FORD Car, four-seater, with equipment.....£75

We are now open to give demonstration runs on the new A.C. four-wheeler. The **smartest, nattiest** Cycle Car extant.
A.C. four-wheeler, £100. A.C. four-wheeler, £100. A.C. four-wheeler, £100.

SALE.

In order to reduce stock prior to stocktaking, we are making **startling reductions** in the accessory department. Discounts from ten per cent. on **absolutely new** 1913 goods. We have not space enough to give a list, **but write,** stating your requirements, and we will quote you.

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PALMER'S Garage, Tooting.—1¾h.p. Motosa lightweight, handy and reliable, £12; also 1913, brand new, £35.

PALMER'S Garage, Tooting.—3½h.p. Brown and car, reliable lot; clearance, £16.

PALMER'S Garage, Tooting.—6-8h.p. twin Mi one of the best; £25.

PALMER'S Garage, Tooting.—5-6h.p. N.S.U., 2 speeds, long wheelbase machine; bargain, £

PALMER'S Garage, Tooting.—3½h.p. Triumph type fixed engine, 1912 machine, £29; also F.E. Triumph, £32/10.

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REX 5h.p. Twin, 1909, F.E., tyres and belt new; £25.—45, South Croxted Rd., Dulwich

TRIUMPH, 1911½, clutch, new condition; £3 Graham, 29, Perham Rd., West Kensington

2½h.p. Motor Cycle, just overhauled, new tyr near offer.—18, Maude Rd., Camberwell,

1912 4¼h.p. Win-Precision, 2-speed, like new —Taylor, 21a, Store St., Tottenham Cou

3h.p. Lloyd, B. and B., good tyres and belt, order; £9.—5, King Stephen's Rd., Colche

RUDGE, F.E., 1912, in new condition, hardl used; £35.—Pond, 349, West End Lane, N.

B.S.A., 1912-13, clutch model; best offer ov taken for debt.—69, Greenside Rd., Cro

£5/15.—2¾h.p. Minerva, m.o.i.v., tyres near perfect order.—Speechley, 45, Church Rd.,

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ZENITH, 3½h.p., 1912, absolutely perfect; £36; not Sundays.—72, Shakespeare Rd., Hill.

1912 Scott, pan seat, new chains, tyres; £36, or near offer.—Stevens, Addington, Kent.

DOUGLAS. 1912, fixed engine model, lamp speedometer; £28/10.—Bond, 245, Euston London.

3½h.p. Torpedo, only ridden 6 months; £30; e 2-speed Douglas.—Long, Silver St., Essex.

TRIUMPH, 1912, free engine, lamp, horn, perfect running order; £35.—Dr. Gervis, Sussex.

MOTOSACOCHE, 1911, 2½h.p., adjustable good tyres, capital order; £16.—21, Gilm Lewisham.

IF You Want Bargains in 2nd-hand motor cy can get them at Wauchope's, 9, Shoe La St., London.

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7h.p. Twin Antoine, fine sidecar machine, in perfect condition; bargain, £14.—24, Churchill Rd., Willesden Green. [2695

ZENITH-GRADUA, 3½h.p., 1911, perfect order; £25.—73, Loughboro' Park, S.W. 'Phone: Brixton 2042. [2184

RADBURY, 1911, good condition, new Palmer cord, £27; with sidecar, £30.—210, Kingston Rd., Merton Wick. [2818

TRIUMPH, 1913, 3-speed, excellent condition, only 1,500 miles, lamp, etc.; £46.—Lansdell, 30, Prentis Streatham. [2891

1913 Norton, 4½h.p., 3-speed, new condition, powerful; any examination; £45.—Curtis, 14, Elmwood Chiswick. [2893

1912 Bradbury, 3½h.p., scarcely used, £28, or with Villiers free engine £30.—Larbon, Northcote, Bourn, Herts. [2846

N., 1912, 5-6h.p., 4-cyl., clutch, grey finish, in excellent condition; trial; £32.—Page, 74, East Hill, Dartford, Kent. [2821

T. Martin, 2¾h.p., very low position, fast and perfect, all spares; £12.—Petty, 3, Norbury Parade, Norbury. [2881

DOUGLAS, all models, for immediate delivery; trade supplied.—Rey, 5, Heath St., Hampstead, and 173, Portland St., W. [9658

h.p. Brown, mag., just overhauled, new cylinder, piston, Sensprav; £15; after 2 Saturday.—Dedridge, High Rd., Byfleet. [2730

OTT, many 1912 engine renewals, 2 speeds, chain drive, water-cooled; £28, or terms.—Purcell's (see delayed advertisement). [2897

AGLES.—N.S.U. 3h.p. twin, 1913, latest improvements, 2 speeds, free engine, new, slightly shopsoiled; cheap to clear.

AGLES.—Rover, 1913, 3-speed model, new, slightly shop-soiled; cheap to clear.

AGLES.—N.S.U., 3½h.p., 1911½, model de luxe, 1913 spring forks, other improvements, 2 speeds, free engine, slightly shop-soiled; cheap to clear.

AGLES.—Rover, late 1912, Sturmey-Archer 3-speed gear; cost £61/12, new condition; £38.

AGLES.—N.S.U., 3½h.p., late 1912, loop frame, with rear spring, N.S.U. 2-speed gear, free engine; £33.

AGLES.—Bat-Jap, 1912, 3½h.p., spring frame, T.T. handle-bar, very fast; £26.

AGLES.—Bradbury, 1912, N.S.U. 2-speed gear, free engine, had little use; £35.

AGLES.—Enfield 2¾h.p. twin, late 1912, 2 speeds, free engine, chain drive, footboards, nearly new, £29.

AGLES.—L.M.C., 3½h.p., Bosch mag., spring forks, nearly new tyres and belt; £18/10.

AGLES.—N.S.U., 3½h.p., 1908, mag., B. and B. carburetter, Dunlop studded tyres; £12/10.

AGLES.—Any of the above can be had on approval, "The Motor Cycle" deposit system, or deferred terms arranged.

AGLES.—N.S.U. 2-speed gears, to fit Triumph, Bradbury, J.A.P., B.S.A., Precision, Rudge, Rover, Premier, Singer, and other makes, the easiest gear on the market to fit; no alteration to motor cycle necessary; trade inquiries invited.

AGLES and Co., High St., Acton, N.S.U. West London District Agency. Tel.: 556 Chiswick. [X3251

DOUGLAS, 1913, 2-speed, footboards, speedometer, all accessories, splendid condition; £36, or near.—76, Lawrence Rd., Brixton. [2816

TRIUMPH, 1911, adjustable tappets, decompressor, fine condition, a no trouble machine; £28.—Ellis, 3, Lillie Rd., Fulham. [2849

1913 Douglas, 2 speeds, free engine, kick starter, run 200 miles, all spares; £37.—George, 27, Park Rd., Regent's Park. [2853

12 3½h.p. J.A.P., Bosch, Zenith-Gradua gear, spring frame, footboards, splendid order; £20.—97, Ashgrave Rd., Brighton. [X3114

TEL, 1912, 3½h.p., variable pulley, variable gear, splendid condition, lamp, horn, spares; £30.—Bond, Euston Rd., London. [X3176

TRIUMPH, July, 1913, hardly used, T.T. model, tools, horn, P. and H. lamp; £43, bargain.—Chenell, 7, Coombe Rd., Shepherd's Bush. [2868

TRIUMPH, 3h.p., Amac, h.b.c., Hellesen fine cord, low, fast, reliable, new Dunlop, Michelin; £12/10. Carholme Rd., Forest Hill. [2812

12 Semi T.T. Premier, variable jet, Druid forks, just overhauled by makers; £30/10; good reason selling.—V. Clow, Cheshunt. [2718

TIGER, 2½h.p., done 1,400, perfect, splendid climber, 35/- lamp, horn, spares, Service belt; £8-18, Stanbury Rd., Peckham. [2793

MOTOR Cycle, 3½h.p., low, speedy, mag., Sensprav, lamp, all accessories, good running order; £18.—Effingham Rd., Harringay. [2681

WOLF, 2½h.p., 1914 model, just arrived; look at the price, 24 gns.; a marvel. Call or write for particulars. Immediate delivery at present.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [2771

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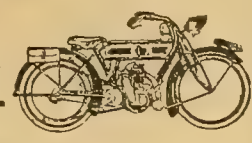

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6ft. 5in. × 1in. **Whittle,** soiled only	26/-	21/-
7ft. 1in. × ⅜in. **Whittle,** good condition	21/3	10/6
6ft. 9in. × ⅜in. **Whittle,** hardly used	20/-	11/-
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6ft. 7in. × 1in. **Whittle,** fine condition	26/8	15/6
7ft. 6in. × 1¼in. **Pedley,** new	20/8	16/8
7ft. 6in. × ⅜in. „ „	11/10	9/8
8ft. × ⅜in. „ „	12/9	10/3
8ft. × ⅜in. **Wood-Milne,** new	18/-	15/-
8ft. × ⅜in. **Continental,** new	14/-	10/6
8ft. 6in. × ⅜in. **Crown,** new	17/-	12/-
7ft. 6in. × ⅜in. **Lyso,** new ..	11/3	8/9
7ft. 8in. × ⅜in. „ „ ..	13/9	10/6
7ft. 8in. × ⅜in. (2) **Watawata** complete with fastener, nearly new	21/2	11/2

	Cost. per foot.	Sale.
Odd lengths of **Centipede** leather and canvas belting, ⅜in.	1/6	1/3
½in.	1/9	1/5
⅝in.	2/-	1/7
1in.	2/3	1/10

BELT FASTENERS.

State size required.

	Cost. each.	Sale.
Sentinel, adjustable	1/6	1/2
King Hook, adjustable, with 3 hooks	1/3	1/-
D'All, adjustable, with 3 hooks	1/6	1/-
C.Q.R., adjustable, double bolted, prevents fastener being pulled out, with 3 hooks	2/-	1/5
Celerio, detachable	8d.	5d.
Star, very strong	8d.	5d.

Spare Petrol Cans, ½-gallon, **1/3**; 1-gallon, **2/-**

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SPEED INDICATORS.

	Cost.	Sale.
JONES, good condition	63/-	37/6
JONES, mileage shown under 20, -913 model	70/-	56/-
SMITH'S, soiled only, with trip recorder	84/-	67/-
SMITH'S, soiled only	63/-	52/-

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MOTOR BICYCLES FOR SALE.

1912½ Zenith Gradua, speedometer, lamp, horn, whistle, decompressor, X'tall saddle, guaranteed; £33.—Chapman, Belfast St., Hove. [2705

BROWN, 2¾h.p., m.o.i.v., B. and B., h.b.c., special mudguarding, new tyre, lamp, spares; £10/10.—Knutsford, Salisbury Rd., Carshalton. [2810

N.S.U., 1912, 3h.p. twin, Bosch mag., perfect order, condition as new, all accessories; £28.—Apply, Kitson, 8, Norbury Rd., Stamford Hill. [X2681

PEUGEOT, 7h.p., Bosch, B. and B., free engine, Druids, Kempshall and Palmer, good condition; £20.—Boyd, 4a, Roman Rd., East Ham. [2879

ZENITH-GRADUA, 1911, 3½h.p., new tyres and belt; £26, or near offer; want money.—Cambridge Cottage, St. John's Grove, Richmond, S.W. [2864

1912½ B.S.A., 2-speed, drip feed, 2½ Dunlops, 1in. belt, lamp, horn, splendid condition; £40, or offers.—G. Sparvell, Belmont, Camberley. [X3082

RUDGE, T.T., 1912, very fast, perfect order, unscratched, lamp, horn, tools, and spares; £28, any trial.—Petty, 3, Norbury Parade, Norbury. [2880

ROVER, 1913, 3-speed, used for demonstration only, done about 250 miles, and in splendid tune; clearing at £48.—Rainbow, Stone St., Gravesend. [X3058

B.S.A., 1912 (October), free engine, 2-speed N.S.U., spares, perfect condition; £36.—Featherstone, Wynburg, Lavender Rd., Wallington, Surrey. [2886

REX de Luxe, 6h.p., 1913, all latest improvements, just delivered London agents; unable take delivery. —115, Harlesden Rd., Willesden Green, London. [X2957

3h.p. Fafnir, Chater 9, in perfect order throughout, £12/10; or exchange cheaper machine and cash, offers.—P. Wright, 94, High St., W. Norwood. [2883

P. and M., 1909, powerful engine, new gears and tyres, with sidecar, accessories; sell £27; exchange 2-speed Douglas.—Smith, 48, Great Sutton St., E.C. [2746

GENUINE Bargains can be obtained for cash or easy payments from Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [0326

1908 3½h.p. Triumph, 1913 piston, cylinder re-bored, valves, tyres, 1911 pulley, bearings, lamp, horn, spare belt, splendid condition; £20.—Twiddy, Sevenoaks. [X2959

MOTOSACOCHE, 1912, all latest improvements, little used, equal new condition, spare tyres, etc., complete; £20.—S. Constable, Nizels, Hildenborough, Kent. [X3110

INDIAN, 1911, red, 5-6h.p., free engine, clutch, Brooks saddle, good condition; a bargain, £24/10.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [2765

DOUGLAS, 1911, perfect condition, lamp, horn, mirror, watch, tools, pump, spares, Dunlop belt, tyres; £23.—41, Cleveden Mansions, Highgate Rd. [X3213

PRECISION, 3¾h.p., late 1911, Bosch, B. and B., 2½ tyres, perfect condition; approval, deposit; £17, or offer.—Wililams, Winchester House, Meads, Eastbourne. [2869

P. and M., bought October, 1912, new Kempshall tyre back wheel, splendid condition, like new; £42.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [2767

DOUGLAS, K, new March, 1913, 2-speed, clutch, kick starter, new Michelin, P.H. lamp, horn, tools, only done 2,000; £40.—Chartleigh, Birdhurst Rise, Croydon. [X3124

BY Order of Owner, going abroad.—7h.p. blue Indian, F.E., speed model, complete with all spares and a very fine machine; £28.—Pond, 349, West End Lane, N.W. [X3145

DOUGLAS, 1912 (late), standard model, tyres, enamel, plate like new, just been overhauled, fast, good hill-climber; £25.—England, Home Farm, Walton-on-Thames. [2736

TRIUMPH, late 1912, new condition, 2 speeds, free engine, spares, decompressor; £38; Auto-Wheel part.—Crouch, 10, Sydney Villas, Blyth Rd., Hayes, Middlesex. [2747

ZENITH Gradua, 3½h.p., late 1912, excellent sidecar machine, and guaranteed perfect, offer; also 2¾ h.p. Douglas, 1911, £24, or near offer.—Daw, Thorpe, Chertsey, Surrey. [X3053

DOUGLAS, 1913, model R, 2-speed, clutch, kick start, fully equipped, speedometer, few spares, and all accessories, condition as new; £48/10.—2, Pember Rd., Kensal Rise. [X2951

1912 New Hudson, 2¾h.p., 3 speeds, free engine, absolutely in perfect condition, speed walking pace to 40 miles per hour; 30 gns.—Hayward, Brackenhurst, Cobham, Surrey. [2756

ZENITH, 6h.p., 1913, Gradua gear, kick starter and clutch; usual price £78/15, slightly shop-soiled, £59/15.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London, W. [2763

DOUGLAS, 1913, model P, just arrived from the works; immediate delivery; £48; exchanges; lowest easy payments.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [2764

BUTTERWORTH Bros. Autumn Bargains.—Magneto Rex, 3½h.p., low, racy, new belt, £6/15; twin Rex, magneto, fast, T.T. bars, low, £12/10; 2½h.p. lightweight, new tyres, belt, etc., £7/10; 3½h.p. Rex, new tyres, good condition, £3/15; Chater-Lea, 4h.p., like new, £11/10.—64, Mill Lane, Brixton Hill. [X3329

MOTOR BICYCLES FOR SALE.

3½h.p. Triumph, 1913, second-hand, perfect running order, tyres in excellent condition, free engine, complete with all spares and accessories; 30 gns.—Rice Bros., Guildford. [2834

HUMBER, 3½h.p., September, 1912, 2-speed, free engine, Dunlops, handle starting, splendid condition; £32/10. Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [2772

2¾h.p. Cranbrook Motor Cycle, Bosch mag., B. and B. carburetter, all accessories, only been out once; £50; private owner.—The Motor and Cycle Co., 60, Cranbrook Rd., Ilford. [2777

MOTOSACOCHE, 1912½, 2½h.p., free engine, mag., Druid spring forks, 120 m.p.g., upkeep low, overalls, lamp, horn, spares; £22/10 cash.—32, Melfort Rd., Thornton Heath. [2889

RUDGE, 1912, F.E., 1913 Senespray carburetter, new front tyre, 2½in. Pedley on back, lamp, horn, and spares; £34, no offers.—Vaughan Jones, 92, South Hill Park, Hampstead, N.W. [2687

1913 Rudge, 3½h.p., free engine, absolutely perfect, very fast and powerful; trial at one day's notice; tyres new condition; bargain, £40, or near offer.—P.E.S., Preyste House, Petworth. [X3341

TRIUMPH, 1911[illegible] F.E., condition excellent, P. and H., exhaust whistle; nearest £33; exchange 7h.p. Indian, 2-speed, cash adjustment.—H.C.B., Rose and Crown, Woodford Green. [2892

SCOTT, July, 1913, perfect condition, ideal winter mount, fast, reliable, spares, tools, accessories, touring and T.T. bars; cost £75, accept £57/10.—Perkin, 14, Bloomsbury Sq., London. [2693

TRIUMPH, 1909 (11/12), new Jan., 1910, Palmer cords, Cowey speedometer, overhauled Triumph Co., new cylinder, piston fitted, many spares; £26/10.—23, Station Parade, Leytonstone. [X3181

DOUGLAS, model G, single gear, new Oct., 1912, with P. and H. lamp, horn, Stewart speedometer, ridden under 1,000 miles; bargain, £30 for cash.—E. M. Grice, Bletchingley, Surrey. [2688

3½h.p. New Hudson, 1913, absolutely new, free engine, kick starter, B. and B. carburetter, Armstrong 3-speed gear; retail cash price £57/15, what offers?—Rice Bros., Guildford. [2833

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled and are in perfect order.—Can be seen at above address. [0131

N.S.U. 3h. p. Twin, fitted with 2-speed variable gear, new 3 months ago, has only done 500 miles; price £38, cost £60, with accessories.—Esmond, Holborn Hall, Gray's Inn Rd. 'Phone: 6492 Holborn. [0362

6h.p. Semi-T.T. Bat, July, 1913, Armstrong 3-speed, kick starter, Kempshalls, done 300 miles, lamp, horn, tools, demonstration; £65; buying car.—Aeroplanes, Vardens Rd., Clapham Junction. [X3089

TRIUMPH, 1911 model, fitted with clutch, overhauled by makers, splendid order, with or without sidecar, £34; also 1912 T.T. model, £32.—Smith and Ford, 172, Upper Richmond Rd., East Sheen, S.W. [2752

T.T. Singer, 1913¼, 3½h.p., special model, guaranteed perfect, do over 50 m.p.h., Brampton variable, Cowey, numerous spares; giving up; £40.—Thoroton, 2, Avenue Gardens, St. Margaret's, Twickenham. [2728

P. and M., 1912, just overhauled, excellent condition, X'all bucket saddle, Cowey speedometer, Hanmer lamp and generator, nearly new back tyre; £45.—Rev. J. Danglish, R.N. Barracks, Shotley, Harwich. [X2953

DOUGLAS, late 1912, Model K, with 1913 clutch and pulley, condition as new, £40; also 1912, as above, less clutch, £36, with lamps, horn, etc.; seen by appointment.—Smith's Garage Coggeshall. [2875

TRIUMPH, 1908, re-enamelled by makers, plating as new, engine rebored, new bearings throughout July last, also magneto overhauled by Bosch, tyres, belt excellent; £24.—Butterfield, Wentworth House, East Finchley. [X3162

FOR Sale, 1913 Scott Motor Cycle, ridden less than 100 miles; good reasons for sale; fitted with Cowey speedometer, Lucas horn, lamp, and generator, absolute perfect order guaranteed.—Apply, The Motor House, Haslemere. [2671

NEW Hudson, 1912, 3½h.p., 3-speed, new Canoelet sidecar, perfect condition, £38; Enfield twin lightweight, absolute bargain, £18; reason for selling owner leaving country.—60a, Trinity Rd., Balham. 'Phone: 1528 Battersea. [2751

1913 Triumph, 3½h.p., clutch model, 2⅜ Clinchers (unpunctured), perfect condition, £47; also Browning patent folding sidecar, new August, £8/10; trial run arranged.—Cooke, 47, Mount View Rd., N. Tel.: 105 Hornsey. [2755

DOUGLAS, model R, 2-speed gear, free engine clutch, with kick starting pedal, footboards, and new model mudguards, just arrived from works; £52, cash, or lowest easy payments.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [2769

WE Have a Few Shop-soiled and other Machines which have been used for competition purposes, to be sold at bargain prices. Write for particulars, or call and inspect.—N.S.U. Motor Co., Ltd., 136, Gt. Portland St., London, W. [0361

CASH Offer, immediate.—3½h.p. Kerry, speedy, reliable, perfect order, takes sidecar easily, fine solo mount, medium weight, proved particularly trustworthy in bad weather; value £35, accept £25; owner given up riding.—Rose, 45, London Rd., St. Albans. [X3203

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— All the leading makes of motor cycles in stock — new models arriving daily — including

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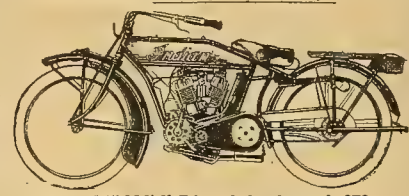

The "INDIAN" 7 h.p. twin, 2-speed, £70.

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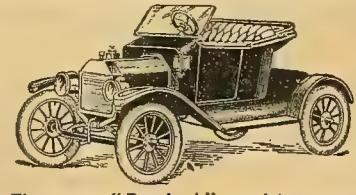

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The Birmingham house for small Cars

87, 89 & 91, JOHN BRIGHT STREET,
Telephone: Midland 662.
and at Sparkhill, BIRMINGHAM.

MOTOR BICYCLES FOR SALE.

N.S.U., 3h.p., 2 speeds, free, mag., B. and B., Ly[illegible] m.o.v., Rom and Dunlop, 26×2¼, low, everythi[illegible] good condition, ride away, 15 gns.; Portland cane can[illegible] side entrance sidecar, Michelin 26×2¼, q.d. join[illegible] perfect; £5.—59, Cresswell Rd., Twickenham. [28

ROVER, 3½h.p., F.E., Sturmey-Archer 3-speed ge[illegible] delivered June, 1912, Lucas lamp and horn, Cow[illegible] speedometer, practically new front Dunlop tyre (only r[illegible] 10 miles); may be seen by appointment; £44.—P[illegible] Johnson, Kirk Braddon, Croydon Rd., Beckenham, Ke[illegible] [75

NEW Shop-soiled Machines at big reductions: D[illegible] las, Enfields, James, Triumphs, Rudges, B.S.A Singers, New Hudsons, Williamsons, Zeniths, at ke[illegible] cash prices, or very liberal deferred payments. Give a chance to quote you.—Lamb's, 151, High St., W[illegible] thamstow. [24

3½h.p. Zenith Gradua, 1913 model, tyres unpu[illegible] tured, all accessories, including Cowey spe[illegible] ometer, H. and P. acetylene lamp, horn, watch, a spare inner tube not used, all in splendid condition, be well kept; cost £60/17, will take 46 gns.—Can be s[illegible] any time at Oxford Lodge, Park Side, Wimbled[illegible] Common. [27

MESSRS. PALMER and Kitson, South Easte[illegible] Garage, Herne Hill, London, S.E., guarant[illegible] all the following machines to be in running orde[illegible] 3½h.p. 1912 Zenith-Gradua, £36; 5h.p. 1911 F.[illegible] £24; 2¼h.p. Clement, £9; 1910 Douglas, £17; 19[illegible] 2½h.p. Calcott, £26; 1911 6h.p. 2-speed N.S.U., £3 2½h.p. Kerry, £9; 2½h.p. 1911 Motosacoche, £2 3h.p. 1908 N.S.U., mag., £12; 4h.p. 1909½ R[illegible] 2-speed, sidecar, £22; 3½h.p. Kerry-Abingdon, 19 2-speed sidecar, £32; 1909 Triumph, £23; 1912 Triumph F.E., £42; 1913 Triumph, F.E., £47; 1913 Williamso[illegible] 2-speed, sidecar, £68; 4½h.p. Antoine tricar, 2 speed £15; 3½h.p. 1910 Bradbury, £22.

ACCESSORIES. — New: Mabon clutch, lightwei[illegible] model, £2; exhaust whistles, 5/-; watches, 4/ Triumph pattern bars, all 5 controls, 20/-; goggles, [illegible] and 3/-.—Second-hand: Veeder, 7/6; Miller lamp a generator, 25/-; 3h.p. Quadrant engine, £3. Heaps other goods, new and second-hand. Write for lists.— and K., as above. [84

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

HUMBER, 1912, 2-speed, free, excellent conditi[illegible] £25.—G. Bowerman, Bridgwater. [X3[illegible]

NEW Shop-soiled 1913 Triumph, 3-speed, B.S.A. speed; what offer?—Dyer's, Sherborne. [X3[illegible]

EXETER Motor Cycle Co., 6 and 7, Bath Rd., Exe[illegible] Tel.: 975.—Motor cycle and cycle car experts.

IMPORTANT to Motor Cycliste.—Sale, sale, sale.

WE have a large number of new and second-h[illegible] motor cycles and sidecars, etc., to be cleared regardless of cost.

WE are making further extensive alterations to premises, and must reduce our stock to make ro[illegible] for the contractors.

SEND a postcard for complete list, with lowest [illegible] prices. Special discount for cash off any 1913 [illegible] models in stock.

COUNTRY Customers' Railway Fare paid up to [illegible] miles during time of sale.

SECOND-HAND Motor Cycles from £10, and sidec[illegible] from £3; all motor cycles are guaranteed in g[illegible] order, having been thoroughly overhauled by our st[illegible] of expert mechanics.

EXETER Motor Cycle Co., Exeter.

THE Largest motor cycle and cycle car dealers in West of England.

SEND Along your enquiries. We are sure to h[illegible] something to suit you. Country customers d[illegible] forget we pay your rail fare up to 100 miles. T[illegible] gives you a chance to see our large stock before you b[illegible] [17

LINCOLN Elk, 4½h.p., 1913, 2 speeds, excellent [illegible] dition; £35.—Spencer, Manor Rd., Weston-sup[illegible] Mare. [28

ARIELS, 1913, the success of the season, f[illegible] £47/10; order now; early delivery.—Morris Bo[illegible] Duke St., Plymouth. [19

BARGAIN.—1910 3½h.p. Humber, Roc 2-speed, [illegible] returned from Humber works, all latest impro[illegible] ments; approval; £25.—Cutland, poultry fancier, W[illegible] lington, Som. [X3[illegible]

ARIELS, 1913, the most successful and most reli[illegible] motor cycle of the season, from £47/10; earl[illegible] delivery; orders for 1914 models and Olympia S[illegible] models booked; lists free.—Baker and Co., Motor C[illegible] Works, Shaftesbury. [2[illegible]

TRIUMPH, 1912½, recently fitted Sturmey-Arc[illegible] 3-speed gear, long exhaust pipe, Bowden han[illegible] bar magneto control, spares, etc., carefully rid[illegible] perfect condition; £45, or close offer.—Cocks, Co[illegible] Villa, Combe-Martin. [2[illegible]

SECTION X.

Scotland.

1913 Scott, brand new, unused Palmers, spares; £[illegible] deposit.—Box 4,295, *The Motor Cycle* Offi[illegible] Coventry. [X3[illegible]

OCTOBER 23RD, 1913.

THE MOTOR CYCLE

ESTABLISHED IN 1903

AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND FIFTY-SECOND CONSECUTIVE ISSUE.

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Single Gears.

LAST Saturday a trial for single-geared machines was held in the South of England, and the event can be regarded as an unmistakable sign of the increased efficiency and dependability of present-day engines. Three or four years ago a similar event over such a severe course as was selected might have ended in a *fiasco*, but such is the efficiency of the modern engine that nineteen not only stayed the course but accomplished non-stop runs.

It seems to us, however, that the event is likely to be misunderstood by some readers, more especially prospective riders, who may be led to imagine that if a single-geared machine can successfully cover such a course, why bother with change-speed gears which, after all, are added complication and costly items. For fear any such should be unsettled in their minds as to the type to select at Olympia, we pen these few words of advice. We have ourselves always had a sneaking liking for the single-geared semi T.T. type of mount, as it is so light, nippy, and sporting to ride, but such a mount has its drawbacks. Owners of such must always choose their touring ground unless frequent stops to alter gears are to be made, and there are other points which we desire to make quite clear to the uninitiated in the choice of a mount. For instance, success in climbing a steep hill with a fixed gear is largely dependent upon a clear course, a good dry road surface, a comparatively straight hill, and acquaintance with that hill. These conditions being favourable, a really good 3½ h.p. mount can make a steep gradient look very simple. But imagine for a moment that a horse and trap, a drove of sheep, or any other road obstruction be encountered, the single gear enthusiast is effectually checked. One may argue that a single-geared machine *can* climb a twisty hill, but our retort is that very often in order to keep up the momentum of the machine unnecessary risks are taken in negotiating corners which might prove serious if the road be not clear of other traffic. Again, on a foggy or misty day, when speed was out of the question, an owner of a single-geared mount would find himself in dire difficulties on hills. And, in addition to all this, the gear ratio used must of necessity be lower than the top gear of a multi-speed mount in order to bring hills within its range. The result is that three parts of its life the engine of a single-geared mount is turning over unnecessarily fast and using up more petrol and oil.

We could continue this discourse indefinitely, but to any thinking person or motor cyclist of experience, the variably geared motor cycle must score heavily. But trials of single-geared machines will do good if only in one respect, viz., it will encourage makers to develop still further the efficiency of their engines. It is well-known that different makes of engines of identical capacity vary very considerably in their power output, but by reason of a very low emergency gear enabling all hills to be ascended these faults are hidden in the ordinary reliability trial, but tests specially for single-geared mounts will bring them out.

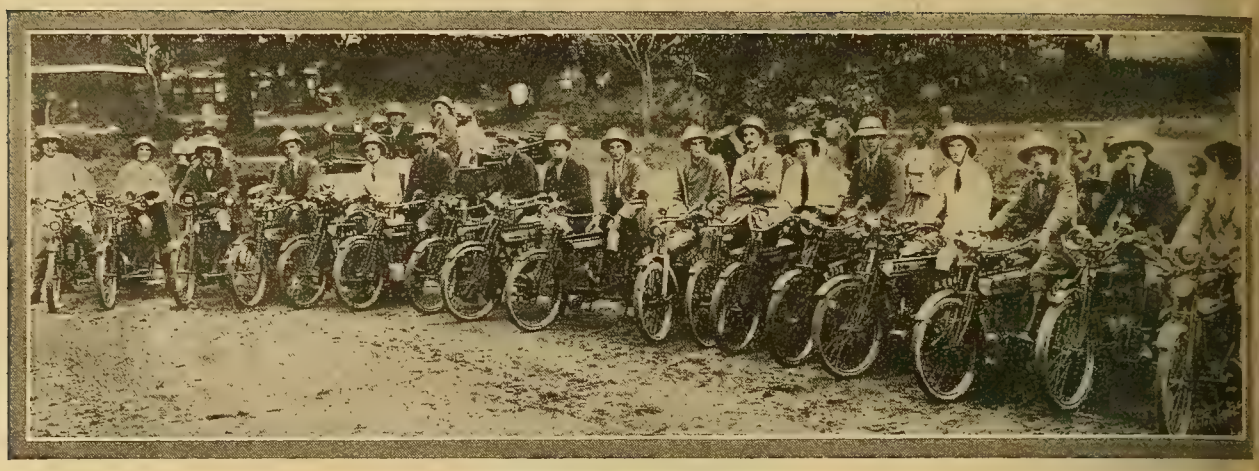
Used Carbide.

WITH reference to the practice of throwing away spent carbide at stopping places we have received the following sensible letter from a correspondent:

Sir,—Now that the time of the year has arrived that most motor cyclists carry lamps, will you draw the attention of your readers to the inconsideration of emptying carbide generators on village greens and other roadside stopping places? In damp weather the carbide thus left continues to generate for some hours, which is very unpleasant for those dwelling near; also, the heat it gives off sometimes kills the grass and gives the place an untidy appearance.

I feel sure this practice is due to thoughtlessness, and that most motor cyclists would take the trouble to throw their used carbide out of the way if the matter were brought before their notice. H. MORTIMER BATTEN.

Now we entirely agree with Mr. H. M. Batten, and, as we consider it important that motor cyclists should do as little as possible, with which the general public can find fault, we deem it advisable to give his letter the full publicity of our columns, and at the same time add a few lines to urge upon riders the desirability of following the advice given. Carbide is an excellent thing in its proper place, *i.e.*, in an air-tight tin or generator, but we all know how disagreeable is the smell of a dirty acetylene generator, and we have no right to inflict this smell upon others. As Mr. Batten says, the carbide goes on generating, for it must be very seldom that it is wholly used up in the lamp, and his condemnation of the practice is entirely justified; in addition, carelessness of this kind might conceivably be attended with some danger on account of the inflammable nature of the acetylene gas which is given off and its tendency to explode when mixed with a suitable proportion of air. Animals grazing by the roadside too might find the result interfere with their palate.



BRITISH MOTOR CYCLES OVERSEAS.
The average number of British motor cycles exported weekly is 328. They are sent to every corner of the globe. Our photograph shows members of the Rangoon Motor Cycle Club, the machines shown representing four Rudges, three Triumphs, three Humbers, two Rovers, and two B.S.A.s, one each Bat, Indian, and V.S.

The 3½ h.p. Twin Motosacoche on the Road.

DURING the summer we had on trial one of the latest type 3½ h.p. twin-cylinder Motosacoches, and considering the success this model has had this year, both in England and on the Continent, a short account of its behaviour will be of interest.

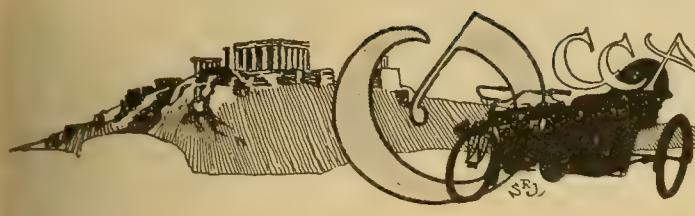
Our first ride on the machine, which was in the Isle of Man, will be long remembered. We had landed one afternoon from the *Ben-my-chree*, and at teatime it was blowing a howling gale from the south-west, and after registering at the Highway Board, we ambled down gently to Quarter Bridge, and then proceeded along the course of the T.T. races up the mountain road towards Ramsey. It was on this trip that we learnt that, owing to the adjustment of the carburetter, the machine started best on half air and ran with full air the whole time. We were literally blown up the mountain and made the ascent up to the Bungalow on one-third throttle, and coasting down into Ramsey made a short cut on to the Coast Road, reaching the latter at a point right at the foot of Slieu Lewaigue Hill —a really stiff and long climb, not freakish in the slightest degree, but as good a hill as one can find on the main road. A touch of the throttle and we sped up towards the summit. We were taking it beautifully, so well in fact that at the next corner the gas had to be cut down, then, as we rounded it easily, the gale caught us with its full force and the rain, which had now begun to fall, stung like hail; the throttle was slung open, and slowly, very slowly, the gallant engine, battling with its two opponents, the 1 in 10 gradient and the shrieking wind, picked up and brought us to the next corner. Then ensued another, this one sheltered from the wind, and then the next. Here we had a tremendous tussle, but the engine, though brand new, was pulling grandly. It did it simply by hard slogging, without a conk, and without a falter.

Details of the Machine.

Now as to the machine itself. The M.A.G. engine is really a beauty, exquisitely finished and well balanced, flexible and powerful, and is a real pleasure to drive. The carburetter, an Amac fitted with a No. 26 jet, was possibly not set to run in the most economic manner, but it was absolutely automatic and no alteration was desirable. Once warm, the engin would tick round like a car, and run at almost an speed one liked on top gear, which is entirely as i should be. From almost dead shut to full open, th throttle lever might be suddenly moved, and withou the sign of a miss the machine would accelerate wit wonderful rapidity. The engine was very quiet an practically devoid of tappet and valve noise. Th silencer was worthy of the name and clearly did nc exert appreciable back pressure, as no perceptibl amount of power was gained by opening the cut-ou The gears, which are of the expanding clutch variety changed easily and appeared to be fool-proof; th chain drive was quite devoid of harshness, as a efficient shock absorber is fitted. The foot brake ha sufficient power, but the front brake was not quite s effective, while the handle-bars were rather narrow

It is an excellent sidecar machine, and in suppor of this assertion we may draw our readers' attentio to the performances of Holroyd and Le Vack in th B.M.C.R.C. Six Hours Race, which they completec without experiencing the slightest mechanical trouble

A rider of a three-speed New Hudson at the Sphinx



OCCASIONAL COMMENTS

BY 'IXION'

Carrier Riding.

In spite of the chorus of disapproval aroused by the suggestion that carrier riding should be made illegal, as in some American States, I am not at all sure that I should not welcome an official embargo. Some of the angry remonstrants use utterly fallacious arguments when they liken it to aviation, and other pursuits which take a heavy toll of human lives. Aviation is inevitably perilous, motor cycling—apart from carrier riding—is very tolerably safe. Carrier riding is a kind of eccentric excrescence upon motor cycling, in the same way that riding on the extreme tip of a plane (as two flying mechanics did the other week) is an eccentric excrescence on aeroplaning. It is certainly stupid to forbid experiments in any novel mode of locomotion which may eventually blossom into a highly practical and useful form of traffic; it would be idiotic to prevent mono-railway experiments by legislation. But it is not idiotic to pass laws which prevent aviators flying down the Strand or carrying flappers on their rudders; and it is quite possible that it would be wise to make carrier riding illegal. There is very little to be said in its favour, for it is at least as uncomfortable as it is dangerous and it has sprung into use for two main reasons—it is cheap, and, therefore, is resorted to by persons who have no sidecars; and it is convenient, as when the sidecar is left at home and the holiday maker picks up a crimson-jerseyed flapper on the "prom." The strongest argument against it has not yet been cited in print. A man or a girl has certain ill-definded rights to risk his or her own person, if the personality be regarded as worthless or the motive for risking it sufficiently strong. But we have no right to risk the lives of others without their understanding or consent, and we have no right to risk causing great sorrow to total strangers. Carrier riding infringes both these principles. The maidens—Manx or imported—who grace the carriers of so many machines in a T.T. week have no conception of the danger they run, and probably some of the more stalwart pillion-passengers who may be seen touring England on carriers are ignorant of the fact that they run ten times the risk they would face in any car or sidecar. As regards the other point, several car drivers have killed people who were riding on carriers. I had a very narrow escape not long ago. I was driving a heavy car through the freshly watered street of a seaside town when a motor bicycle with a man on the carrier turned out of a by-lane just in front of me. It swerved as it righted itself after the bend, and I thought to myself, "This lad may be off in a minute." I took out my clutch and hung back to give him a twenty yards lead, and in less than a hundred yards his back wheel skidded, and both men were prone in the mud. If I had not shown more caution than they did I should have crippled or killed them both. This is one of many instances in my own experience, while a friend of mine crushed two youths very badly under similar circumstances. Why should we be exposed to these risks because a few infantile persons with more courage than sense esteem their lives so lightly? Whether or not carrier riding is legally prohibited, it should be clearly understood that *it is probably the most dangerous method of road locomotion in existence*, not excluding the towing of a push bicycle behind a motor bicycle.

Punctures Widening Under Patches.

Some months ago I initiated a small controversy by publishing allegations to the effect that modern tyre repair solutions were almost too good, some riders asserting that punctures often split and spread and widened under the patch, and that the patch became so completely amalgamated with the tube that it was difficult to dislodge. Mr. Surridge, of Holdtite fame, challenged these assertions so far as his solution and patches were concerned, and sent me a complete kit of his latest repair goods with which to test his claims. Unluckily—from his point of view, not mine—I have enjoyed a unique immunity from punctures all summer, and I still lack the evidence of a practical confirmation. But if we examine one of his patches, we find it is stamped with an arrow, and is intended to be affixed with the arrow across the line of the gash or puncture. If we further fix first an end and then a side of the patch in a vice, and take a good haul on it with a pair of rough-edged pliers, we find that the material of the patch is extensible in one direction, but not in another. It is so woven that it can stretch in one direction only. If the non-extensible grain of the patch is set across the line of the puncture, the patch cannot extend in that direction under any conceivable strain to which it may be subjected; and since the tube is, as aforesaid, part and parcel of the patch, neither can the tube extend in that direction; and, ergo, the puncture cannot very well extend either. I have a section of tube with two huge longitudinal slashes in it, to which a Holdtite patch is thus affixed, with its taut grain across the slashes; I cannot make these slashes widen by any mechanical means, short of ripping both patch and tube in half; and I do not see how the pneumatic and frictional strains of road wear will effect what a vice and pliers fail to do. I think Mr. Surridge has amply proved his point. A patch that was non-extensible in *both* directions would, of course, be a dismal failure under inflation; but this compromise seems to have no practical drawbacks whatsoever, and few patch makers have hit upon it. I must add a word of commendation of the substantial coin-opening tubes in which Mr. Surridge and one or two other vendors put up their solution nowadays. Friend, dost remember thy tool bag when the old collapsable tube got adrift amongst thy spanners and split?—Ugh!

A New Cycle Car Definition.

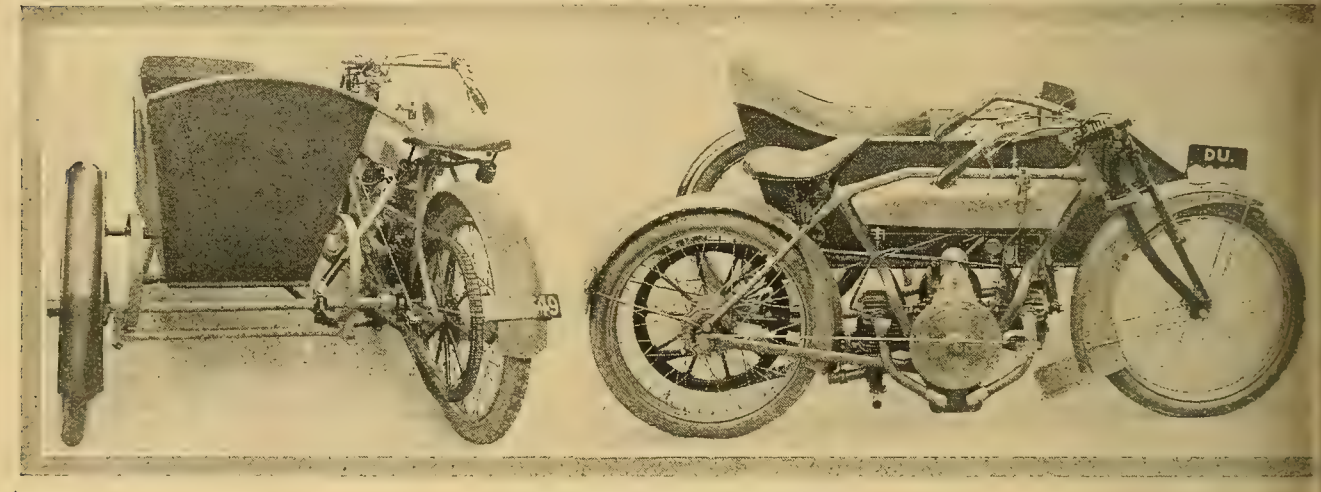
Our motor cycling politicians are loudly clamouring for a new cycle car definition. It is perfectly obvious that the world of miniature motors is at this moment

Occasional Comments.—

in a pretty state of chaos. At the one extreme we have the genuine "cycle car," by which term most sensible men, ignoring the A.C.U. definition, would imply a light passenger machine on motor cycle lines; at the other extreme we have the miniature Rolls-Royce, exemplified by such luxurious vehicles as the Singer. Both are formally termed "cycle cars" for exhibition and competition purposes. But we have by no means exhausted the oddities of the position. A Morgan runabout is a cycle car. An 8 h.p. motor bicycle, brazed up solid in one piece with a sidecar chassis, is not a cycle car. A Singer and a Morgan are classified as one type. The little 8 h.p. De Dion is not a cycle car, but the Singer, having an engine of 83 c.c. less capacity, is. The Singer would cease to be a cycle car if it weighed a very few lbs. more than it actually scales in its present form; indeed, I know at least one Singer which could not compete as a cycle car if the judges chanced to verify its submission to the definition at all precisely. Again, the little De Dion could be converted into a cycle car if an almost invisible length in millimetres were deducted from either of the engine measurements, and the chassis were stripped and lightened as many cycle car chassis have been stripped, lightened, or modified during the past year. This is chaos indeed, and it is easy to understand why some of our petrol-politicians are pressing for a fresh definition. In spite of the arguments and facts I have marshalled, I think it might be in the highest degree unwise to recast the definition at the present juncture. Any definition imposes limitations upon designers—remember how the horse-power scale of taxation has fettered motor car designers. The motor car was pretty well evolved before financial pressure stereotyped the "80 mm." and "90 mm." engines, and no harm was done; but the cycle car is in its infancy. There are, in fact, only a very, very few successful "cycle cars" in existence, for the main fruit of the movement up to date has been to develop the "miniature car," a type of vehicle which was not for one moment foreseen by the false prophets of the new motoring. We should treat an infantile vehicle as we treat a human infant, and afford the widest conceivable range of development. Definitions and limitations are, therefore, entirely out of place at the present moment, and the A.C.U. should play the wise parent, and stand aside to watch its child's development, content to extend a guiding hand only when obviously perverse tendencies become manifest. Such tendencies are not as yet invisible, if we except the hill-climbing weaknesses of some of the inferior pioneer machines, which have been corrected by the provision of sufficiently strenuous trials. After all, nobody knows yet whether a really light four-wheeler is a practicable proposition, and it may turn out that the 5 cwt. four-wheeler is a mere visionary's dream. The cycle car wants a free hand for at least another twelve months, perhaps for longer.

Another Toss.

For once I was a false prophet, for I have already had another tumble. I was taking a right angle bend in a popular watering place; the surface was freshly watered asphalt, and banked the wrong way, though I will not plead guilty to more than 15 m.p.h. on the occasion in question. The back wheel skidded as I swerved to dodge an aged female tripper. I accomplished a magnificent recovery, but before I could say what the mildest motor cyclist is prone to ejaculate under such circumstances, the front wheel skidded as well, and by some miracle I was thrown over the handle-bars, and found myself standing erect on my feet with the engine doing 4,000 r.p.m. flat on its side. Let me enumerate the damages: another 10s. of damage to my miserable 25s. lamp, an extra whorl in my hooter, two footrests dropping their ears a shade more than before, handle-bar slipped round in the stem, carburetter levers looking rather cock-eye, and the front number-plate registering a quarter to twelve. Applause from a huge crowd in honour of my landing upright on my feet softened my asperity towards the pre-occupied dame aforesaid; in fact, I think they imagined I was the knockabout sailor out of Humpsti-Bumpsti, doing a special turn in public as an advertisement. But please note the moral—my cheap lamp has already cost more in repairs than its original price. If lamps were set closer down on the mudguard, they would come off better in such mishaps. The lamp makers' repair books will point my moral.



A NEW SIDECAR OUTFIT UNDER TEST.

The first Montgomery horizontal engined motor cycle, the engine of which was described in our issue of Oct. 9th. The machine is now on test in the above form and is fitted with a new type of sidecar, the chassis of which is composed entirely of straight tubes, and is in consequence very strong and simple. The belt is high up and thereby screened from foreign matter. An Armstrong hub three-speed gear is fitted.

What it Costs to Run a Cycle Car.

THERE is a great deal of speculation as to what it costs to run a cycle car; indeed, few care to take the trouble to record every expense in connection with motoring. Perhaps it is as well they would not, for it is surprising how the many payments large and small mount up, and to a motor cyclist investing in his first passenger machine, the result might come as a rude shock. Personally, we have not found ourselves in the same boat; on the contrary, we can truthfully say that we have been agreeably surprised at the result we have obtained from the running of a Humberette. We have made occasional references to the performances of this vehicle in past issues, and promised our readers a statement of account at the end of our reckonings. The items of expenses are appended:

CAR AND EQUIPMENT.

	£	s.	d.	£	s.	d.
Humberette, less tyres	118	7	6			
Special tyres—						
3in. Skews	7	18	0			
2.5in. Midlands	6	3	0			
Extras—						
Rubber on boot	1	1	0			
Mat		7	6			
Watford speedometer and fitting	3	18	0			
Special boxes		10	0			
Two spare tubes	1	4	0			
Extra for Rotax head lights	2	15	0			
Dashboard clock		12	6			
				142	16	6

REPAIRS AND RENEWALS.

Two valve springs, one plug		5	0			
Sundry repairs		5	6			
Pair new Midland 700×80 mm. covers	4	5	0			
Watchquick 3s. and Dunlop outfits 2s. 3d.		5	3			
				5	0	9

RUNNING COSTS—3,350 MILES.

Benzole, 22 gallons at 1s. 6d. ...	1	13	0			
Petrol, 59 gallons at 1s. 9d.	5	3	3			
Oil and grease	1	9	3			
Garage, 2s. 6d. week	2	5	0			
Insurance, "Autocar" policy, including £1,000 life insurance	5	5	0			
Registration	1	0	0			
Tax and driving licence	3	8	0			
				20	3	6
Total				£168	0	9

Running expenses = 1.80d. per mile.

So that the uninitiated may not be misled, we may explain where many expenses could have been reduced, and how a more favourable result might possibly have been obtained.

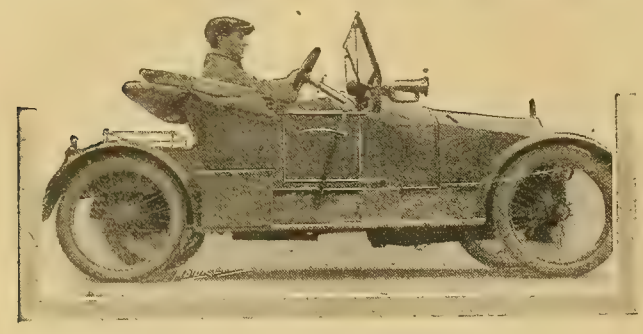
Do Extras affect the Selling Price?

"Extras"—that word to conjure with, which means a big item when equipping the vehicle, yet brings in little more when disposing of it—account for a marked increase in the total cost of running. Larger tyres are included under this head, but if only for the increased comfort (which is at once noticeable) and the comparative immunity from punctures, they are worth every penny of their extra cost. One seldom hears a motorist of any class grumble that the makers have "overtyred" his machine, but grumbles to the reverse effect are legion.

The writer feels lost without a speed indicator and mileage recorder on his motor cycle or cycle car; they render any run so much more interesting. In the present instance a mileage recorder could hardly have been saved, or a reliable guide to the cost of running would have been an impossibility. In passing, should other cycle car owners send us their running charts for

What it Costs to Run a Cycle Car.—

comparison and publication (as we hope they will), it would be better if it were mentioned clearly whether the mileage was "estimated" or recorded by an instrument. The "estimated" mileage is usually very far from the mark. We have used a Watford speedometer, driven by belt from the cardan-shaft, which method of



The Humberette referred to in accompanying article. The box on the running board accommodates a two gallon tin of petrol.

drive does not appear to be entirely satisfactory, as the belt has a habit of disappearing altogether after about 1,000 miles. On that account we carried a spare belt. As regards lighting equipment, two lamps on the dashboard answer their purpose quite well, but two good lamps attached to the sides of the frame throw a better light ahead, though the lamp glasses are apt to become splashed with mud on very wet roads.

A Small Repair Bill.

We have been singularly fortunate in the matter of repairs, for only once have we suffered a breakage, and that was due to a defect in the differential gear which the Humber Co. readily put right free of cost. Our only other troubles can be summed up in two broken valve springs—surely a splendid result for 3,350 miles! The Humber engine has opened our eyes as to the possibilities of air-cooling. At the Olympia Show last year, knowing as we did the vagaries of motor cycle engines and the hard work the 8 h.p. Humber engine was being called upon to perform, we feared valve breakages, and, as others may have shared our opinion, we are happy to be able to disabuse their minds of such an impression. At the moment we cannot recollect having run an air-cooled engine so far as the Humberette without having need to change one or more exhaust valves. The only objections to air-cooling we found were the large amount of engine oil used and the need for removing the carbon from the pistons rather frequently—the one accounting for the other. Overheating, despite the absence of any artificial means of cooling, was non-existent in our case, thanks to the low compression engine.

Benzole we did not use until after we had the cycle car some months or the charges under the head of consumption might have been reduced. Incidentally, we may mention that after trying various mixtures, we consider that a 50% mixture of petrol and benzole gave the best all round results, a mileage of 45 m.p.g. compared to 40 m.p.g. with petrol alone being obtained.

An average of twopence per mile is, to our mind, a very satisfactory result, seeing that two persons were always carried. One cannot fairly include depreciation, seeing that if the car had been run 6,0 miles very probably the same selling price would ha been obtained. It is curious that a purchaser is n usually so much interested to know the date the vehic was new or the distance run, as whether it a 1913 or current year's model. In our case d depreciation on the selling price increased the expen ture to nearly 5d. per mile, but, again, the taxes a for the whole year, and the insurance need not ha been so high for the summer only.

Finally we would suggest three minor improvemen to the Humberette. One would be to lower the das board to enable the driver to steer into a narrow gat way without leaning forward to see if the mudguar are fouling anything, another to arrange that t rear end of the tool locker should let down. At prese the luggage platform acts as the lid, and one has or to experience a couple of punctures and be oblig to unstrap all the bags, stand them on a wet road, a strap them up carefully again as we did on our ve last run, to realise that a better arrangement is possib An accessible petrol tap would also conduce economy. One cannot trouble to remove the bon every time to turn off the petrol, and it is not go enough to rely upon the carburetter needle valve af it has been in use a few weeks.

On the subject of sidecars *v.* cycle cars, the lat undoubtedly score in luggage carrying capacity a weatherproofness for driver and passenger (a l point), but they are not so fast as the average sidec especially on hills, are more expensive in first cost a running expenses, and most difficult to store. point of comfort the sidecar passenger is no better in a cycle car, but the driver is undoubtedly more co In reliability there is very little to choose.

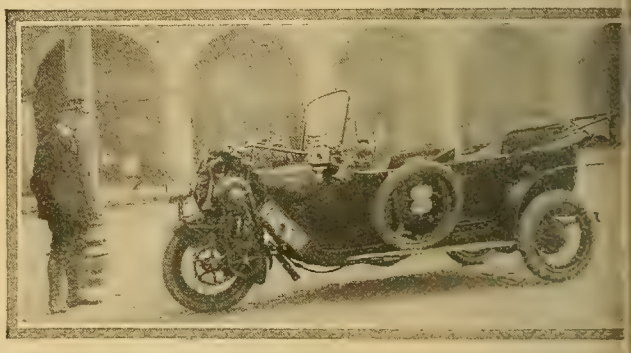
THE CYCLE CAR TAXI.

THE illustration herewith shows one of the n three-wheeled taxis at present to be seen in t streets of Berlin, Leipzig, and Munchen. T machines are all of the well-known Phänomobile ma 12 h.p. Two little fans driven by a leather belt fr the magneto shaft help to keep the engine cool.

The two-speed gear is of the epicyclic pattern a controlled from the tiller, where the carburetter a magneto fittings are also placed.

The rear wheels alone are braked, and the lit three-wheelers are remarkably steady on grease.

Naturally one would expect, with such a weight the front wheel, some little difficulty in steering, bu although a trifle heavy, it is not objectionable.

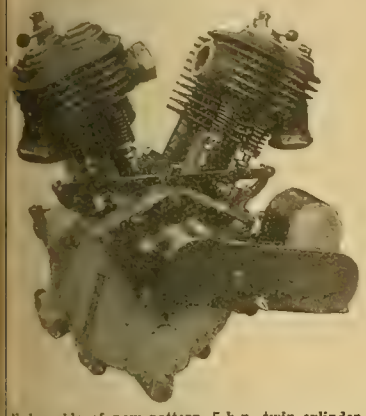


A four-cylinder Phanomobile taxi used in the streets of Berlin.

JAP ENGINES FOR 1914.

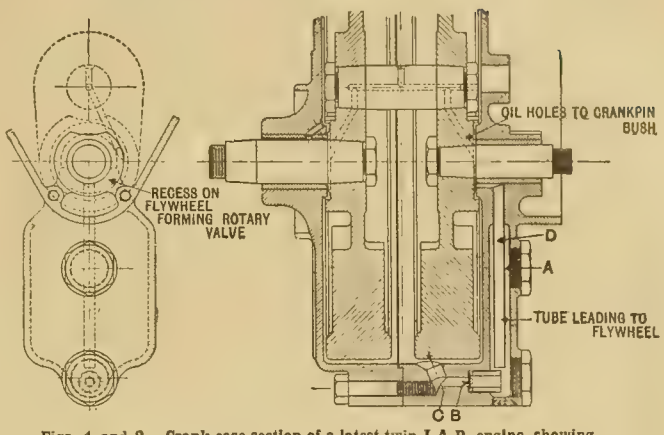
Pressure Feed Oiling. Simplified Timing Gear.

THE J.A.P. engine is the oldest and at the same time most popular motor cycle engine on the market. It was first turned out in 1903, and even in those early days was recognised as one of the leading motor cycle engines. The engines in which Messrs. J. A. Prestwich will specialise during 1914 will be all twin cylinders, a new 5 h.p. (illustrated herewith), 70 × 85 mm.; the 6 h.p., 76 × 85 mm.; the 8 h.p., 85 × 85 mm.; and the new 10 h.p. cycle car engine, 85 × 95 mm., which we also illustrate — another entirely new production. Now the chief innovations for the coming year are a simple and ingenious pressure-fed oiling system, a simplified timing mechanism, and a new type of exhaust lifter.



Valve side of new pattern 5 h.p. twin-cylinder air-cooled engine.

As regards the lubrication (the improvements in which system we were most gratified to see in view of our many articles on the subject), a separate chamber A is cast in the crank case, connected to the latter by the passage C through the non-return valve B. The descending piston forces the oil past the non-return valve into the chamber A up to a certain level which is about halfway up the chamber. Owing to the upper orifice of the brass pipe D being closed by the side of the flywheel, there is considerable pressure of air above the level of the oil. On the piston ascending a recess on the flywheel, forming a rotary valve (see fig. 1), uncovers the orifice of the delivery pipe, and the oil is delivered to the crank pin bearing. The lubricant is drawn up by the vacuum caused by the ascending piston and forced through the pipe by the pressure in the oil chamber.

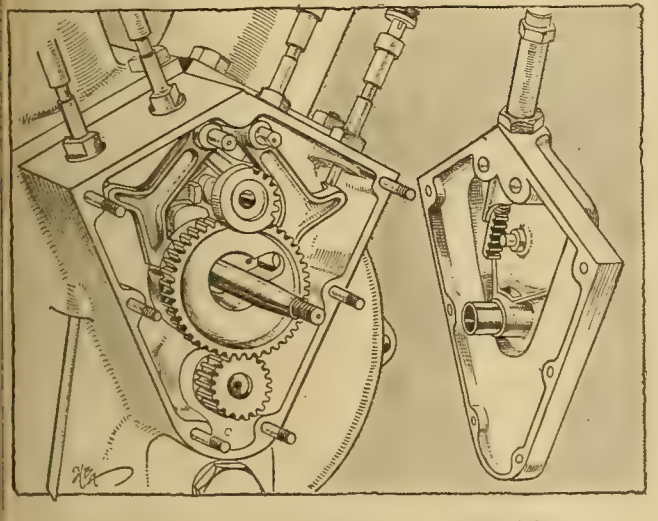


Figs. 1 and 2. Crank case section of a latest twin J.A.P. engine, showing the special oiling arrangements.

Timing Gear Details.

The simplification of the timing gear is clearly shown in the accompanying drawing. There are only two gear wheels, and of these that which revolves at half engine speed has two cams cut on the back, while a double set of rockers work the two valves in each cylinder. Not only is the design enormously simplified, but the valve is infinitely more quiet. The magneto is driven by means of a sprocket attached to the spindle on the half-speed timing wheel. The accompanying sketch also shows the new method of raising the exhaust valve, which is effected by a rack and pinion arrangement. At the back of the pinion are cams engaging with heels on the exhaust rockers. In the photographs which illustrate this article, the 5 h.p. is fitted with the old type exhaust lifter, while the cycle car engine has the latest pattern. The neat exterior of this engine is well worthy of note, while the very large flywheels are an excellent feature. During our visit, we were impressed by the delicate scientific instruments employed. Moreover, the care and accuracy employed in the manufacture of these engines observed while going round the factory caused us no surprise in view of the many successes recorded by J.A.P. engines.

The latest 7 h.p. twin for cycle cars, notable for its large flywheels.



The simplified timing gear mechanism on the J.A.P. twin-cylinder engines for 1914.

Trial of a Spring-frame Edmund-Villiers.

IT was with feelings of expectancy that we mounted an Edmund machine, fitted with a 2¾ h.p. Villiers engine and two-speed gear. This machine, noted for its spring frame, has revealed to still another of our staff the pleasure of riding a machine so fitted. It is made by Messrs. Chas. Edmund and Co., Crane Bank, Chester. Leaving London by the Finchley Road, we made our way along the tramlines towards Hatfield. We found here that the engine was misfiring, so pulling up at a garage at Hatfield we took down the carburetter, a Brown and Barlow, and also cleaned the sparking plug points. The garage proprietor showed extreme interest in the machine, stating that he gave up riding a motor cycle owing to the lack of comfort, and he deemed a spring frame to be of the utmost necessity.

From Hatfield the road was taken through St. Albans, Harpenden, Luton, and a stop made at Bedford for lunch.

Bedford was left behind, and we passed through St. Neots to Cambridge. Here we found a Triumph rider returning to Cambridge from the Army Manœuvres with various pieces of baggage trailing behind him, suffering from belt trouble.

Cambridge was reached in good time, and passing through Chesterton, Waterbeach, Stretham, Ely, Soham, Fordham, and Newmarket, we again returned to Cambridge. After a halt of short duration, we ran down the Trumpington Road, through Trumpington, and turned off to Royston. The road here was a mass of "pot-holes," yet we kept up a speed of 20 m.p.h. without the slightest discomfort. The road soon improved, and we reached Barley (situated three miles from Royston and on the main road from Cambridge and Newmarket to London) just before lighting up time.

Hill-climbing Abilities.

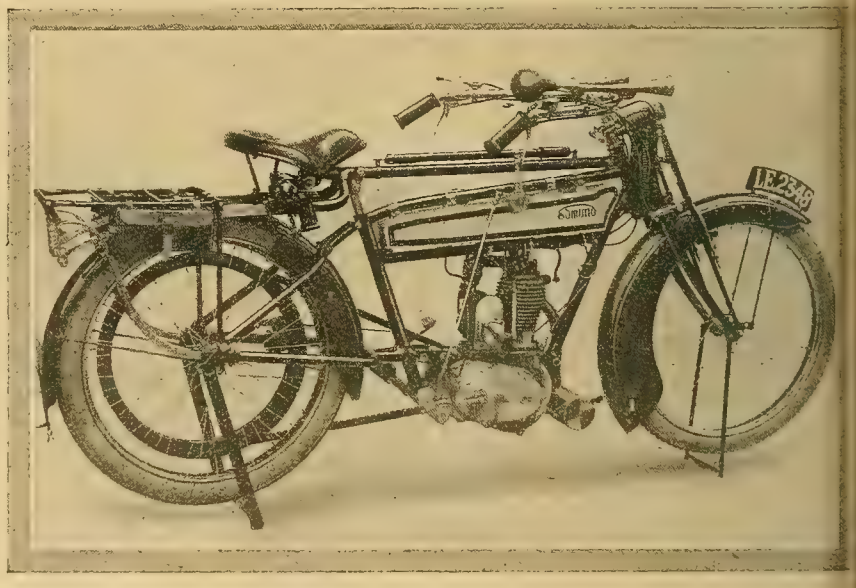
Before we started we were informed that the machine was geared low, as it had been used with a sidecar, and we expected something pretty good in the hill-climbing line. The machine was geared approximately at 5.8 and 10 to 1. Accordingly a search was made for hills, and we found we could climb all the main road hills in the immediate neighbourhood on top gear, and there are some good samples near Royston. The engine never knocked, but with the ignition slightly retarded kept plugging away without a falter.

The hill into Chishill was climbed on top gear, and hearing that there was a much steeper hill in the next village, Hayden Green, we made our way there. We found the hill, which was a rather long one with several bends, but of no great severity, and managed to climb it on top gear—an excellent demonstration of the power of the Villiers unit.

Hayden Green Ditch.

Looking round, however, we found a true hill that really required power. This hill possesses quite a useful gradient, several bad bends, and, though dry, a most appalling surface. We descended then and there for about a quarter of a mile, and then began our climb. The machine fairly jumped about all over the road, the spring frame doing excellent work. The surface was so bad that a very slow approach had to be made. Accordingly we engaged the low gear and made our ascent without having to touch the ground once with our feet, though at times the back wheel slipped on the loose surface. The hill is known as Hayden Green Ditch, and the Edmund made two clean ascents.

It was at 6.30 a.m. when we left Barley for London. The weather was very foggy and intensely cold, so that our "oilies" were soon quite wet. The return journey was quite uneventful, and the fog spoilt what would otherwise have been a very good average for a lightweight machine. We reached Piccadilly shortly before 8.45 a.m. Unfortunately, our hill-climbing efforts of the day before had resulted in the loss of

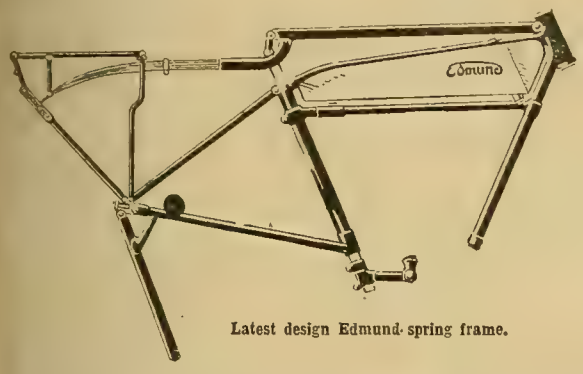


The latest pattern 2¾ h.p. two-speed Edmund-Villiers.

Trial of a Spring-frame Edmund-Villiers.—

two front mudguard bolts, a screw from the clutch control lever and one nut from the rear brake. We left Barley with about half a gallon of petrol in the tank, and there was a considerable amount remaining when we arrived in London, in spite of rather a free use of the low gear in the traffic on the Tottenham Road and in Bishopsgate. The engine never once throughout our run showed the slightest signs of overheating.

Though not fast as modern machines go, it was capable of keeping up a very good average. It was



Latest design Edmund spring frame.

excellent on hills. The engine is very free from vibration. The hand-controlled clutch is at once simple and sweet in action. The machine steers well, though, personally, we should prefer rather shorter handle-bars. Also, we should favour a different type of gear quadrant, as the gear lever is rather inclined to jump into the free engine position on bumpy roads. Again some device is needed to lessen the noise of the overhead inlet valve rocker, which spoils an otherwise quiet running engine. We would say a word for the extreme comfort of the Edmund spring frame and Brampton Biflex forks, and after riding a T.T. machine for a long period, to say the least of it, we found it very luxurious.

We are much indebted to Mr. Schuver, of 20, Clavering Avenue, Hammersmith, W., for his kindness in placing at our disposal one of the most pleasant medium weight machines it has fallen to the writer's lot to ride.

A Twin-cylinder Model.

Messrs. Chas. Edmund and Co. are also placing on the market a twin-cylinder model fitted with a M.A.G. engine of 3½ h.p., the cylinder dimensions of which are 64 mm. bore and 77 mm. stroke, giving a capacity of 496 c.c. This model is also fitted with the Brampton "Biflex" forks and an Enfield two-speed counter-shaft gear. The carburetter is an Amac and the magneto employed is a Bosch. Lubrication is effected by a Best and Lloyd semi-automatic drip-feed lubricator. In the construction of the spring frame special reinforced tubing has been introduced which combines lightness with great strength.

THE MOTOR CYCLE SHOW NUMBERS.

In connection with the OLYMPIA SHOW, three special issues of this journal will be published as follows:

Nov. 13th .. Passenger Machines of all Types.
" 20th .. Buyers' Guide of 1914 Models.
" 27th .. Complete Show Report.

An Experienced Lady Motor Cyclist.

MORE and more ladies are taking to the motor cycle both for pleasure and business purposes, but lady riders of long experience are not very numerous. Among them may be numbered Miss Mary Reid, of Fraserburgh, N.B., whose portrait with her lady's model three-speed 3½ h.p. Brough, we give. Miss Reid tells us that she first became interested in the motor cycle five years ago, and her first machine she describes as an "old warrior fitted with a 1½ h.p. motor with a high frame, but with no free engine, change speed gear, or spring forks." This machine, says Miss Reid, developed her faculties for doing her own repairs and keeping her machine in order.

After that she became, in turn, the owner of various machines ranging in power from 1½ h.p. to a 6 h.p. twin, but this year she decided to get a 3½ h.p. single-cylinder with a three-speed gear, and her choice fell on a Brough, with which she says she is thoroughly satisfied. It is built with open frame, and, indeed, Miss Reid is no advocate of ladies using a diamond frame motor cycle. In fact, she expresses surprise that so many ladies adopt this method of riding, which she considers ungraceful and likely to cause the uninitiated to rub their eyes, while, to further the cause of the motor cycle among ladies, she considers that one of the most important points is that the rider should look thoroughly graceful.

HUMBER SIDECAR MODELS.

A 4 h.p. Water-cooled Single-cylinder and a 6 h.p. Horizontal Twin.

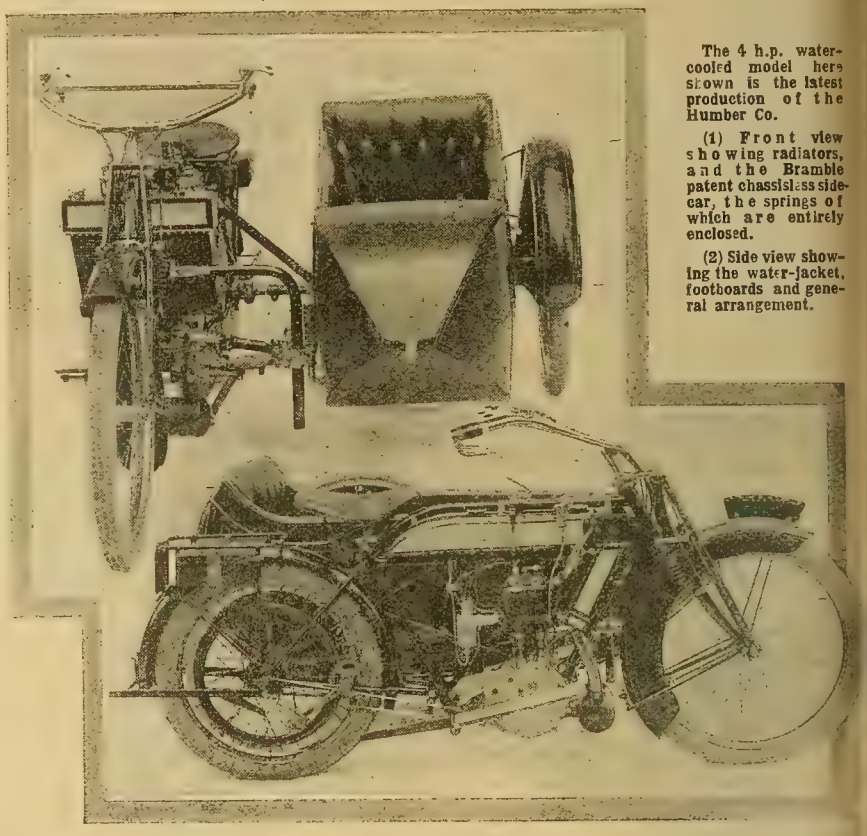
A NEW model water-cooled Humber has just made its appearance. It is one of the two machines which the company will market in 1914 especially for sidecar work. Though the frame and other details of the machine we are about to describe correspond with the 3½ h.p. air-cooled model, the engine being water-cooled, a much higher compression is possible without any ill-effect, though so far as extra power is concerned the alteration is most marked. The dimensions remain the same, viz., 84 × 90 mm., and the twin radiators, carried pannier fashion in the usual way, appear to be well proportioned, the capacity of the jacket, pipe, and radiator totalling three quarts. The cooling is by thermo-syphon system. The latest Humber motor cycles all have a larger petrol capacity, a good point which is sure to be appreciated by Colonial motor cyclists in particular. Even though the water-cooled engine has restricted the tank space in order to accommodate the water-cooling apparatus, the petrol tank has been widened, so that the capacity remains the same, viz., 1½ gallons. The standard back tyre is of 2½in. section to withstand the extra strain of the sidecar attachment.

On the Road.

We have been privileged a trial of the machine on the road, and noticed particularly the absence of fuss about the engine, which bowled along up hill and down dale at a steady 20 to 25 m.p.h. It is wonderfully controllable at low speeds, and above all it is silent, this remark applying to the valve gear also. Up Sunrising Hill after a non-stop run from Coventry is, we are assured, a comparatively easy test.

The second sidecar model which the Humber Co. will introduce we briefly announced last week. This machine will have a 6 h.p. twin-cylinder horizontal engine of novel design, and it is doubtful at present if it will be ready for the Show, though work is proceeding day and night on it. The gear box is of the three-speed sliding type, placed in the counter-shaft, and chain drive will be used throughout, combined with a slipping mechanism in the rear hub.

These two Humbers will be sold complete with sidecar attachments.

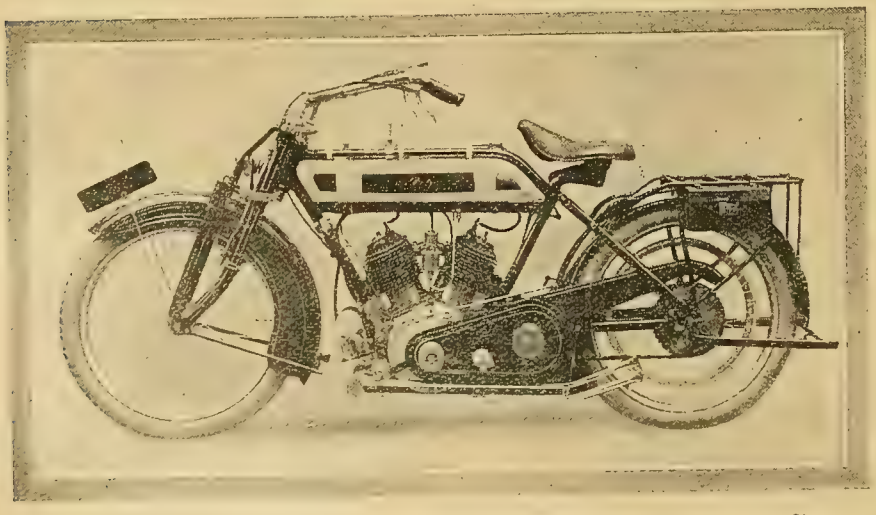


The 4 h.p. water-cooled model here shown is the latest production of the Humber Co.

(1) Front view showing radiators, and the Bramble patent chassisless sidecar, the springs of which are entirely enclosed.

(2) Side view showing the water-jacket, footboards and general arrangement.

Next Year's Twin Dot-Jap.

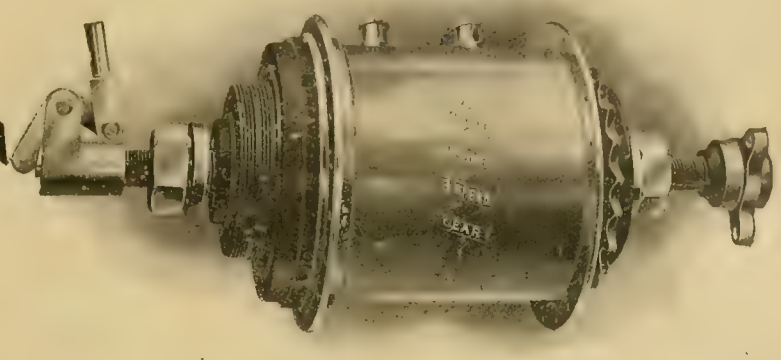


Side view of next year's 7 h.p. Dot with twin J.A.P. engine, countershaft gear, and chain drive. Observe the neat extension pipes from the expansion chamber to the rear.

The new Dot machines as may be imagined, with Mr. Harry Reed at the head of affairs, are ideally practical mounts, and undoubtedly the smartest and most substantial designs which have emerged from the Dot works. The specification is by no means an inflexible one, for Messrs. H. Reed and Co. offer clients the choice of a 6 or 8 h.p. engine, a gear box of the sliding dog clutch type, giving two, three, or even four speeds. A kick starter of neat design is attached to the end of the gear box on the right-hand side, the mechanism being completely enclosed in an aluminium case. The clutch, which has cork inserts, is said to be practically indestructible; a shock absorber is fitted on to the engine shaft.

The silencing arrangement is very praiseworthy. There is no cut-out, the gases first being trapped in an expansion chamber and then conveyed to the rear by a couple of pipes of smaller diameter. The petrol tank is of two gallons capacity, and three-inch tyres are fitted as standard.

The
Motor Cycle Gear for 1914
The Famous



STURMEY-ARCHER

3-Speed & Free Engine Gear

will be fitted by the following firms as a **standard specification** of their 1914 motor cycles—

TRIUMPH
HUMBER
BRADBURY
ROVER
ARIEL
SWIFT
EXCELSIOR
CALCOTT
CAMPION
HOBART BIRD
SUN
JAMES
L.M.C.
A.J.S.
IVY-PRECISION
ROYAL RUBY
VICTORIA

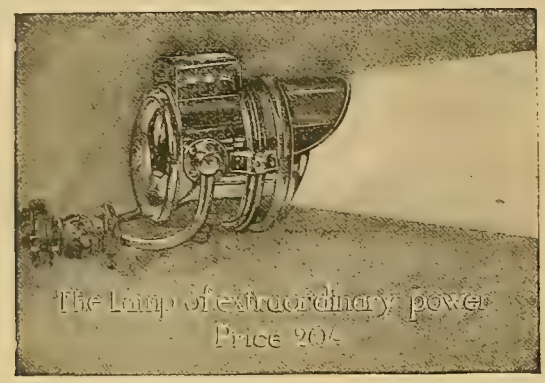
will be fitted by the following firms to their 1914 models, **to order**—

RUDGE-WHITWORTH
PREMIER
SINGER
ALLDAYS & ONIONS
HAZLEWOOD
BROWN
O.K.
RAGLAN
IXION
IMPERIAL
VELOCE
WULFRUNA
QUADRANT
MOTO-REVE

New booklet post free—

STURMEY-ARCHER GEARS, LTD., NOTTINGHAM.

OLYMPIA, STAND 159 (Gallery).



The 'Pharos' Headlight

The 'Pharos' motor cycle headlight is a lamp of exceptional power, and its unique method of construction places it at once in the forefront of anything yet manufactured. The lamp is made of stout gauge metal, heavily nickel-plated. Every joint and attachment is strongly riveted. The reflector is of the lens type and is reinforced by a strong lens which takes the place of the front glass, thus giving a long and powerful beam. The DUNHILL adjustable bracket enables the lamp to be always regulated to the point of maximum advantage.

Price - - - - - 20/-

DUNHILL'S NEW M.C. OILSKINS

Undoubtedly the smartest and most serviceable oilskins on the market are the new Dunhill pattern here illustrated. These oilskins, which consist of a comfortable full jacket and trouser overalls with seat, are made in a new material of dark green colour, and are beautifully soft, flexible, and light in weight. Motor cyclists will find the new oilskins a valuable part of their equipment.

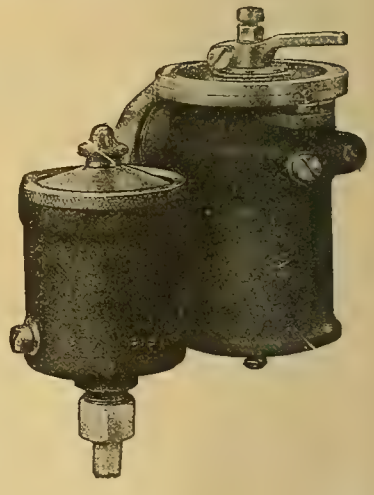
Price 33/6 complete

The 'Lukin' (Patent) Carburetter

(Dunhill's Sole Agents).

The 'LUKIN' has the throttle on the atmospheric side, and NOT on the engine side, thus ensuring a correct proportion of petrol and air before they are mixed. The vacuum in the mixing chamber increases as the throttle is closed, providing a medium for the instant volatilization of the petrol when it is most needed. The 'LUKIN' Carburetter has no tuned jets, but it is tuned for every speed by means of a shaped valve. There is but one moving part. Needles, dash pots, tuned springs, and other delicate mechanisms are entirely dispensed with. Suitable for every make of Motor Cycle. It is a petrol saver, of unique value, and will save its own price in a month. Write for particulars.

Price of Carburetter - - - 55/-



Dunhill's

359-361, EUSTON ROAD, LONDON, N.W.

City Branch: 42-43, Lombard Street, E.C.

MANCHESTER: 88, Cross Street. GLASGOW: 72, St. Vincent Street.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Petrol Consumption.

Sir,—With reference to the letter from Mr. P. W. Hill *re* petrol consumption, I am, as the owner of a 1913 A.C. Sociable, greatly interested to know what was the setting of the B. and B. adjustable jet, which I take it was used, as personally my petrol consumption averages 48 m.p.g.

C. S. SOMERS.

Camaraderie.

Sir,—I wish to mention an incident which occurred lately, and which you might insert in your paper, both as evidence of the courtesy of some of the motor cyclists, and also perhaps a testimony to the power of the Blackburne cycle.

A friend and I were stranded, some six miles outside of Wakefield, owing to sparking plug trouble with a 3½ h.p. cycle and sidecar. Mr. C. Q. Roberts, riding a 3½ h.p. Blackburne cycle and sidecar, very kindly came to our assistance, and being unable to repair the defect towed us, bag and baggage, right into Wakefield without any difficulty or stoppage whatever. The combined weight of my friend and myself is twenty-two stone.

H. OGILVIE.

The Modern Reliability Trial.

Sir,—Your leader on "The Modern Reliability Trial" is of considerable interest, but it does not, if you will pardon my saying so, go to the root of the matter.

A year or more ago, when courses were easier and gold medals cheaper, the opinion was freely expressed that reliability trials were too easy, that they provided no test for the competing machines, and that therefore they had better stop. This year, when courses are stiff and gold medals dear, we are told that the trials are not a good advertisement to the movement. Now what is the unfortunate club secretary to do? He is scored off either way.

Surely it is time to settle what a "reliability trial" really is. Either it is, as its name implies, a test, or it is simply a rather elaborate form of advertising. If the latter, then the sooner its name is changed to something more accurately descriptive the better. If the former, grumblers and strikers will perhaps make a note of the fact.

L. FRANCIS JONES.

[It should not be difficult to avoid going to either extreme. Take, for instance, the recent Midland trial of the Sutton Coldfield Club, which was severe but not freakish.—ED.]

Sir,—I have been very much interested in the articles and correspondence on the question of including or excluding freak hills in trials, and would suggest for the consideration of the A.C.U. that the question of fuel consumption be made to count in the results, and that freak hills be excluded or be optional, as the climbing of them is of no practical value to the ordinary motor cyclist.

We are all satisfied that there are machines on the market which will take one anywhere under certain conditions, but with the price of fuel on the increase it is time something was done to show that it is possible to average twenty miles an hour on give and take roads, including the stiffest climbs on the highways of Great Britain, with a low fuel consumption.

The inclusion of such a test would tend to more attention being given to carburation and the production of fuels other than petrol, both of which matters would be for the economical good of the motoring public.

My present fuel is half each benzole and No. 1 petrol with a two-lever carburetter used automatically, but I am on the look-out for an automatic carburetter which will give a good steady pull in traffic on top gear and tick over when the clutch is taken out.

My motoring experience covers ten years, and averages 7,000 miles a year, chiefly 6 h.p. sidecar, and I have never yet had to stop on a hill or discard a passenger. My roads included Lake District, Wales and Devon, Birdlip, Moretonhampstead, Two Bridges, etc. Self and passenger, 20 to 25 stones. My best averages were: 3½ h.p., with Millford standard sidecar, 85 to 92; 6 h.p., with Millford coach-built sidecar, 60 to 65; both in hilly country.

ECONOMIST.

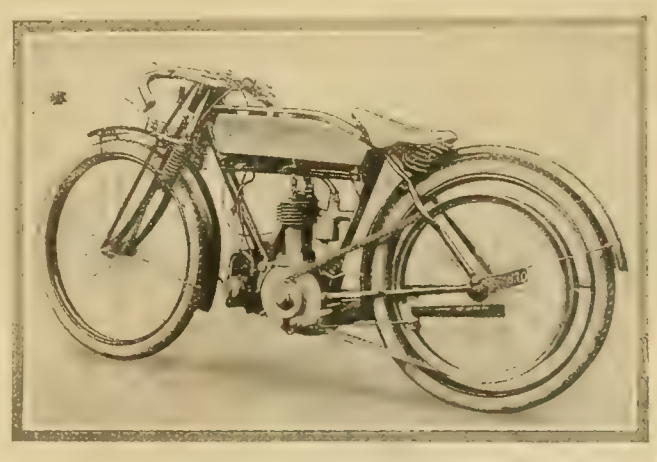
The Use of a By-pass.

Sir,—I notice in a recent issue that several competitors in the Birmingham trial were using the Badcock by-pass. This has prompted me to give my experience with this little device. At the outset let me say I have no interest or connection whatever with the firm, the following being solely for the benefit of your readers. For those who do not desire to go to the expense of one of the latest one-lever type, the by-pass is just the thing, converting, as it does, the two-lever into a purely automatic instrument.

I have found that starting is very easy indeed, consequent upon the very efficient mixture obtained. Once you have gained a proper regulation suitable to your engine a few steps alongside and you hear the gentle tick, tick, so delightful in slow running.

Together with the low cost it is the work of a few minutes to fit, and any of my motoring colleagues with the faintest idea of handling tools can make a job of it. No one will gainsay that the B. and B. carburetter is a really good one, but fitted with the Badcock by-pass it is simply excellent. By experiment you find the correct position for the air lever and it is left there permanently. I have also found a saving in fuel, the by-pass coming into action when the throttle is closed, the acceleration being good when again opened. This alone is a great point with many, but the delightful driving will appeal to all who desire to make a good carburetter into a very much better one.

J. T. DAVISON.



A MODERNISED LIGHTWEIGHT.

The improvements to the above machine which was originally a 1910 model 2½ h.p. A.J.S. were effected at home by the owner, Colin Shirlaw.

Leaking Water Jackets.

Sir,—With regard to "Roundlay's" complaint *re* the clogging up the gauzes on his Scott machine, my experience with benzole on a Scott has been entirely different, the gauzes keeping very much cleaner than when using petrol. I think "Roundlay" will find that the trouble is due to over-lubrication.

I may say I am troubled with a water leakage from the tops of the cylinders of my 1913 Scott. I wrote to the makers, and they recommended a preparation called "Waterite." I tried this, but the cylinder heads leak more than ever. I have also tried to stop the leaks with white lead and also shellac, but without success.

I shall be glad to hear from any of your readers, who have remedied the fault, how the leakage can be stopped.

TWO YEARS AHEAD.

A Strange Experience.

Sir,—I am very thankful for the article, "A Strange Experience," which you published in *The Motor Cycle* of September 18th.

I have a single-cylinder two-seated car which I have been driving for about two and a half years, the magneto of which runs at engine speed. It has always given trouble by knocking when accelerating and climbing, although at other times the engine runs almost as silently as a good four-cylinder engine.

At the beginning of this year I commenced using benzole instead of petrol, which entirely stopped the knocking. About four weeks ago the engine started making a peculiar bumping noise at times as if a nut or some obstacle was on top of the piston, which almost prevented the piston turning over the top centre. Everything which could be thought of was gone into and tried without any benefit. Seeing the article referred to in your paper I at once made a spark gap and fixed it, and the bumping was immediately cured. This appears to be a parallel case to that described in your article.

ROBT. E. SPROTT.

The Power of Sidecar Combinations.

Sir,—As a motor cyclist I need not say that I read practically every scrap of *The Motor Cycle* each week. I notice in the Oct. 9th issue an article on "The Power of Sidecar Combinations," and a very shrewd and well-written article it is. My only fault with it is that it may put off someone who would otherwise take up sidecaring with a 3½ h.p. and three-speed motor cycle, as such a lot of people are afraid of a 5 or 7 h.p. twin, both on account of expense of tyre upkeep and weight, etc. Your article says that for serious touring in the Lakes and Scotland a 6 to 8 h.p. twin is essential. I cannot speak of Scotland, as that is a treat in store, but my wife and I toured the Lakes this summer seriously, and had a glorious time, and, although we carried full luggage and lunch outfits and a rather big outfit of spares, she had not to get out of the sidecar once on account of roads or gradient. Our outfit was a 3½ h.p. Bradbury, Sturmey-Archer three-speed, Canoelet sidecar, 2½in. tyres, extra gallon of petrol, oil, etc., and, as I said before, a full and heavy outfit of spares and luggage.

We went from Southport over Shap, stayed the night at a lovely little place called Crosby Ravensworth, off the main road, and which is approached by a bad zigzag road with a severe gradient. This has, of course, to be climbed coming back. On the second day we did Hawes Water, Ullswater, over Kirkstone to Ambleside, and up past Thirlmere to Keswick, where we expected to stay the night. However, it was full of clerical gentlemen (we never saw so many in our lives before), and we went on to Derwentwater and found a delightful spot called Leathes Cottage, on the way down to the Bowder Stone.

On the third day we went round Bassenthwaite Lake, over Whinlatter Pass to Buttermere and Crummock Water, and had a look at the famous Honister Pass. Back again past Loweswater and to Ennerdale. We stayed the night at the Anglers' Inn, on the shores of Ennerdale Lake, a most charming place to stay at.

Fourth day, from Ennerdale to Seascale, through lovely Eskdale to the most glorious spot in all the Lakes—Wastwater. We got there early, so put up at the Wastwater Hotel, and climbed Great Gable by the Styhead Pass.

Fifth day, from Wastwater, over passes and mountains and by-roads galore to Cartmel Priory, a glorious spot not to be missed, and on to Grange, a rather disappointing place, where we stayed the night.

Sixth day, Grange to Kendal, and home to Southport (spirits at zero). The next week we went from Southport through Lancaster to Ingleton, Settle, Skipton, Grassington, Pateley Bridge (for Fountains Abbey), Ripon, Boroughbridge, to Harrogate. Nothing whatever was done to the machine except to put a little sperm oil into the three-speed gear hub each morning and mend one puncture. So, really, although with a twin perhaps more miles could have been done on top gear, I do not know that it would have been worth the added expense, as we got about quite as fast as we could want; in fact, one wants to stop really every few yards to look again at the ever-changing scenery; and a machine that would crawl without overheating on top gear at about five miles an hour would suit best. However, there it is: we did this holiday without shedding the passenger anywhere, and at such a cheap rate and so little trouble and worry that I, although a mere novice, would advise anyone not to despair of a good 3½ h.p., even with a coachbuilt sidecar. He can with the low gear climb any ordinary precipice in England, and, if not so fast, at any rate quite as safely and satisfactorily as a twin. Of course, I know the Bradbury is a good machine for this work, it has such a good slogging engine; and the steering—well, it is fine. The second gear at about 8 to 1 romps up most hills without any fuss and yet at a decent speed. F.Y.

[The Bradbury has a 554 c.c. engine and develops more than 3½ h.p.—ED.]

A Bull-pup Mechanic.

Sir,—The enclosed photograph shows "Jock" helping his master to clean a sparking plug. Whilst his brothers and sisters are busy chewing up old boots and worn-out covers, "Jock" sits patiently beside the machine, ready at all times to lend a helping hand (or rather mouth).

We all know how annoying it is to find the necessary spanner just out of reach, or on the other side of the machine, when most wanted. A word to the faithful pup, and off he trots to retrieve the necessary article. The only difficulty experienced is to keep him from swallowing it during transit!

A bull pup mechanic.

Occasionally one's pleasure is somewhat marred by opening "Jock's" mouth only to find that the cherished washer has disappeared into some remote portion of his interior. His partiality for the covering of the high-tension wire is also rather a bad fault, and has led to him receiving a mild corrective spanking at times. But, on the whole, he makes splendid company when tuning-up is necessary, and his presence has naturally the effect of modifying one's language after an unsuccessful attempt at grafting skin on to a projecting nut.

GERALD J. EASTBURN.

Leipzig, Germany.

THE BOOK OF THE MOTOR CAR

An indispensable work for every motor cyclist. First payment, 1/6 only.

The Book of the Motor Car is the first really comprehensive work on motor cars, motor cycles, and cycle cars, ever published. By the careful study of its chapters the rawest amateur can learn the principles upon which his car works, but at the same time it is so comprehensive and so striking in its detail that even the skilled expert will find it a book of enthralling interest and extreme utility, while the practical motorist will find it quite indispensable. It should be as much a part of the equipment of a garage as an oil-can or a lifting-jack. Reading its chapters even the most expert driver will find himself gaining a fuller understanding of points that he thought he understood already, and learning hints that will enable him to increase the efficiency of his mount in a surprising manner.

Driving and Repairs.

The Book of the Motor Car is full of invaluable information on all problems of driving and repairing a car, instructions being given for all possible difficulties in language that can be understood, even by the most unmechanical mind. The following are a few of the subjects dealt with :—

Cylinders, valves of all kinds, different types of engines, carburetters, ignition, silencers, gears and clutches, radiators, cooling systems, brakes, lubrication, lighting systems, wheels, tyres, fuels and how to use them (including all the new petrol substitutes), tools, and repair appliances, etc., etc.

Cycle Cars and Motor Cycles.

The work pays full attention to motor cycles and cycle cars, full details and instruction being given for all those points wherein they must be treated differently from the more powerful motor car. In these and all other respects the Book of the Motor Car is absolutely up to date, and in line with the very latest discoveries in motor engineering. It is profusely illustrated with full-page plates, drawings in plan section and elevation, diagrams, and photographs, as well as a series of sectional movable models in colour showing in detail the actual working parts of a car.

Mr. Charles Jarrott writes :

"I think the Book of the Motor Car invaluable. As a book of reference it will be of great value to me, and everyone who is keenly interested in their car should have a copy."

A FREE BOOKLET.

The publishers are willing to send an interesting illustrated booklet describing the work to all sending this form or a postcard.

To the Caxton Publishing Co., Ltd.,
281, Surrey Street, London, W.C.

Please send me, free of charge and without any obligation on my part, your illustrated booklet giving full particulars of the Book of the Motor Car and your offer to deliver the complete work for a first payment of 1/6 only.

Name.....

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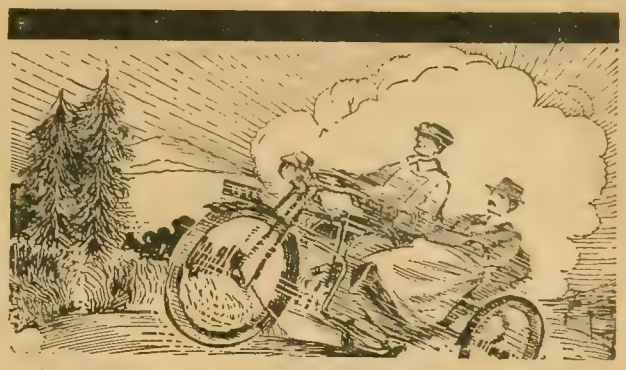


THE STRENGTH OF THE L.M.C. for Sidecar work.

The following is a continuation of the series of appreciations which appeared in our last announcement (October 9th, 1913).

"My machine has never needed a tool used on it, and has never caused me a moment's delay, though it is pulling a ten stone passenger and extra heavy luggage."

"I have previously had two machines of good make, and could not manage them to my satisfaction, but the L.M.C. gives me no trouble, and I find a pleasure in motor cycling that I have not previously experienced."
E. E., Hants.

"The machine is still taking the sidecar as well as ever, and is wearing very well. In fact, there is as yet no noticeable wear on the main bearings."
W. D. N., Kirkcaldy.

4 h.p. L.M.C. Countershaft Gear.

"I have now been 1,500 miles and think I know what it is, does, and will do. In the first place it has given no trouble. I think I can sum up its good points as a sidecar machine. (1) It is very comfortable. (2) Quite fast enough. (3) Very sure on hills. (4) There is not the painful crawl with a roaring engine on the low gear on hills as with a less powerful or lower geared engine. (5) The gears are extremely nimble. (6) Many have commented on its silence. (7) Easy starting. I never use the kick-starter, as it starts so easily on low. (8) The decompressor is great."

LATEST SUCCESSES.

Midland Reliability Trial—October 4th.
4 h.p. L.M.C. (L. A. Bees) .. GOLD MEDAL.

Liverpool A.C.C. Trial—September 27th.
4 h.p. L.M.C. (L. A. Bees) .. SILVER MEDAL.

Mr. Bees just missed winning Gold Medal owing to the back wheel slipping on the greasy freak hill. In fact, only two lightweight machines successfully negotiated this climb.

LMC
The Motor Cycle of *PROVED* Greatest Reliability

Need we say more concerning the reliability and efficiency of the L.M.C. except to request you to write for our liberal terms.

THE LLOYD MOTOR ENGINEERING CO., LTD.,
:: 132, MONUMENT ROAD, BIRMINGHAM. ::

Agence pour la France—PARRY & CO., 28, Rue Sedoune, Paris.

Petrol Consumption Tests.

Sir,—As Messrs. P. W. Hill and Howard Smith have offered to repeat their performances it seems curious that the James riders (Messrs. Pollock and Dixon) have not followed suit. I do not doubt their *bona fides*, but I understand that they used different makes of carburetters, and that the filler caps were not sealed. In face of this, and the fact that twins are less economical than singles, does it not strike all as mysterious?

By the way, is it usual to class sidecars and tricars with a Singer car of twice their weight, viz., 15¾ cwts. (weight being a big factor in the formula for merit), as appears to have been done in this trial?

It is with regret I read that such a sportsman as Howard Smith does not agree to using a separate tank, which, I think, is quite fair.

You do not say whether you have asked P. W. Hill, and if he has agreed or otherwise. ALFRED B. COOK.

[We have not specially invited Mr. Hill to agree to our conditions.—ED.]

Benzole.

Sir,—Having read with much interest a letter signed "Petrol," I desire, with your kind permission, to place on record my own experience with the same make of machine.

It was while using my third gallon of benzole that, ascending a hill, my engine suddenly gave out, with a pleasant "rasp."

Expecting to find a broken ring or valve (have not had either previously) I removed the cylinder. Judge of my delight when I found the flywheels revolving independently, connecting rod loose, etc., the result of a broken connecting pin. I am of the opinion that the blame is on the fuel, and not the engine, and my reason for so thinking is that although apparently benzole does not knock as does petrol, the causes of the knocking are there, causing exceptional strains.

In the meantime benzole is "off" for. A.F.W.

[We can only say that we have used dozens of gallons of benzole in the same engine with no noticeable ill effects.—ED.]

An Undesirable Practice.

Sir,—Having seen three young women lying on the roadside insensible and badly injured this season, and the inquest on another from pillion riding, allow me to add a protest on behalf of the ignorant. G. T. LANGRIDGE.

Sir,—I have been much interested in the recent correspondence in your columns with regard to the dangers of carrier riding. It seems to me, however, to be purely a matter of conditions. If the machine is one of the ultra-modern type, with steel tube carrier, free engine, and change speed gear, and is carefully driven by one who is thoroughly accustomed to all the controls and fully understands his machine, I can see little or no danger, always supposing that there is no chance of side-slip through wet weather.

The fact that some of the chief insurance companies allow carrier riding without extra charge rather points to my contention.

It is when one sees a hopeless novice or tyro (usually of the type that turns his cap round the wrong way) careering along the road on a single-geared crock in the last stages of dissolution that one may expect accidents such as your correspondent "Maxime" describes.

I have done a good deal of carrier riding on my 2½ h.p. chain drive A.J.S., and the fact that I have never had a single road stop of any description bar four punctures in 5,000 miles seems to show that even well-built lightweights are not unsuitable for occasional jaunts if used with care.

With reference to "Ixion's" search for an ideal enclosed speedometer drive, might it not be a further point in favour of counter-shaft gears if it were possible to attach the drive to some portion of the gear box mechanism. B L 2318.

Hub and Counter-shaft Gears.

Sir,—In reference to the letter from "U 6652," I have had a Triumph and Sturmey-Archer gear for some months, and must confess to some trouble with clutch-slip, but this was due to unsuitable oil, and to my novitiate at the sport. I have now had six pairs of new plates mounted, and further, the Triumph people very kindly sent me a new clutch pedal, which causes the triangular cap on the back wheel spindle to move over a larger arc. I take it that the experience of one who has had trouble is of greater service than that of one who has not. The following tips are vital to efficiency:

(a) Use only sperm oil, injecting liberally with engine running, low gear, and clutch out.

(b) After long dirty ride, flush with paraffin and re-lubricate.

(c) Keep clutch engaged when machine is put to bed.

Neglect of *a* and *b* means scoring the plates, while neglect of *c* inevitably weakens the body springs. Now that I rigidly adhere to these matters I have no vestige of slip. My old plates were very badly scored, and my clutch probably slowly slipped at the smallest provocation. The use of thick oil is fatal, as then any chance grit refuses to emerge, even with drastic paraffin treatment.

I admit the running mount with sidecar whenever possible, and this will certainly retard depreciation, but, like "U 6652," I think the advice to use the clutch as little as possible is absurd; yet I am sure the dodge of purposely slipping the clutch to hold on to high gear under stress of gradient is asking for eventual trouble.

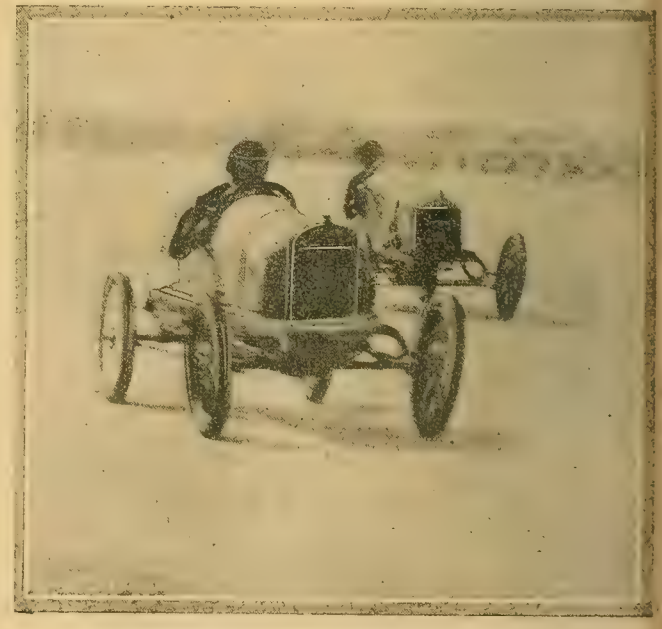
PHILIP H. WILLIAMS, F.C.A.

The Price of Motor Cycles

Sir,—Your correspondent, "Utilitas," does not, I think, fully apreciate my previous letter to you. He rather wanders from the point in suggesting that it follows that, with reduction of prices, quality must depreciate as well. This must not be taken for granted, and Messrs. Humber, Ltd., or, as far as that goes, any good firm, who are enterprising enough to lower their prices, can, I am certain, be trusted not to lower their reputation by filling the market with "trash." They are not likely to fall behind in the matter of improvements, even in the event of a reduction in prices.

Another point is that I am not one of the "old expert riders" or "racing men," but hoping shortly to be merely an amateur motor cyclist, and not having any money to throw away where it can be saved, I do greatly appreciate Messrs. Humber's action.

In conclusion, and replying to "Utilitas's" last paragraph, I feel perfectly confident that all manufacturing firms can look after themselves in the way of profits and also in the way of reputation. The suggestion of "reducing prices by a few pounds," which "Utilitas" treats with such scorn and contempt, is one which, I feel sure, will be universally appreciated by all intending motor cyclists and certainly by myself. G. GORDON G. FRANCIS.



SATURDAY'S B.M.C.R.C. BROOKLANDS MEETING.

G. W. Hands (10 h.p. Calthorpe) and B. Haywood (10 h.p. Singer) who had a long tussle in the hour race; the Singer proving victorious.

Half-day Trial of the Single Gear Club.

The Shortcomings of Single Gears demonstrated as well as their Efficiency.

THE first trial promoted by this club was held last Saturday over a very sporting course in Kent. The start took place at 2 p.m. and attracted forty-two entries. The rules of this club state that a single gear only will be allowed, but this does not bar machines fitted with speed gears, as it will be permissible to fix the gear and seal the operating lever so that it cannot be used. Leaving Leaves Green, the first hill, and probably the worst in the whole trial, proved to be Cudham Church with its right-hand bend. Here Greene-Nolan (Triumph), Lloyd (Rudge), Chapman (Rover), Bedford (Bat), and Dussuck (Triumph) all failed, while Pinfold (Bradbury) reached the top by foot-slogging, and Brown (Crouch-Jap) charged the bank and came to a standstill. A country lane now brought us to Titsey Hill, but instead of getting a fair run at it the competitors arrived on the stiffest part from a by-lane. Here many came to grief, including Brittain (Triumph), Greene-Nolan (Triumph), Breese (B.S.A.), Brown (Crouch-Jap), Penfold (Bradbury), Graham Price (P.V.-Jap), Bedford (Bat), Kerr (N.S.U.), while Abbott (Bradbury) ran, and Dussuck (Triumph) foot-slogged. A moderately good road led to Polsteeple, and the performances were as follows: Low (Matchless sc.) stopped near top, Greene-Nolan (Triumph) failed, A. G. Roberts (Blacburne), Veacock (Premier), Chapman (Rover), Graham Price (P.V.-Jap) only just reached the summit, but Stocker (Rudge), Eley (Bradbury), Selby (Motosacoche), Gibson (Enfield), Wood (Enfield), Brown (Triumph), Hood-Barrs (Triumph), Brough (6 Brough), and Rex Mundy (Triumph) all made splendid ascents.

L. V. Veacock (3½ h.p. Premier) starting in the trial for single geared machines. Harold Karslake is seen on the right with the watch.

Timed Ascent of Brasted.

The next hill, Brasted, was a timed climb to decide the winner of the cup. A lane brought us suddenly on to the hill where the timekeeper was standing. Many of the men did not understand that the timing would commence here, so, of course, lost much valuable time before getting up speed. In addition to this the hill was crowded with spectators, both mounted and unmounted, who baulked the riders and would not listen to the marshals. This state of things naturally caused a lot of trouble after the trial.

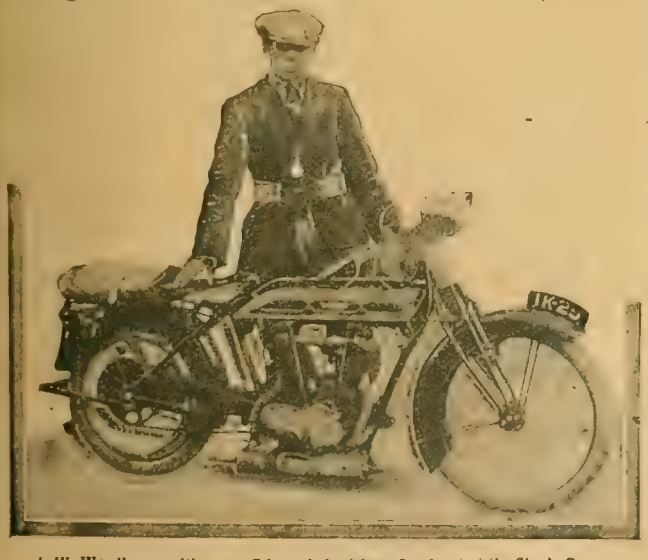
Toys Hill proved easy work for nearly all the competitors, and Titsey, which again had to be climbed, was approached from the foot, where a good start could be obtained. Here, however, a constable stopped two men for riding to the common danger. Polsteeple was again climbed, but nearly everyone knew it this time and made clean ascents.

All was now plain sailing to the finish, Leaves Green, where Harold Karslake timed the men in. A committee meeting was held after the trial to decide the winners, and a protest was handed in with reference to Brasted Hill. After much discussion it was decided that, owing to unforeseen difficulties and baulking by unsportsmanlike spectators in the timed hill-climb, the cup, also gold and silver medals, be not awarded, but kept for a future occasion, and that the only award be a bronze medal to all those qualifying for one on hills, non-stop sections, and times of finishing. This appeared to be the only satisfactory way of dealing with the matter, though the resolution was arrived at after having worked out the results.

The following qualify for bronze medals, having made non-stop runs over all non-stop sections and finished within five minutes either side of schedule time: F. L. Bassett (3½ Triumph), R. Croucher (3½ Kerry-Abingdon), C. W. Meredith (3½ Bradbury), F. G. Kennard (5-6 Matchless), T. Silver (3½ Quadrant), G. S. Davison (3½ Rudge), F. G. Stocker (3½ Rudge), R. E. Eley (3½ Bradbury), B. F. A. Fowke (3½ Blackburne), A. F. Selby (3½ Motosacoche), S. W. Gibson (8 Enfield), J. W. Wood (8 Enfield), T. A. S. Brown (3½ Triumph), L. V. Veacock (3½ Premier), H. R. Hood-Barrs (3½ Triumph), G. Brough (6 Brough), Rex G. Mundy (T.T. Triumph), H. Crouch (8 Horley), and G. Crouch (5 Horley).

J. Woodhouse was disqualified for leaving the route and F. W. Applebee owing to clutch slipping.

It is unfortunate that the first trial promoted by this club should have such dire results.



J. W. Woodhouse with a new 7 h.p. chain-driven Quadrant at the Single Gear Club's trial on Saturday.

NORTON IMPROVEMENTS.

The principal alterations to Norton machines for 1914 are in connection with the engine design and the further development of a passenger model. A special Brooklands pattern at £60, stripped for racing, will be marketed, and accompanying each of these selected machines will be a B.M.C.R.C. certificate showing that the machine has lapped at Brooklands at a speed in excess of 65 m.p.h. The 4 h.p. standard solo mount will be sold with three-speed S.A. hub gear, and the passenger model with three-speed counter-shaft gear. The engine improvements consist of a cleaner crank case casting with the timing gear bushes and tappet guides inside instead of outside, thus leaving a flush side and top to the timing case. The cylinders have been redesigned so that the cooling should be uniform throughout.

Ben Lomond climbed by Motor Cycle.

A Task which occupied Three Days.

AFTER the ascent of Ben Nevis by motor cycle and sidecar, it was only natural to expect that Ben Lomond would fall to the scalp-hunting propensities of the motor cyclist. It is rather curious that riders are willing to knock their machines about to such an extent in climbing over boulder-strewn tracks, for motor cycles were never intended as mountain-climbers.

Early last week a small party of enthusiasts left the outskirts of Glasgow, and, after an uneventful journey, were soon at the Rowardennan Hotel, the centre of operations. Two of the members, W. B. Cramb and T. Walkinshaw, the former riding a 3½ h.p. Elswick and the latter a 3 h.p. twin N.S.U., were bent on the conquering of Ben Lomond, and after some minor adjustments were soon tackling the grassy slopes of the base.

The track leading to the top of the mountain was, at the start, of fairly respectable surface, but afterwards developed into the dry rock strewn bed of one of the many torrents which leap down the mountain side in the rainy season. Progress was naturally slow, and falls fairly frequent. Cramb was particularly unfortunate in this respect, for he and his machine turned a complete somersault into the bracken at the side of the track. The toss was due to a very severe back wheel skid, which swung the rider right off the track. The accident was not without its humorous side, however, as all that could be seen of rider and machine were two feet projecting above the bracken.

The N.S.U. rider had also not far to seek for his troubles, and had several narrow escapes of coming to grief. Slowly but surely the two climbers ascended nearer their goal, but, after having covered about a mile, darkness compelled a halt until the morrow.

One Rider Disabled.

The Elswick and its rider had not been long at work on the following morning before another awkward toss disabled the latter, his shoulder coming into violent contact with the ground, and he wisely desisted from his attempt.

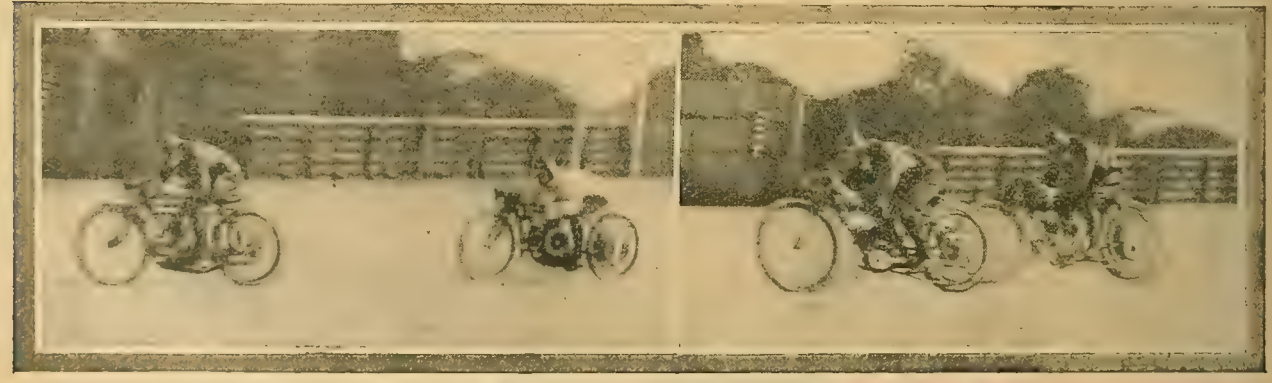
MORE FREAK HILL CLIMBING.

Nearly half way up Ben Lomond, an ascent of which was made by J. Walkinshaw on a 3 h.p. N.S.U. Loch Lomond is seen in the background.

Up to this point the machine gave no trouble, and the steepest of the gradient was easily surmounted on the low gear.

Walkinshaw and his N.S.U. were now left alone to battle with the ascent, and, despite numerous difficulties, fairly rapid progress was made to the summit. Up to the first of the cairns, which is about the half-way point, the climb stiffened perceptibly, and the rider took to the grassy slopes of the mountain in preference to continuing over the boulder strewn path. Shortly after the cairn had been passed, it was decided to rest again for the night.

The next morning the ascent was made on foot, and it was about 10 o'clock when the point where the N.S.U. had been left the previous night was reached. The rider's task was, however, now within measurable distance of completion. About a mile away could be seen the last rise of the mountain, but before this was reached, the intervening ridge had to be conquered. This, however, was not as severe as it appeared, and was quickly covered, despite many hair-raising swerves. Good progress was made to the well, about a quarter of a mile from the summit, but this last bit was the most severe of the whole climb. In addition to fearful surface there was the ever present danger of a fall down the mountain side, and at one place the path is in near proximity to a precipice which falls practically sheer to the valley beneath. The gradient was approximately 1 in 3, and hairpin bends were fairly frequent. Up this rather terrifying portion, the rider made good progress, and in the early afternoon succeeded in reaching the summit. The mist, which had held off during the major portion of the climb, now descended, completely blocking out the surrounding view. The descent was commenced immediately and occupied about 2½ hours, the bottom being reached without mishap. The machine which Mr. Walkinshaw used was a 3 h.p. twin N.S.U. of last year's make, fitted with the makers' two-speed gear. During the whole of the trying ordeal no trouble was experienced, the engine in particular being in excellent fettle, and on the journey home to Glasgow the machine led the way in fine style.



Spectators at Brooklands on Saturday were treated to a number of exciting duels such as the above photographs show. LEFT: C. Williams (A.J.S.) and A. H. Alexander (2¾ Douglas). RIGHT: F. G. Edmond (Humber) and Hugh Mason (N.U.T.)

Club News

Cape Peninsula M.C.C.

A fault-finding competition took place last month. The winner found the fault in his machine, and rode 200 yards in one and a half minutes. Results: 1, J. Ockleford (Rudge); 2, D. Lynch (Humber); 3, A. Furness (Humber); 4, H. Becker (Triumph).

Middlesex M.C.C.

A one day reliability trial was held last week for the Mills Cup over a fairly stiff course. The cup and medal winners were as follows: Mills Cup, D. H. Noble (Rover); silver medals, E. A. Colliver (Indian), J. A. Hilger (Douglas), V. Garland (Chater-Lea sc.), G. Nott (Clyno sc.), and P. Dangerfield (Douglas), *hors concours*.

South Birmingham M.C.C.

The result of the novices' trial, held recently, is as follows: 1, T. Stevens (3½ James sc.); 2, F. W. Merrick (6 Enfield sc.); 3, T. Cooper (6 Enfield sc.); special non-stop medal, H. Warden (4 L.M.C.). Splendid weather prevailed throughout the trial, which included such famous hills as Sunrising, Edge, and Warmington.

Single Gear M.C.

The club is being formed with the idea of catering for that class of rider who does not favour speed gears, and to whom the present day trials with their freak hills and split second timing do not appeal.

Reliability trials, hill-climbs, etc., will be run on somewhat similar lines to the old sporting events, which were so popular before the advent of speed gears necessitated the inclusion of freak hills and badly surfaced roads. Hon. sec., Mr. H. A. Cooper, 206, Algernon Road, Lewisham, S.E

Lincolnshire A.C. (Motor Cycle Section).

A reliability trial took place on the 11th inst., over a very difficult course. Each competitor was allotted 100 points at the start. The results are as follows:

Solo machines.—1, W. Copley (6 Rex), 88; 2, J. E. Harston (6 Campion), 78; 3, A. O. J. Readhead (3½ Rudge), 70.

Sidecar machines.—1, Dr. H. J. Smith (3½ Rover sc.), 69; 2, J. Parr (3½ B.S.A. sc).

Herts A. and Ae. C.

A members' half-day reliability trial for the New Hudson Cup will take place on November 8th over a stiff course containing several good hills.

Merthyr M.C.

The result of the recent reliability trial was as follows: Gold medal, Cled Lewis (6 Zenith); silver medal, L. Pearson (3½ Excelsior); bronze medal, Cromwell Lewis (10-12 Swift).

Bristol M.C.C.

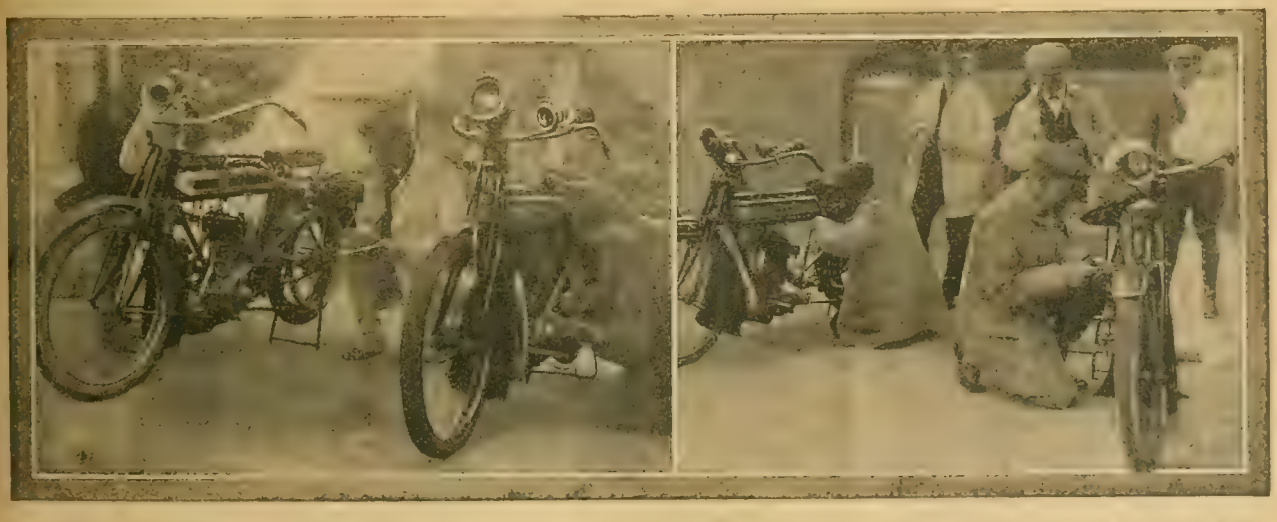
An open twenty-four-hour trial is being organised for the Christmas holidays to Land's End and back on somewhat novel lines. Twenty-three club members have already sent in their names as entrants. For all information, apply to Mr. P. Grout, Warmley, near Bristol.

Leeds M.C.C.s (combined).

On Saturday last the whole of the Leeds motor cycle clubs combined to enjoy a final gathering for the year. Invitations were sent out to adjoining clubs, and eventually over seventy vehicles made the journey to a little village called Monk Fryston, where members of the joint clubs and their friends were permitted by the Rev. B. Hemsworth to wander in the grand park and grounds of Monk Fryston Hall, and also to view the splendid collection of animals and birds located in over one hundred cages close by the Hall. Mr. Harry Moore, a member of the Leeds and Doncaster Clubs, won the prize for the smartest turnout—a 3½ P. and M. and sidecar enamelled light blue grey. The Harrogate Club won the prize for the biggest mileage. Mr. Stuart White was hon. sec. for the event.

"THE MOTOR CYCLE" DIARY.

Oct. 25th.—Finsbury Park C.C. (Motor Cycle Section). Closing run to Radlett.
,, Coventry and Warwickshire M.C. Closing run.
,, Birmingham M.C.C. Closing run.
,, Middlesex M.C.C. Closing run.
,, Streatham and District M.C.C. Closing run to Godstone and club supper.
,, Walthamstow M.C. Competition.



TRACING TROUBLES. A competition which is quite good sport in the winter months, and which we recommend to motor cycle clubs, is one for fault finding. The above photographs, which were taken during a competition held recently by the Cape Peninsula M.C.C., show (1) Behind the scenes, "doctoring" the machines before the start. (2) J. Ockleford (3½ h.p. Rudge) and E. Campion (3½ h.p. Triumph) at work on their machines under the eyes of the timekeeper.

French Motor Cycles and Cycle Cars.

Position of the Industry in France as evidenced by the Paris Salon.

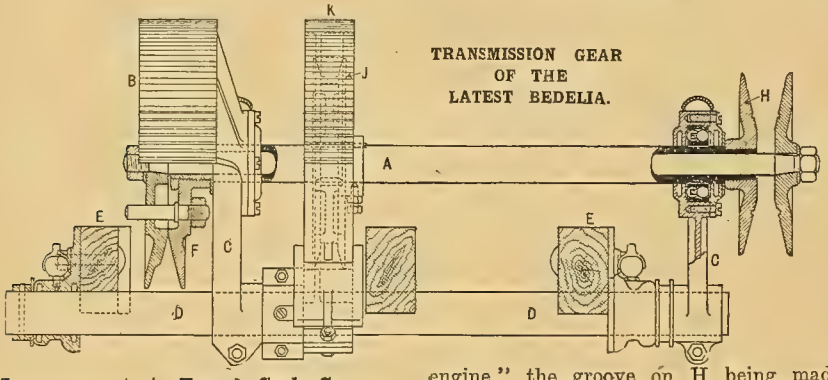
THE cycle car manufacturers in Paris and neighbourhood are making very few alterations to their 1913 models, and, from what we have gleaned from an inspection of the exhibits at the Paris Salon, which opened on the 17th inst., and a visit to the different motor cycle and cycle car factories in the neighbourhood of the Seine, there is very little with which our readers are not already fully acquainted. The position so far as cycle cars are concerned is very much the same in Paris as at home. The French manufacturer, speaking generally, considers the true cycle car is a tandem-seated vehicle like the Bedelia and Automobilette, and the moment side by side seats are employed it becomes a voiturette, and is usually over the chassis weight of 6 cwts, even if the engine comes within the 1,100 c.c. definition. No large manufacturer in France has tackled the cycle car question seriously. We refer to firms like Clément-Bayard and Peugeot. The latter firm introduced the Baby Peugeot this time last year, but it is not regarded in France as a cycle car, although the English definition would admit it. Those French makers who interest themselves in a four-wheeler on motor cycle lines are mostly small firms who have not the inclination or facilities to make the whole of the chassis and engine themselves, but have a fairly good range of tools for assembling purposes, and buy many of the component parts.

The tendency for 1914 among the makers of tandem cycle cars like the Bedelia and Super, both of which are sold in England, is to simplify the construction and adhere to all belt, chain and belt, or cardan and belt transmission. The friction drive is popular for small two-seated side by side machines, and with this type there is a tendency to increase the number of cylinders to four. In England we are accustomed to see all new models at Olympia. In Paris in many cases we were informed that the newest models would not be on the market until January.

As regards motor cycles, the French have still a lot to learn in the manufacture of a really practical machine, though the engines are often very taking examples. English ideas in the matter of fittings are more than ever adopted on the latest French designs.

Many British-made motor cycles are staged (including one or two new models), the home-produced motor cycle now having a big hold in France. Belgian, Swiss, Italian, and Dutch machines are also among the exhibits.

A DESCRIPTION OF THE MORE INTERESTING EXHIBITS.



TRANSMISSION GEAR OF THE LATEST BEDELIA.

Improvements to French Cycle Cars.

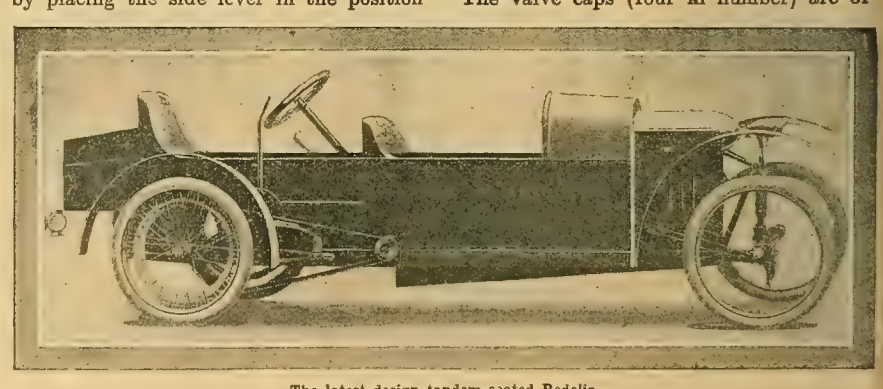
Taking the Bedelia first, as it was the earliest machine of its type, M. Bourbeau pointed out to us his 4 h.p. model for the British motor cyclist who does not care for a sidecar and wants better protection for the driver than is provided by a motor bicycle. It has been designed to suit a low-powered engine, where pure speed is not the desideratum. The principal alteration lies in the control and transmission. On this model the whole of the transmission is by belts, the first drive being by a Whittle leather belt from a fixed pulley on the engine-shaft to an expanding pulley on a rocking counter-shaft A carried on brackets C provided with ball bearings, and pivoted to a cross tube D bolted to the wood chassis members. The rocking shaft E carries two expanding pulleys, one, F, taking the drive from the engine, and the other, H, transmitting it to the rear wheel. These open and close automatically with the pull of the engine, but there is a pedal control of the rocking shaft, which enables the gear ratio to be instantly lowered to zero and again brought back to the original gear. The drawing shows how the fixed flanges of pulleys F and H are attached to the hollow part of the rocking shaft, and the movable flanges to a solid shaft sliding inside the hollow one. Our illustration of the rocking shaft shows the pulleys in the position of "free engine," the groove on H being made to allow the Whittle belt to slip. The gear is lowered by pressing down the pedal B, which is directly attached to the shaft, and in traffic the foot is kept on B ready to bring the free engine into play. Letting up the pedal B gradually against the pull of a spring causes F to expand, and the drive is taken up gradually. When on the open road the pedal B can be left alone, and the usual Bedelia side lever holds the rear axle in the desired position to obtain any one of four or five ratios which are marked on a quadrant against which the lever works.

To start, the free engine is obtained by placing the side lever in the position which is equivalent to holding down the pedal B to its fullest extent. The engine can then be started by a device which consists of a steel cable wound round a big diameter drum permanently fixed on the engine-shaft, and provided with a clutch which throws it out of gear and a spring which rewinds the cable the moment the engine starts running. The handle by which the cable is pulled out is situate at the front of the vehicle, and is in permanent attachment, always ready for use. It does not have to be carried loose, like the top-spinning affair used on the other Bedelia models.

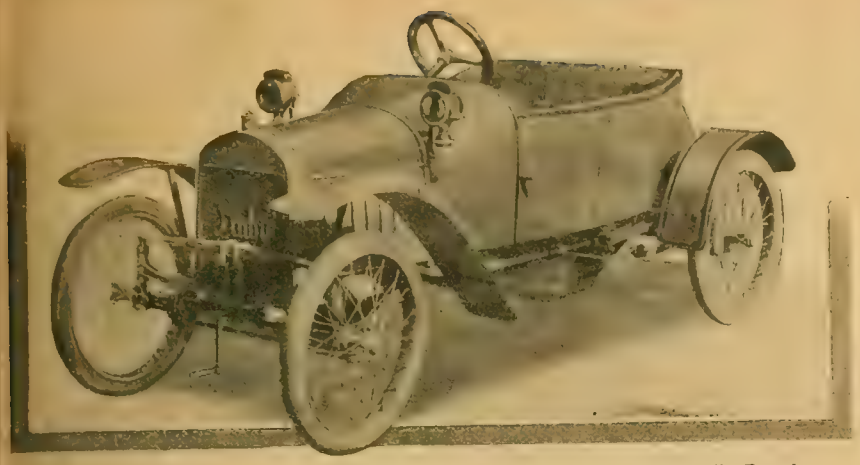
A simple form of counter-shaft brake is fitted on the rocking shaft, consisting of a V pulley J (shown dotted) and a pedal K pivoted on shaft D, and provided with a V band which engages with the groove.

The Tweenie Car.

The same firm who make the Super also make the Tweenie car sold by Jozot and Co., 59-61, New Oxford St., W. Next year this will be fitted with a little four-cylinder engine of 55 × 95 mm., 904 c.c. We saw the designs for this, and, when completed, it will be one of the smallest four-cylinder engines on the market. All the valves are operated by a single camshaft which is gear-driven. The two-bearing crankshaft runs in double ball bearings of large diameter. The valve caps (four in number) are of



The latest design tandem-seated Bedelia.



The 8 h.p. water-cooled Ruby—a French built machine—which is sold in England as the Tweenie.

large diameter, and each cap covers a pair of valves; by this arrangement the cylinders are very close together—in fact, the walls touch each other. This little engine is designed to give 10 h.p. at 2,500 to 3,000 revs. per minute.

The Super Tandem.

The Super tandem (sold in this country by Jozot, Ltd.) now has a cardan-shaft drive to the cross-shaft instead of a chain. This consists of a steel propeller-shaft running inside a tube, and connected to the engine by a universal joint at the one end and to the cross-shaft at the other extremity by a bevel gear which drives the cross-shaft on which is the variable pulley. The gear is covered by a neat aluminium case, and the shaft runs in ball bearings; there is also a thrust ball bearing behind the bevel pinion. Handle starting is fitted to the front of the engine. The weight of this vehicle with two seats does not exceed 4½ cwts.

Impressions of French Motor Cycles.

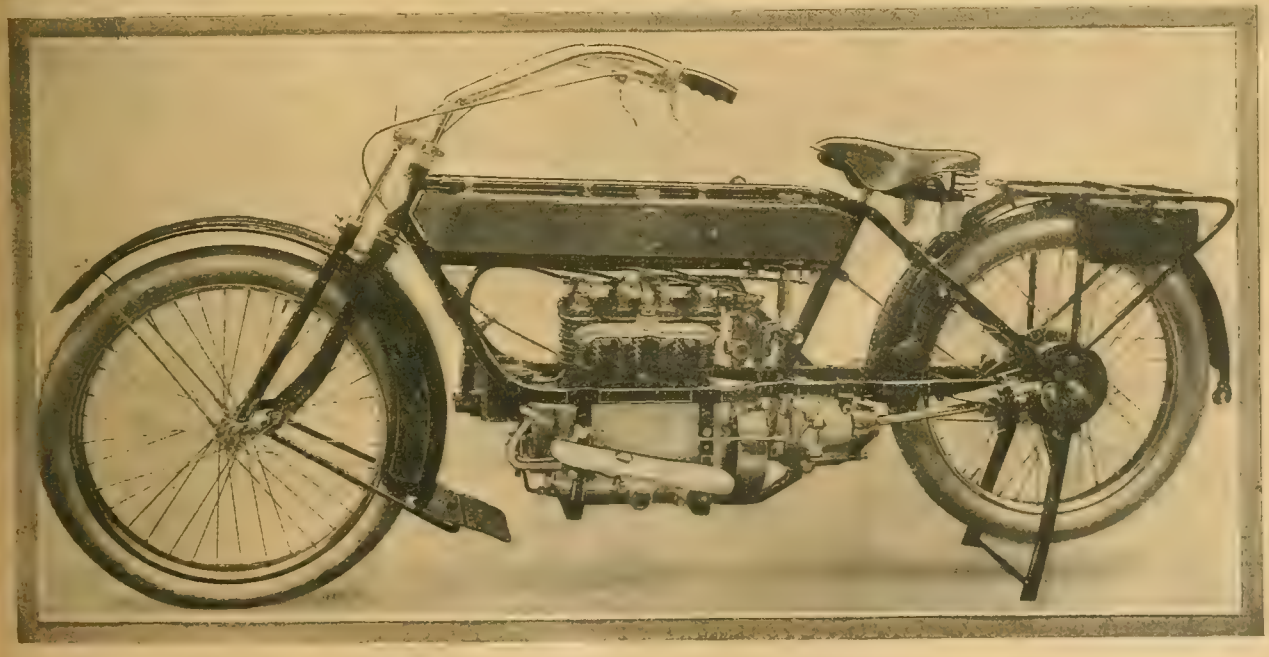
On the whole, French motor cycles are steadily improving, though, in some cases, fittings are very poor and there are too many bent frame tubes. A great many machines are fitted with band brakes on the rear hub instead of front wheel brakes. The band brakes are much too small to be of any serious use. English machines are being extensively copied, and English fittings are becoming more and more common. Several well-known British machines were on view, and in a few cases 1914 models were exhibited. Below will be found a general description of the more interesting machines. No attempt has been made to deal with every stand, as, on inspection, it was found that many exhibits differed only in name and were identical in construction. In a few other cases models are well-known and remain unchanged. Sidecars are increasing greatly in popularity, and though many of those exhibited were of well-known English makes, several good French designs were to be seen. It is interesting to note that the boat body, so prominent among the cars, has spread to sidecars.

F.N.—Entirely New Four-cyl. Model.

The latest single-cylinder F.N. has recently been fully described in *The Motor Cycle*, but a very smart four-cylinder mount of entirely new design was staged. This machine has four cylinders of 52×88 mm. bore and stroke, giving a capacity of 748 c.c. The new engine has mechanically-operated inlet valves on the near side, while the exhaust valves are on the off side, the gases passing out into a single pipe, from which the rider's clothes are protected by a neat guard.

Oil is drawn from a sump below the crank case and forced by a pump through the crankshaft to all the main bearings. A gear wheel indicator shows if the circulation is correct, and if more oil is needed it is only necessary to turn on a tap from the tank. A much heavier flywheel is fitted, and through a disc clutch drives a three-speed sliding gear box in the counter-shaft. The three-speed gear box affords gear ratios as follows: First speed, 11 to 1; second speed, 7 to 1; third speed, 4.5 to 1. The change speed is worked by a lever at the side as in the present four-cylinder, working on a quadrant with a spring ball stop engaging with depressions in the side of the quadrant. There are five positions for this, namely, low gear, neutral, medium gear, neutral, high gear. In changing gear on this machine it is advisable to use the foot clutch lever. A clutch stop has been fitted to the clutch. The final drive is, as usual, by cardan-shaft, but the arrangement has been greatly improved and is very neat. In front of the engine is mounted a segment and pinion kick starting device.

The spring forks are on the lines of those used on the 2½ h.p. model, and are



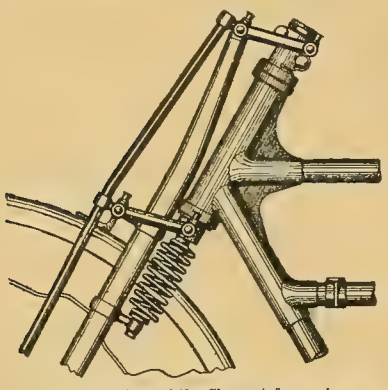
Transmission side of the 1914 model 8 h.p. three-speed four-cylinder F.N

French Motor Cycles and Cycle Cars.—

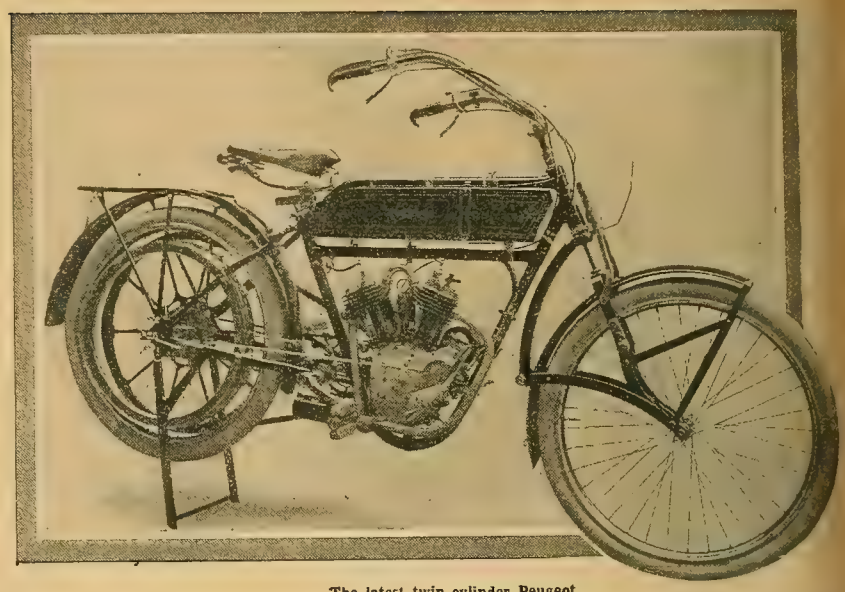
very neat in appearance. The gears may be inspected by merely removing a cap held in position by a leaf spring. All the details are well carried out, and no machine will be supplied without an efficient silencer. The new four-cylinder F.N. forms one of the most interesting features of the motor cycle section of the Show. The frame has been designed for fitting a sidecar. The wheelbase of the machine is 5ft. 1in., while an excellently large tank, holding two gallons of petrol, is fitted. The price of the machine is £78.

Clement.

One of the most successful French machines is the Clément, which is built very much on English lines. An M.A.G. engine is fitted and a chain drive with selective clutch two-speed on the lines of the Enfield. A considerably improved head lug is used on the new models, and snap-down filler caps, internal V rear brake, detachable carrier and rear mudguard, and larger rear chain are all innovations for 1914. Greame Fenton's victorious racer is on the stand.



The front portion of the Clement frame is now now made in one piece, with the steering socket as shown.



The latest twin-cylinder Peugeot.

Alldays.

The feature of this exhibit is undoubtedly the big twin-cylinder model, fitted with a chain drive, two-speed gear, and kick starter in the counter-shaft. The valve gear is protected by aluminium cover plates, and the magneto lies behind the engine. Saxon forks are employed, and the engine is lubricated by a Best and Lloyd sight feed device.

A similar model is shown with a single-cylinder engine. Both machines are fitted with footboards, and have a most businesslike appearance.

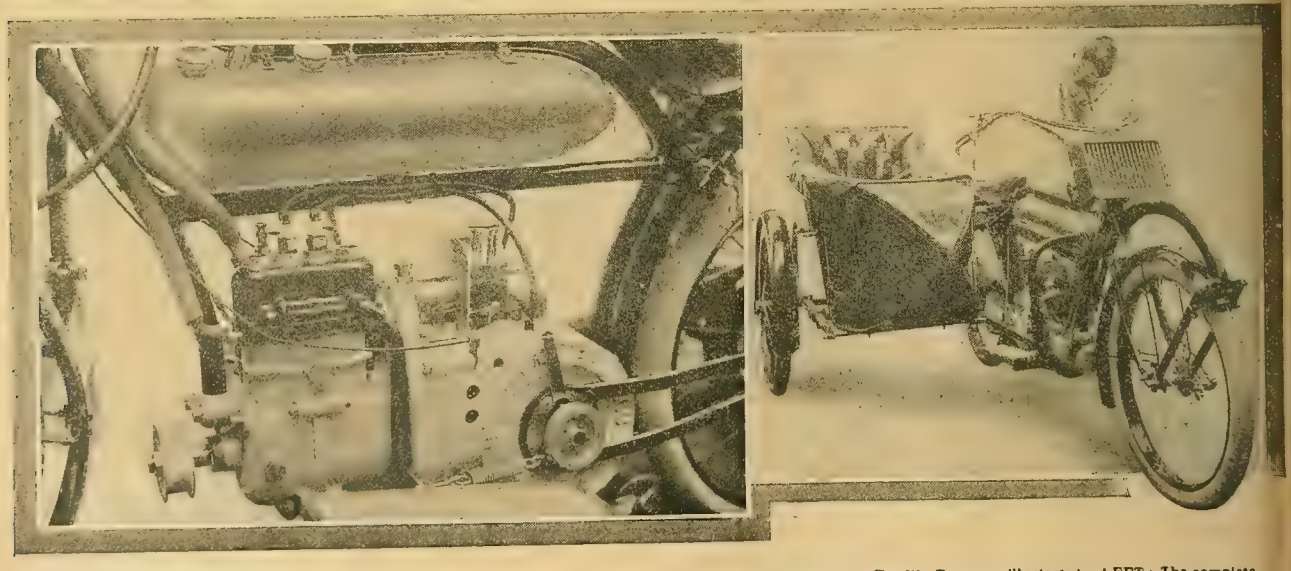
A Friction-driven Vehicle.

The Violet-Bogey friction-driven two-seater, which won two first prizes in its class at Gaillon hill-climb on the 6th inst., will be fitted with a four-cylinder engine in 1914. It is shown at the Salon with the standard two-cylinder engine.

The Ronteix, with gear and chain transmission, which did so well in the Grand Prix cycle car race, has had its four-cylinder engine increased from 62 × 80 mm., 964 c.c., to 60 × 100 mm., 1,132 c.c., which will bring it a little over the limit. This machine is sold in England as the Cummikar.

The Latest Model Moto-Reve.

Two new models of this well-known make are on view, a 3 h.p. and a 4 h.p., for solo or sidecar work. The design has been completely altered. The top tube is dropped at the rear, a counter-shaft type of gear is fitted in which the gear wheels are always in mesh, and the clutch is of the cone type, faced with fibre, fixed on the engine-shaft and



An ingenious, and one of the most praiseworthy of French designs at the Salon is the 3 h.p. twin-cylinder **Hurdtle-Bruneau**, illustrated. **LEFT**: The complete power unit, showing water jackets and twin chain stays. **RIGHT**: The complete sidecar combination. Observe the spring forks and radiator carried up close to the handle-bars.

French Motor Cycles and Cycle Cars.—

mounted on ball bearings. A thrust bearing is fixed inside the engine to prevent side thrust. The clutch is operated by lever on the handle-bar. The chain from engine to gear box is entirely enclosed in an aluminium case. The final drive is by belt, and there is a shock absorber in the rear hub. A foot starter is fitted, and footboards in the form of "skis." The back wheel is easily detachable merely by undoing a nut and withdrawing the spindle.

Chartier-Desvarennes.

On the stand under the above name we found a fine display of Indian models, a make which is in great demand in France. There were, however, no notable deviations from the design of the standard models.

Ajax.

What is regarded as one of the sensations of the Paris Salon is the Ajax four-cylinder friction-driven cycle car, which we described in detail a fortnight ago. The design of the vehicle itself, it may be remembered, possesses no really startling feature. It is its low price which commands one's attention. The cylinders and top portion of the crank case are cast together in one piece, the bore and stroke of the cylinders being 57×96 mm. Detachable wheels are included in the equipment of this car, which is to sell at under £100. It is being handled by Messrs. Briscoe Bros., who are Americans, but the car is being made in France, the engine being the product of one of the largest car manufacturers in that country.

Douglas.

The Douglas and Williamson machines made a most imposing display, most of the former being of the popular T.T. type, though tourist and ladies' mounts were shown. The Williamson has a roomy sidecar attached.

The Baby Peugeot.

The Baby Peugeot, which was exhibited at the Olympia Car Show last year, has undergone one alteration only, that improvement being the addition of a third speed forward, the original model having only two forward speeds and a reverse. It was described and illustrated in detail in *The Motor Cycle* of October 31st, 1912.

Alcyon.

The Alcyon models remain almost unaltered. The little machine is already well-known in England, and is well finished and soundly built throughout.

B.S.A.

A wide range of the well-known B.S.A. motor cycles is staged with either chain or belt drive and the hub two-speed gear. This make has earned itself an excellent name in France by its fine performances on the road.

Rene Gillet.

The twin 64 mm. × 77 mm. René Gillet is fitted with a metal cone clutch and enclosed chain drive to a two-speed counter-shaft gear. In some cases the magneto is carried in the tank and driven by a vertical shaft, but one machine was shown with a platform cast with the crank case on which the magneto is carried.

Swift.

A standard model 3½ h.p. Swift is shown, and is, unfortunately, not displayed in a very conspicuous position.

Triumph.

The single-cylinder Triumphs at the Salon are practically 1914 models of that famous make, as all have dropped top tubes, Best and Lloyd semi-automatic lubricators, and one or two other detail improvements.

Terrot.

Both single and twin-cylinder Terrot are on similar lines, and both are well made, and have an excellent reputation. The twin has one vertical and one sloping cylinder, the ribs being parallel to the ground. The bore and stroke are 67 mm. × 90 mm., and the magneto is worm driven on the rear of the crank case. Though of the loop type, the frame and fittings are otherwise on English lines, and a very simple spring fork is used, and a single-cylinder model has spring rear suspension. A simple variable pulley and cone clutch can be supplied.

Motosacoche.

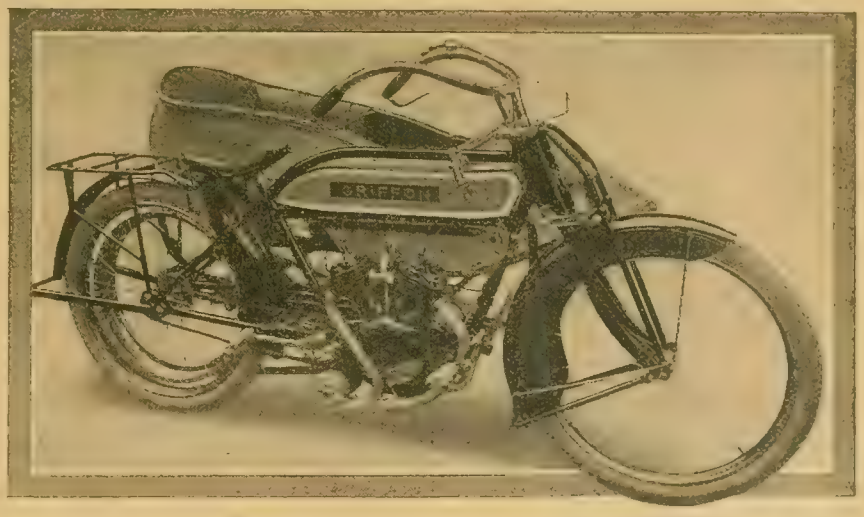
Motosacoche models are well-known to the British public and are shown in all forms. An addition is the model fitted with the 6 h.p 750 c.c. engine. Handle-starters are now fitted.

Valpic Clyno.

It was a relief to find Mr. Frank Smith on this stand, especially as our French was becoming strained. The 1914 Clyno is fitted with roller bearing big ends, pear-shaped radiating fins, and inverted lever control, otherwise it is practically unchanged, as before mentioned. A boat body was fitted to one sidecar on this stand.

Simplex.

Several types of this interesting machine are staged. It is not entirely unknown in this country, as it took part in the English-Dutch trials. The 4 h.p. engine is mounted in an unusual frame, which is designed to give maximum strength for the weight. A 2½ h.p. model is also shown in a standard type of frame. Sturmey-Archer three-speed hubs are fitted.



Valve side of the 1914 4 h.p. Griffon sidecar. As will be seen, a number of English fittings are employed.

Humber.

The 3½ and 2⅜ h.p. Humber models as already described are on view, and look very smart with their excellent finish.

N.S.U.

N.S.U. models have undergone no great change, but the well known two-speed is now fitted with a very neat and simple handle-bar control. This type of gear has a well-merited popularity, as can be seen by the number on various stands.

New Hudson.

Quite a new departure from this firm's models is the new 6-7 h.p. twin, which has a bore and stroke of 75×85 mm. The engine is a very clean piece of work. The magneto is carried behind the engine, and a Mark VII. gear is carried in the hub; some improvements and modifications have been made in the spring forks. Best and Lloyd drip oil feed and aluminium footboards are fitted, and the machine is carried out on the well-known New Hudson lines with counter-shaft drive, the finish being as fine as ever.

Rover.

Besides the usual Rover models the forerunner of the 1914 models is on view. This machine has a new bottom bracket lug and footboard which can be swung up to allow the kick starter comfortable room. The rear guard and carrier are instantly detachable for tyre mending purposes. The Mark VII. gear is fitted, and spring links are used on the top of the spring forks.

Herdtle Bruneau.

The Herdtlé Bruneau has undergone no great alterations since it was originally described in *The Motor Cycle*. It retains the two-cylinder vertical water-cooled engine, the enclosed friction gear, and final chain drive. The suspension is very unusual, the rear of the frame being carried on a combined leaf spring and rear mudguard. The radiator is carried on the front forks, and the whole machine presents a most curious appearance, though it is well built and the design is clever. A single-cylinder water-cooled engine set for attachment to pedal cycles is also shown.

French Motor Cycles and Cycle Cars.—

Matchless.

Standard Matchless machines are shown with and without sidecars and form a much admired exhibit, both 8 h.p. and 3½ h.p. twin being staged.

Peugeot.

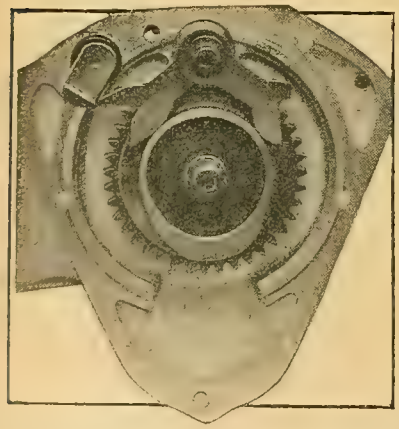
The little twin Peugeot has an engine of 55×80 mm., and is in itself a beautiful piece of work, but though the machine is fitted with an Armstrong gear and dropped tube frame, it looks less like a British machine than many others. This is largely accounted for by the loop frame, narrow tank, and the Truffault forks, which, though extremely comfortable, are not often seen on this side of the Channel. A single-cylinder 3½ h.p. model is also shown, the engine having a gear-driven magneto in front.

MORGAN RUNABOUTS FOR 1914.

The sporting and standard models of Morgans will remain practically unaltered in 1914 save for the addition of a tail to the body, in which will be found ample locker space for tools and luggage. Grand Prix types, both air and water-cooled, with overhead valves, will be notable exhibits at Olympia, while perhaps the most interesting model shown will be a new type with water-cooled cylinders and side by side valves, which should prove a very excellent touring machine. A striking exhibit will be a plated chassis.

T.D.C. ENGINES.

Although not directly exhibited at Olympia, the T.D.C. engines will be found on several complete machines in the Show. These engines are made by T. D. Cross and Co., Vesey Street, Birmingham. The standard 3½ h.p. 85×88 mm. model will have roller bearings to the big ends.



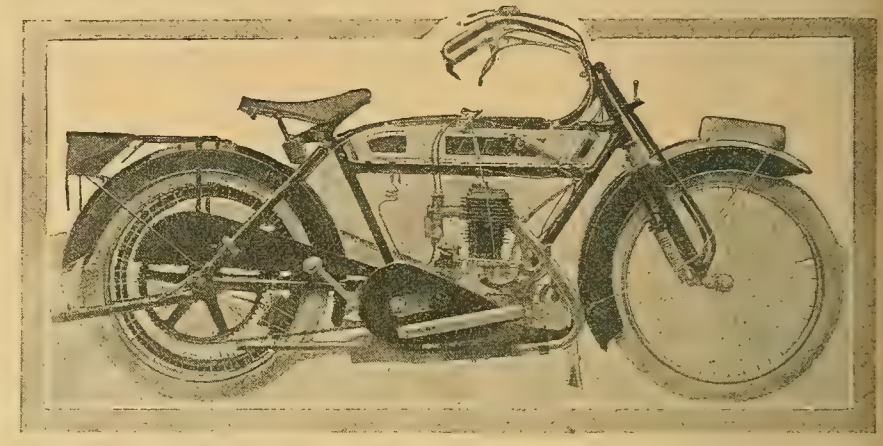
Simple timing gear of the 2½-3 h.p. T.D.C. engine. Note the exhaust valve lifter lever, which engages with a jaw on the end of the exhaust rocker.

A new model is the 2½-3 h.p., 70×76 mm., which follows the lines of the bigger engine, but is designed to enable the magneto to be fitted in front or behind the cylinder. In both cases, the armature-shaft is chain-driven.

THE L.M.C. IN 1914.

The Lloyd Motor Engineering Co., makers of the L.M.C., are making very slight alterations to their new Show models. The principal improvements are a larger tank to hold 1½ gallons of petrol. The silencing arrangement has been improved by the addition of a cylindrical expansion box fitted under the bottom bracket; into this is led the exhaust pipe, which is 1⅜in. diameter, the exit being a 1in. pipe, which extends alongside the rear wheel on the off side. A little improvement to the L.M.C. two-speed gear is that the clutch for the high gear is now held in engagement by a coiled spring, and the lever, with ball bearing on the end to take the thrust, has been done away with, as the high gear is in use the greater part of the time. This should very much facilitate the control of the gear, and obviates the necessity of renewal of the thrust bearings on the end of the lever. The chain transmission for the low speed on the off side is now completely enclosed in a metal case.

Milford and Bramble sidecars will be exhibited on the show machines.



Valve side of the latest two-speed L.M.C.

PASSENGER RECORDS AT BROOKLANDS.

In our report of the B.M.C.R.C. meeting in this issue a good many records were annexed, but on Monday last H. C. Newman, whose 85 × 88 mm. Ivy-Green-Precision sidecar was in excellent form, carried off several more. Timed by Mr. A. V. Ebblewhite, the flying kilometre was covered in 36⅖s., equal to 61.45 miles an hour; the flying mile was covered in 59⅖s., which is equal to 60.81 miles an hour, while Newman took 5m. 35⅖s. to cover the flying five miles, which works out at 53.67 miles an hour. These records stand for both the 500 and 750 c.c. classes. Newman, after covering the ten miles (standing start) in 11m. 22⅗s. (52.74 m.p.h.), went for the hour record, which, however, he was prevented from completing through a puncture, though he was successful in annexing the fifty miles, which distance he covered in 57m. 59⅖s.

It may be interesting to note that Newman's equipment comprised Dunlop tyres and belts and Amac carburetter. His records are the more interesting as this is the first time that a 3½ h.p. sidecar outfit has been officially timed to beat a mile a minute speed.

J. F. Buckingham, driving a Buckingham cycle car of 4.9 h.p. R.A.C. rating, 89×120 mm. bore and stroke, then went for records, and succeeded in annexing the cycle car records for the standing start kilometre and mile, his speeds working out at 56.78 m.p.h. and 56.6 m.p.h. respectively. Buckingham's intention had been to go for the cycle car hour record, but a broken oil pipe, combined with pouring rain, caused him to postpone his attempt.

The Buckingham cycle car was equipped with Michelin tyres, Continental belts, and Solex carburetter.

FLEXIBILITY OF CYCLE CARS.

The Cycle Car Club held some interesting flexibility tests up Woodcock Hill, near Rickmansworth, last Saturday, and the results prove an undoubted triumph for the simple belt-driven cycle car.

Every type of miniature car and cycle car competed. For instance, the Singer represented the light car class: the belt-driven machines included the Duo, Warne, and Adamson; the three-wheelers were represented by the Morgan; while the G.W.K. and Pyramid belonged to the friction-driven class.

Lionel Martin on the Singer put up fastest time of the day. In the slow climb, Mr. Welham came out on top, his time being 10m. 1s., while his average speed must have been between one and two miles per hour.

The winner was that competitor the ratio of whose slow and fast times was the greatest. Results:

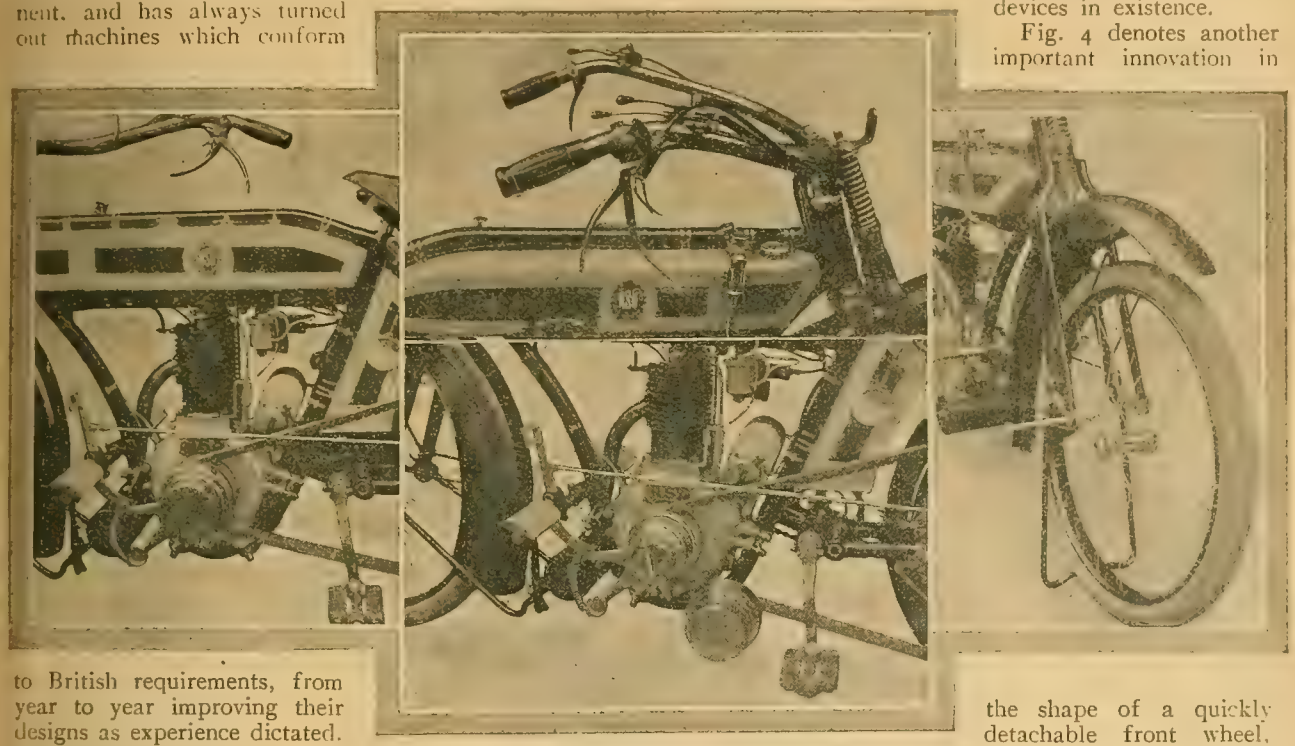
	Time of fast climb. s.	Time of slow climb. m. s.
R. Barton Adamson (8 Adamson)	43⅖	8 18⅖
A. Percy Bradley (8 Duo)	42⅕	7 57⅕
L. Martin (10 Singer) ...	29⅗	5 12
L. W. Spencer (8 Morgan)	34⅘	4 40⅗
F. Thomas (10 G.N.) ...	43⅗	5 40
H. Welham (3½ Welham)	106	10 1

N.S.U. IMPROVEMENTS.

Dust Cover for Gear. Quickly Detachable Wheels.

IN a recent issue we made brief reference to the 1914 N.S.U. improvements. The four accompanying photographs show these improvements in detail. It is not out of place to mention here that the N.S.U. firm is among the most up-to-date on the Continent, and has always turned out machines which conform to British requirements, from year to year improving their designs as experience dictated.

FEATURES OF THE 1914 TWO-SPEED N.S.U.



(1) Pressure oil pump and sight feed on the tank and the new two-speed gear control on handle-bar.
(2 and 3) The latest type of two-speed engine shaft gear. A dust cover is now provided (shown in fig. 2 in position).
(4) A quickly detachable wheel is one of the latest features.

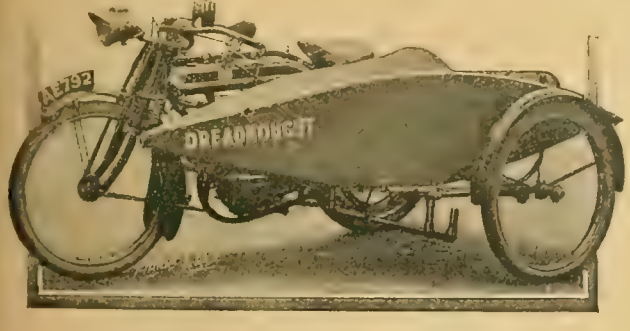
Fig. 1 shows the pressure oil pump and sight feed on the tank, and the new two-speed gear control on the handle-bar.

In figs. 2 and 3 the latest type of two-speed epicyclic engine-shaft gear may be seen, while it will be noted that the operating mechanism is now fitted with a dust cover, which is shown in position in fig. 3 and removed in fig. 2. The long brake pedal conveniently mounted on the footrest should also be noted. Incidentally, the N.S.U. gear is one of the oldest change-speed devices in existence.

Fig. 4 denotes another important innovation in the shape of a quickly detachable front wheel, which greatly simplifies tyre repairs and renewals. It is interesting to remark the substantial front wheel stand and the improved front mudguard. The fact that the front wheel can be so easily withdrawn is owing to the absence of a front brake on the N.S.U.

NEXT WEEK'S A.C.U. CYCLE CAR TRIAL.

The A.C.U. have obtained the necessary number of entries for the above trial to be held as arranged on Wednesday next. The start and finish will be at Redhill, and the course will include Reigate Hill, Dorking, Leith Hill, Gomshall, Newlands Corner, Guildford, Frith Hill (Godalming), Milford, Bowlers Green, Hindhead, Haslemere, Fernhurst, Tilford, Hog's Back, Guildford, Merrow, Leatherhead, and Walton-on-the-Hill. A map of the course will be found in our issue of October 9th, page 1316. The start is at 8.30 a.m. and finish about 4 p.m. List of entries:



The Davies racing sidecar fitted to a 3½ h.p. three-speed Premier.

J. T. Wood (G.W.K.)
C. M. Keiller (G.W.K.)
J. T. Panling (7 Swift)
John Portwine (10 A.C.)
A. C. Maitland (8 Beacon)
A. B. Phillips (8 Warne)
S. Wright (8 Humberette)
H. Dew (8 D.E.W.)
H. F. S. Morgan (8 Morgan)
L. Martin (10 Singer)
A. Walden (7-9 Premier)
R. G. Thomas (8 Pyramid)
L. F. Pain (8 Pyramid)
W. McMinnies (8 Morgan)
S. T. Marr (8 S.M.)
A. E. Coyne (8 Ranger)
V. Busby (8 Morgan)
A. C. Armstrong (7-9 G.N.)
A. P. Bradley (8 Duo)
J. Chater-Lea (8 Chater-Lea)
Auto-Carriers (6 A.C.)
Auto-Carriers (6 A.C.)
Auto-Carriers (10 A.C.)
C. Pressland (8 Crouch)
G. N. Higgs (8 G.N.)
R. B Adamson (10 Adam...)
W. Cooper (8 Humberette)
R. Mundy (8 Humberette)
E. A. Parnacott (5½ Cycar)
B. Wilberforce (G.W.K.)
H. R. Godfrey (G.N.)
John Gibson (8 Morgan)

TIME TO LIGHT LAMPS.

Oct.	23rd	... ...	5.50 p.m.
,,	25th	... ...	5.46 ,,
,,	27th	... ...	5.42 ,,
,,	29th	... ...	5.38 ,,

Next Week's Trial for Cycle Cars Only.

The necessary number of entries for the A.C.U. trial for cycle cars had been received on Monday last so the trial will take place next Wednesday. Already a number of machines have been practising on the course which is not difficult now that Pinfold Hill has been ruled out.

Silencer Regulations.

A certain Oxford don once complained to a friend, "People are always accusing me of putting the horse before the cart, and I am sure I never do such a thing." The friend agreed. Last week a motor cyclist was summoned in Wimbledon for "not having his cut-out provided with a silencer" and fined £1. Fortunately his float was suitably furnished with a carburetter, or, we presume, the fine would have been double.

Steam Cycle Car at the Show.

Among the novelties which will be on show at the Olympia Motor Cycle Exhibition will be a steam propelled cycle car, which is being constructed in the Midlands.

A 2¾-3 h.p. motor bicycle with two-speed gear and full equipment for £27 will also be exhibited. We believe this is a record figure for a complete machine of this power.

Colonial Prices.

Apropos of our leaderette in the issue of October 9th, "Colonial Prices," a Midland motor cycle manufacturer, whose business is almost entirely with the Colonies, pointed out that our New Zealand correspondent was labouring under a misunderstanding when he thought that the retail price in the Colonies should not be any more than it is at home plus the duty and freight, and he explained that the colonial buyer has to pay cash for the machine plus the freight, shipping charges, duty and packing, and it is on this total out of pocket amount that he calculates his profit. No importer would be satisfied with a profit on the net cost price of the machine in England. Importers in the Antipodes also contend that they are saddled with the additional cost of trials and competitions in their own country. The results of British trials do sell machines abroad to some extent, but motor cycles are also exploited in Colonial and Overseas competitions, and in supporting these events the importers are called upon to pay the piper—an expense which is covered by the home manufacturer when the price of the machine is fixed.

Motor Cyclist Reserve Committees.

The Secretary of the War Office notifies the following alterations in the list of secretaries, which was issued on July 4th:

North Midland Divisional Area (Northern Command). For Major G. P. Heywood, Staffordshire Yeomanry, Lichfield, substitute Captain F. H. L. Meynell, 3rd North Midland Brigade, Royal Field Artillery, Bridge Street, Stafford.

Welsh Divisional Area (Western Command). For Captain and Adjutant W. F. Basset, 7th (Cyclist) Battalion, the Welsh Regiment, 11, Newport Road, Cardiff, substitute Major B. T. Ready, Brigade Major, South Wales Infantry Brigade, 29, Windsor Place, Cardiff.

Motor Cycles and Rear Lights.

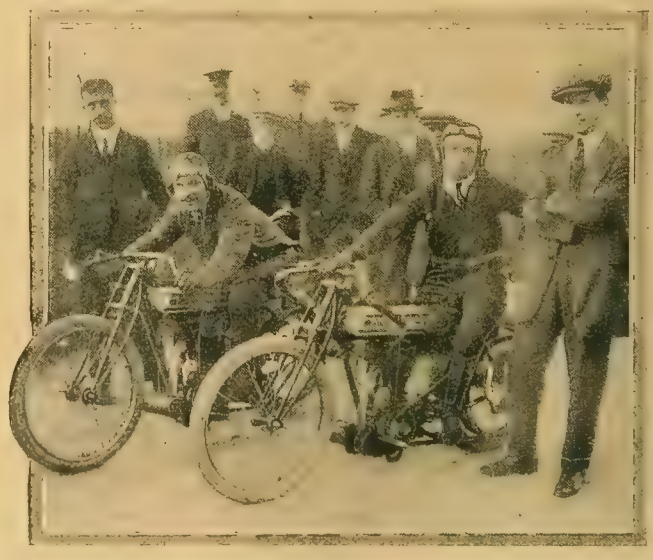
An exceedingly important case came before the Divisional Court of the King's Bench on Monday, when Justices Bailhache and Ridley held that, under the Motor Car Act, 1903, a motor cycle is a car and not a velocipede, and that in consequence it is incumbent on a motor cycle to carry a red warning rear light after dark. Mr. Justice Scrutton dissented from this reading of the Act, holding that a motor cycle was a bicycle or velocipede within the meaning of the Act of 1888. The matter came before the Court on an appeal from a decision of the Epping justices, who had fined a motor cyclist 6s. for not carrying a red light visible in the opposite direction to which the cyclist was travelling. The effect of this judgment is that the conviction was affirmed.

The Official Decision.

We understand there is no appeal possible from the judgment of this court, and the only way to make the matter perfectly clear is for the Local Government Board to issue a statement as to their view of the matter, and to state what measures will be adopted in the future to deal with the question of rear lights for motor cycles, in view of the Board's circular of the 10th March, 1904, which order makes it perfectly clear that motor cyclists need not carry a light at the rear, as required to do. The A.C.U. have already forwarded a letter to the President of the Local Government Board asking for a speedy settlement of the matter, and there is every reason to suppose that an early pronouncement will be made.

The Midland Reliability Trial—Results.

The results of the open reliability trial, held on the 4th inst., under the auspices of the Sutton Coldfield and Mid-Warwickshire A.C. are as follows: Winner of Levis Cup, L. W. Guy (Scott); winner of P. J. Evans Trophy, G. W. Hands (Calthorpe); winner of Matchless Gold Medal for best performance of a solo machine presented by Mr. F. S. Whitworth, L. W. Guy (Scott); winner of the Precision Gold car machine performance of a side-car machine presented by Mr. F. E. Baker, R. Pearson (Clyno); winner of the Team Prize presented by Messrs. H. Collier and Sons, Ltd., R. E. Guest's Matchless team. Best ascent in flexibility hill-climb, J. S. Watson (2¾ Sunbeam).



"The Motor Cycle" Cup for the one hour 500 c.c. race at Brooklands was won by C. G. Pullin (Rudge) who is seen on the right, while T. E. Greene (Rudge) on the left secured third place in the same event. S. A. Rowlandson is standing at the extreme right of the picture.

SPECIAL FEATURES:

MANY NEW MODELS
(Illustrated.)
WHAT IT COSTS TO RUN A CYCLE CAR.
WEEK-END EVENTS
(Illustrated.)

An Impudent Theft.

The rear wheel containing Sturmey-Archer hub was recently stolen from a 1913 Triumph. The owners, Messrs. W. Wilder and Sons, Crowmarsh Iron Works, Wallingford, are offering a reward of £5 for its recovery.

Racing Motor Cyclist Married.

Graeme Fenton, who is so well-known as a rider of Clément motor cycles in France, and who won the 350 c.c. class in this year's Grand Prix on the Amiens circuit, was married last week in Paris to Miss Sturrock, of Birmingham. The wedding took place at the English Embassy and at the English church in the Rue d'Aguesseau. We extend our congratulations to the happy pair.

News from France.

It seems likely that the International Six Days Trial will be held either in the Dauphiné or the Puy-de-Dome. Several delegates from the Motor Cycle Union of France, among whom we may mention Messrs. Fenton, sen., and G. Longuemare, have been instructed to investigate a suitable course. We shall hope to hear something more definite about this after the International Conference to be held in Paris next Saturday.

Tubs or Baskets !

A correspondent writes : "While going over Whinlatter Pass (part of the Six Days Trial course) recently, I happened to call at a very out-of-the-way farm-house. Both the farmer and his wife are about eighty years of age and live by themselves, so they do not get much of the current news. In talking I asked the old lady if she had seen any of the motor cycles passing, and was somewhat amused when she answered in the broadest Cumberland, 'Oh, yes; we saw them, and we did laugh, for some of them brought their sweethearts up in washing-tubs fastened on to the side of their bicycles, while one brought his up in a basket.'"

FUTURE EVENTS.

Oct. 25.—Herts M.C.C. Open Flexibility Speed Trials.
" 25.—Mersey M.C. Open Trial.
" 29.—A.C.U. Open One Day Trial for Cycle Cars.
Nov. 1.—Streatham and District M.C.C. Open One Day Trial.
" 7-15.—Motor Car Show at Olympia.
" 24-29.—MOTOR CYCLE & CYCLE CAR SHOW AT OLYMPIA.
Dec. 26-27.—Motor Cycling Club Winter Run from London to Exeter and back.

Paris-Nice Trial in the Spring.

The Paris-Nice Trial will be held again next year, and it is expected that the route will be continued, after Lyon, over the mountains from Grenoble. Instead of ending at Nice, the trial will probably be terminated at Monaco. The course will be certainly more difficult than last year.

A.C.U. News.

On page 1310 of our issue of the 9th inst., a letter appeared in the correspondence which suggested that a one hour record made at a speed of 50.99 miles an hour should cover all existing records up to one hour, and should beat an existing five miles record made at a speed of 50.56 miles an hour. The A.C.U. has decided, however, that to stand a five miles record must be separately attempted.

The Cycle Car Trial.—The following officials have been appointed for the cycle car trial on October 29th: Stewards, Major F. Lindsay Lloyd, R.E., Messrs. J. R. Nisbet and A. Sharp; judges, Mr. Glyn Rowden, The Rev. E. P. Greenhill; timekeeper, Mr. A. V. Ebblewhite.

Permits have been granted to the Herts. County A.C. to hold an open trial on October 25th, and to the Foleshill and Warwickshire M.C.C. to hold a hill-climb on October 25th.

Membership.—Although the present month is one in which few members are expected to join the A.C.U., the increase has been most satisfactory. One hundred and seventy-five touring members and twelve full county members have been elected. Two overseas motor cycle clubs, the Colombo M.C.C. and the Rangoon M.C.C. have become affiliated.

Fees for Records.—It has been decided that a permit for attempt at record should be available for any number of attempts within one calendar month of the date of issue, provided that no record has been claimed in making these attempts.

The Classification of Sidecars and Cycle Cars.—All three-wheeled motor vehicles, other than motor bicycles and sidecars, coming within the weight and engine capacity limits of a cycle car will in future be treated as such.

Definition of a Sidecar Combination.—By the term motor bicycle with sidecar is meant a three-wheeled vehicle consisting of a motor bicycle to which a chassis is attached carrying a body or seat for the passenger or passengers.

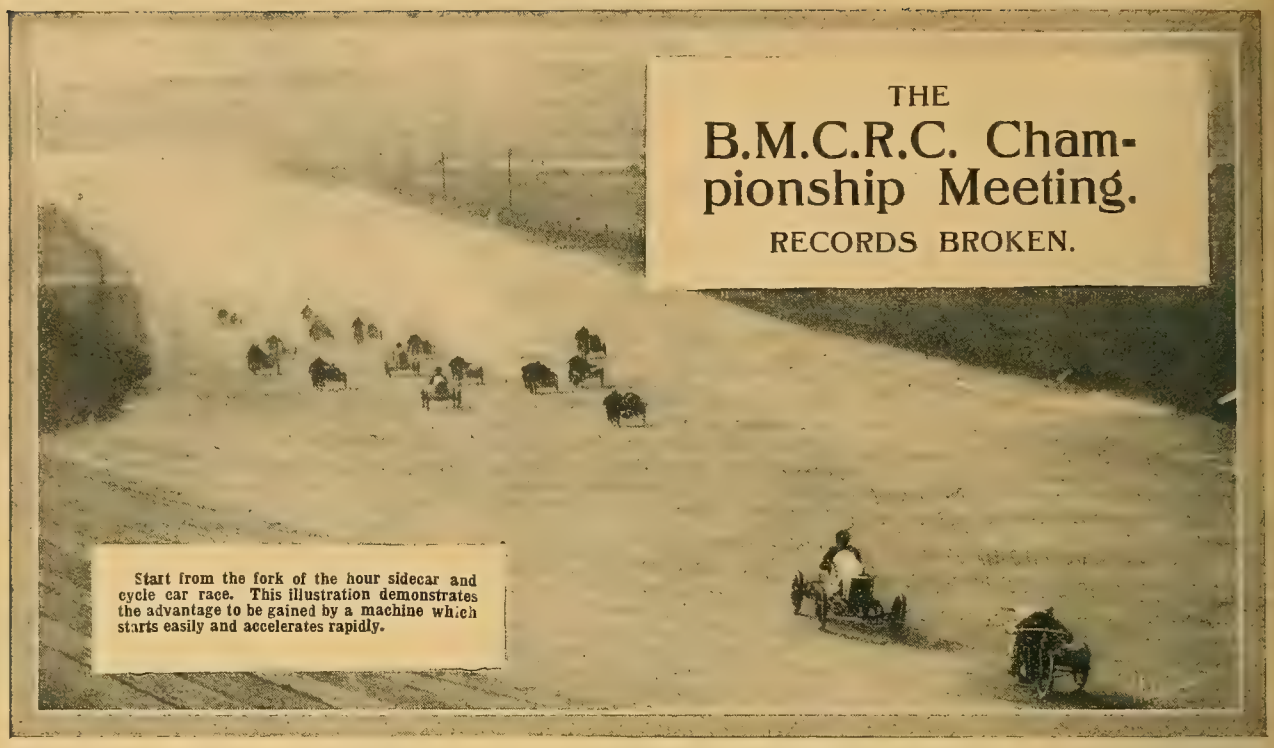
A Conference with the R.A.C.—A conference between certain delegates of the A.C.U. with certain members of the R.A.C. will shortly be held to discuss the cycle car question. The Auto Cycle Union will be represented by the Rev. E. P. Greenhill, Messrs. G. S. Carter, A. V. Ebblewhite, I. R. Nisbet, Otto Thomas, W. G. McMinnies, and Dr. A. M. Low, D.Sc., and the Secretary.

The Meeting of the F.I.C.M.—On Saturday next the annual meeting of the Fédération Internationale des Clubs Motocyclistes will be held at the Automobile Club de France in Paris, at which the classification of cycle cars, the 1914 International Trial, and other matters will be discussed. Messrs. T. W. Loughborough, Secretary of the Auto Cycle Union, and E. M. P. Boileau (*The Motor Cycle*) have been instructed to represent British interests.

L. W. Spencer (8 h.p. Morgan) nearing the finish of the slow climb in the Cycle Car Club's flexibility hill-climb last Saturday.

THE B.M.C.R.C. Championship Meeting.

RECORDS BROKEN.



Start from the fork of the hour sidecar and cycle car race. This illustration demonstrates the advantage to be gained by a machine which starts easily and accelerates rapidly.

AS if to make up for the delinquencies of the clerk of the weather on the 11th inst., last Saturday was perfectly glorious, more like spring than autumn, and so warm that before mid-day no one wore his coat. The wind, however, which blew against the men in the railway straight, was rather strong. The meeting started at 10 a.m. with time trials, during which we had an opportunity of noting interesting fitments on several of the machines. The Singer cycle car body possessed a cocked up tail which gave it a peculiar appearance. Tessier's water-cooled Bat was quite an interesting machine; overhead valves are fitted, while the wide and unbroken honeycomb radiator which lies across the down tube and the large water pipe are worthy of note. Ware, on his weird sidecar body, carried a spare oil tank, fitted with a pump designed to be worked by the passenger for the purpose of replenishing the main oil tank. Pullin's Rudge had a large oil tank partly encircling the bottom of the saddle tube, and fitted with a pump worked by a specially designed hinged foot-rest connected to the pump spindle by a Bowden wire. Among the non-competing machines we noticed a Douglas with a pipe from the acetylene generator led into the carburetter air inlet and provided with a Y joint, one branch of which led to the crank case, leading one to suppose that the acetylene gas was sent into the cylinders by forced induction. A. J. Stevens's 5 A.J.S. sidecar was provided with an excellent spring seat pillar.

The Speed Trials.

During his attempt on the flying mile and kilometre S. R. Axford, who was riding a very fast 270 c.c. Martin-Jap, collided with a pedal cyclist and was badly shaken and grazed his wrists, and to add to his disappointment he found afterwards that he had not been timed.

Some extremely fine performances were made in these trials, the most notable being E. Remington's performance in the big twin class in attaining a speed of 85.38 m.p.h. on an 8 h.p. Matchless-Jap—the biggest speed attained on a motor cycle for some time past. Even the redoubtable Collier was beaten. Stanley, as usual, easily headed his two classes, and Cocker on another Singer headed the 500 c.c. sidecar class. Newman's Ivy-Green was not in its best fettle, for it has done much better in practice.

The complete results are given in the next column.

Rider and Machine.	Bore and Stroke.	C.C.	Kilometre.		Mile.	
			Time.	Speed.	Time.	Speed.
CLASS B.—Up to 350 c.c.	mm.		sec.	m.p.h.	sec.	m.p.h.
G. E. Stanley (1 cyl. Singer)	75 × 79	349	35	63.91	56.2	64.06
H. C. Newman (1 Ivy-Green) ...	70 × 90	346	36	62.14	59 8	60 20
S. Axford (1 Martin)	60 × 61	350	37	60.46	60.4	59.60
CLASS C.—Up to 500 c.c.						
G. E. Stanley (1 Singer)	85 × 88	499	29.93	74.74	48.89	73.60
*C. G. Pullin (1 Rudge)	85 × 88	499	33.8	66.18	54.4	66.18
F. W. Carryer (1 Imperial)	90 × 77½	493	39	57.36	61.6	58.44
CLASS D.—Up to 750 c.c.						
C. R. Collier (2 Matchless)	90 × 58	738	31.6	70.79	51.8	69.50
CLASS E.—Up to 1,000 c.c.						
E. Remington (2 Matchless)	90 × 77½	986	26.20	85.38	43.10	83.52
C. R. Collier (2 Matchless)	90 × 77½	986	30	74.57	49.6	72.58
E. C. Baragwanath (2 Collier-Jap)	90 × 77½	986	30.8	72.63	50.2	71.71
CLASS G.—With Sidecar, up to 500 c.c.						
**J. Cocker (1 Singer)	85 × 88	499	39.2	57.07	63.0	57.14
H. C. Newman (1 Ivy-Green) ...	85 × 88	499	42.4	52.76	68.2	52.79
K. Holden (1 B.S.A.)	85 × 88	499	44.6	50.16	71.4	50 42
CLASS H.—With Sidecar, up to 750 c.c.						
†E. B. Ware (2 Zenith).....	90 × 58	738	37.8	59.18	61.2	58.82
CLASS I.—With Sidecar, up to 1000 c.c.						
J. Jephson (2 Zenith)	90 × 77½	986	36.6	61.12	59.6	60.20
CLASS K.—Cycle Cars.						
‡G. W. Hands (4 Calthorpe)	62 × 90	1088	28.90	77.40	46.85	76.84
B. Haywood (4 Singer)	63 × 88	1096	29.44	75.98	48.09	74.86

*It is interesting to note that Pullin covered both the kilometre and mile at the same speed, which is quite a rare incident.

**Record, beating H. Riddell (2 Green-Precision), 499 c.c.; kilometre time, 39.4 sec., 56.78 m.p.h.; mile time, 65.6 sec., 54.88 m.p.h.; 23rd June, 1913.

†Record, beating H. Riddell (2 Green-Precision), 499 c.c.; kilometre time, 39.4 sec., 56.78 m.p.h.; mile time, 65.6 sec., 54.88 m.p.h.; 23rd June, 1913.

‡Record, beating B. Haywood (4 Singer), 1096 c.c.; kilometre time, 31.19 sec., 71.72 m.p.h.; mile time, 50.57 sec., 71.19 m.p.h.; 13th September, 1913.

The Hour Race.

The next two events, Nos. 2 and 3, were more interesting from a spectacular point of view. These were the hour cycle car race for cycle cars complying with the A.C.U. definition (prizes—the A.C.U. gold medal, the Club's gold medal, and the Club's silver medal), and the hour sidecar race for motor bicycles not exceeding 1,000 c.c. and fitted

Sutton Coldfield and Mid-Warwick A.C. Trial, 4th Oct.

7 GOLD MEDALS - 7 SILVER MEDALS

WON ON

DUNLOP TYRES.

14 MEDALS AT ONE MEETING

GOLD MEDALS.		
Mrs. Riley,	6 Enfield (s.c.),	3 Dunlops
L. A. Bees,	L.M.C.,	2 Dunlops
H. G. Dixon,	3½ James,	2 Dunlops
W. H. Longton,	Alldays,	2 Dunlops
G. Feather-stonehaugh,	3⅝ Rover,	2 Dunlops
E. V. Pratt,	O. K. Precision,	2 Dunlops
T. Stevens,	3½ James (s.c.),	3 Dunlops

SILVER MEDALS.		
R. Haddock,	Clyno (s.c.),	1 Dunlop
H. Greaves,	Enfield (s.c.),	3 Dunlops
H. V. Colver,	Enfield (s.c.),	2 Dunlops
L. L. Sealey,	B.S.A.,	2 Dunlops
T. Pollock,	3½ James,	2 Dunlops
C. Freeman,	Clyno (s.c.),	1 Dunlop
D. M. Brown,	3½ Rover,	2 Dunlops

L. Newey (3½ Ariel), a gold medallist, used a DUNLOP BELT.

Coventry and Warwick M.C. Hill Climb at Banbury.
14 PLACES WERE GAINED WITH DUNLOP BELTS.

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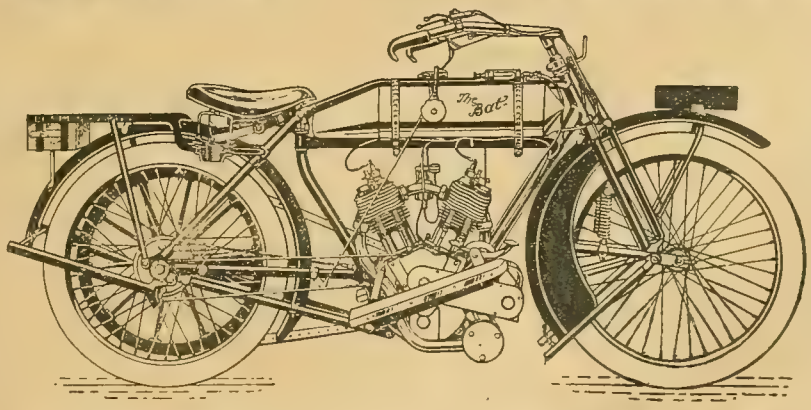
THE SMARTEST AND FASTEST MACHINE ON THE ROAD

The Model 2 Light Roadster Bat has been specially designed to appeal to those riders who enjoy solo riding on a light and speedy mount, and yet occasionally desire to fit a : : sidecar. : :



ENGINE, J.A.P. 5-6 h.p.; Low Built Frame; Ball Bearing Forks; 26in. Wheels; Kempshall Tyres; Foot-operated Clutch; Armstrong Gear; Dunlop Belt; Bosch Magneto; Amac Carburetter; Two Brakes; Finished in French Grey : : Enamel. : :

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THE SENSPRAY Carburetter.

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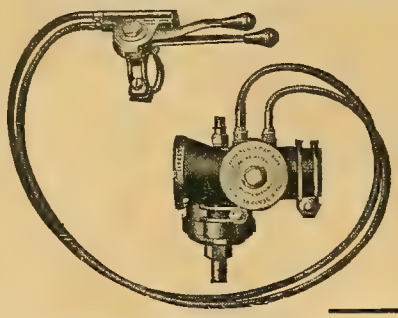

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7 GOLD MEDALS.

4 SILVER MEDALS.

WESTON-SUPER-MARE SPEED TRIALS.

	FASTEST TIME.
350 c.c. Class.	
Mr. E. Kickham (2¾ Douglas)	
Not exceeding 500 c.c.	
(Expert) Mr. P. H. A. Matthews (3½ Rudge)	FIRST.
Unlimited Class.	
Mr. G. Griffith (Zenith)	FIRST.
Sidecar Class up to 500 c.c.	
Mr. F. P. Davies (Rudge)	FIRST.
Unlimited Sidecar Class.	
Mr. G. Griffith (Zenith)	FIRST.
Mr. E. Chapman (Zenith)	SECOND.

COVENTRY & WARWICKSHIRE M.C.C. OPEN HILL-CLIMB.

6 FIRSTS.

B.A.R.C. MEETING (October 4th).

Mr. C. G. Pullin (3½ Rudge) FIRST.

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Whitworth Works,——BIRMINGHAM.

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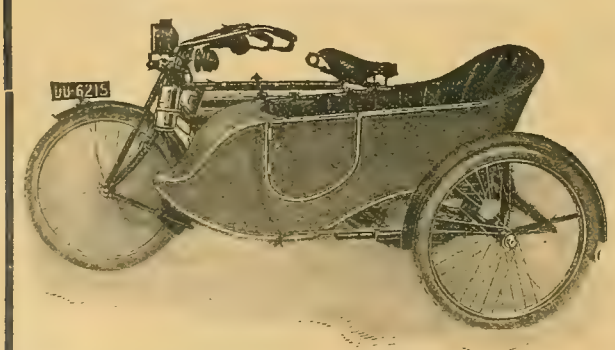
Sidecar for Autumn use
buy a

BRAMBLE

Suitable for all weather conditions.



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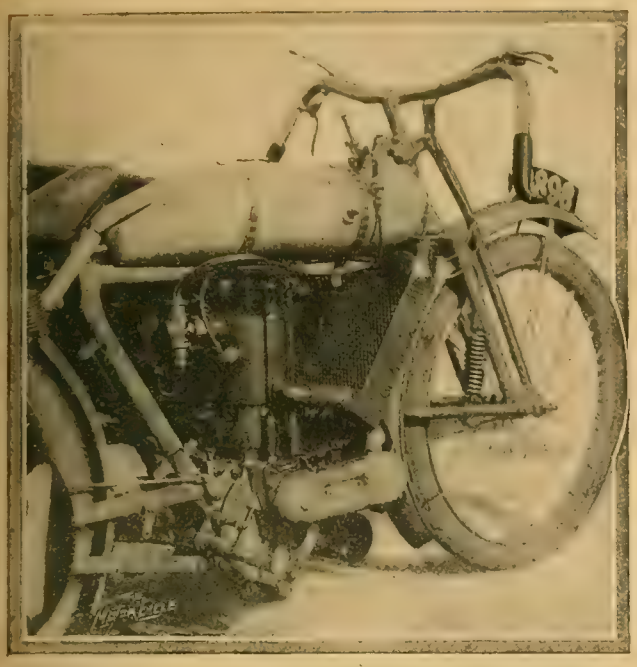


A single-cylinder water-cooled Bat-Jap sidecar ridden by S. T. Tessier. The large honeycomb radiator will be observed.

with a sidecar carrying a passenger weighing not less than 140 lbs. All started in line except the Singer cycle car, which had to take a place behind the others, and all got away in good form except Newman. At the completion of the first lap the Calthorpe was leading, followed closely by the Singer. After an interval came Ware, who was well ahead of the other sidecars, followed by Collier, Cocker, Pullin, Newman, Buckingham, Mills, Sumner, Garrett, Le Vack, Tessier, Heinzel, Holden, Hoare, and Campbell. After the first lap the Buckingham did not appear again. The Calthorpe ran magnificently, and gradually increased its lead over the Singer. Among the sidecars, Ware continued to hold his own. In his sixth lap Le Vack retired owing to a broken inlet valve, and Cocker dropped out, while Tessier retired in his ninth lap. It is curious how men group together in these races. Hoare, Newman, and Pullin formed one group, which kept intact for several laps, while Holden, Garrett, and Campbell composed another which hardly ever separated. Ware, Collier, and Hoare held first, second, and third places respectively in the sidecar class until the 7th lap, when Newman took third place, which Pullin seized in the ninth lap, and this order did not alter till the end. Ware rode a magnificent race. The Calthorpe, which had run so well, gave up in its sixteenth lap owing to a broken differential casing. Hoare's retirement was due to his magneto coming loose, while Jephson had to abandon the race in his first lap owing to a cracked cylinder. The results divided up into classes were as follows:

	Bore and stroke.	c.c.	mls.	yds.
Class B.				
H. V. Colver (2-cyl. Enfield sc.)	60×61	350	40	98
Class C.				
*C. G. Pullin (1 Rudge sc.) ...	85×88	499	52	764
S. F. Garrett (1 Regal-Green sc.)	85×88	499	50	1,122
H. C. Newmann (1 Ivy-Green sc.)	85×88	499	50	1,122
K. Holden (1 B.S.A. sc.) ...	85×88	499	49	733
A. V. Sumner (1 Zenith sc.) ...	85×88	499	41	702
Class D.				
†E. B. Ware (2 Zenith sc.) ...	76×82	748	56	542
Class E.				
C. R. Collier (2 Matchless-Gradua sc.)	90×77.5	998	54	1,053
P. H. T. Hoare (2 C. and H.-Jap sc.)	90×77.5	998	14	laps
M. Heinzel (2 N.S.U. sc.) ...	75×94	830	8	laps
Cycle Cars				
B. Haywood (4 Singer)	63×88	1,096	62	560
G. W. Hands (4 Calthorpe) ...	62×80	1,088	16	laps
J. L. Buckingham (1 Buckingham)	89×120	746	1	lap

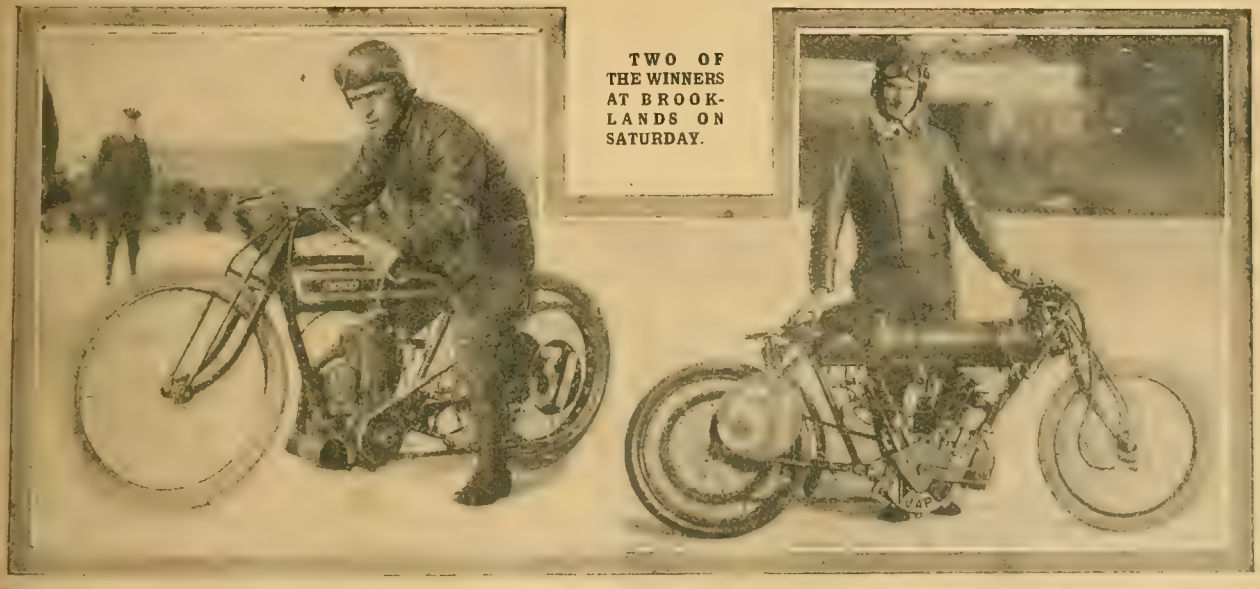
* Record, beating S. F. Garrett (2 Green), 50m. 1,740 yds., 50.99 m.p.h., October 12th, 1912; also the fifty miles record, beating Garrett, 58m. 45.2s. Pullin's time, 57m. 47⅕s.

† Record, beating Garrett (2 Green, 499 c.c.), 50m. 1,740 yds., October 12th, 1912; also the fifty miles record; also beating Garrett as above.

The A.C.U. Junior Championship.

Racing was then adjourned for an hour for lunch, after which the afternoon programme opened with the Junior One Hour Championship Race, for motor bicycles not exceeding 350 c.c. First prize, *The Auto* Challenge Cup (presented by the proprietors of the then *Automotor Journal*

TWO OF THE WINNERS AT BROOKLANDS ON SATURDAY.



(1) G. E. Stanley (3½ h.p. Singer), who won the junior hour race, and broke the 350 c.c. hour record by covering 62 miles 1,199 yards. (2) E. Remington (8 h.p. Matchless), winner of the Five-lap A.C.U. Championship.

A string of competitors at the start of the hour sidecar and cycle car event.

to the R.A.C. in 1900 as a perpetual trophy) and the A.C.U. gold medal; second prize, the Club's gold medal; third prize, the Club's silver medal; fourth prize, the Club's bronze medal.

In this race Alexander rode the new overhead valve Douglas. Axford's Martin was conspicuous for its neat exhaust pipe arrangement, one pipe from each cylinder being fitted each side of the machine. All made a good start, but Alexander nearly upset Elwell. The completion of the first lap was heralded by a group all in close order, of which the first was Stanley, who was followed by Newman, Mason, Alexander, and Williams. Then after a short interval came Edmond, Axford, Elwell, Greaves, Heinzel, Colver, and Holzapfel, whose engine was misfiring and continued to do so throughout the race. Axford's luck was out on Saturday, for a plug and a tyre badly lacerated by a nail put him out of the running in the second lap. Stanley, Newman, and Williams led for the first five laps, and then Alexander assumed third place, while Williams dropped back, and finally had to stop in the seventh lap owing to a sticking tappet. Elwell had also to pull up owing to a stretched valve, which he had to change. Alexander continued to hold third place till his twelfth lap, when Newman's withdrawal placed him second. Then in the thirteenth lap (unlucky number!) a broken inlet tappet rod placed him *hors de combat*. Stanley meanwhile continued to forge ahead and increase the miles between the first and second places. Mason was now running second and Edmond third. Then Edmond retired, and Greaves, whose machine was running most consistently, was third. The result was as follows:

	Rider and machine.	Bore and stroke.	c.c.	mls.	yds.
1.	*G. E. Stanley (1-cyl. Singer)	75×79	349	62	1,199
2.	H. Mason (2 Nut-Jap) ...	60×61	350	58	556
3.	H. Greaves (2 Enfield) ...	60×61	350	54	1,042
	H. V. Colver (2 Enfield) ...	60×61	350	52	885
	A. Holzapfel (1 Regal-Green-Precision)	70×90	347	51	872

*Record, beating Stanley's previous hour record, 16th July, 1913, 62 miles 920 yards.

The Five-lap A.C.U. Championship.

The next event was the only short distance race in the programme. This was the Five-lap A.C.U. Championship Race, for motor bicycles up to 1,000 c.c. First prize, *The Motor Car Journal* Challenge Cup (presented by the proprietors of the above journal to the R.A.C. in 1900 as a perpetual trophy) and the A.C.U. gold medal; other prizes as in the preceding race.

An inspection of the machines before they started revealed the fact that the majority were fitted with Senspray carburetters. All the competitors were mounted on big twins except Stanley. All got away well, and as they finished the first lap were almost equally spaced out. The order was George, Remington, Collier, Stanley, Hellaby, Baragwanath, Howard, and Baldwin.

In the second and third laps the order of the first three was unaltered, Baldwin's belt came off at the end of the third lap. In the fourth lap, Remington was leading easily, H. Collier was second, and George third. In the last lap the order was the same, but Collier, who had broken down, did not cross the line. His machine appeared to have had sufficient momentum to do so, and had he stuck to it he would have had had an excellent chance of finishing second. Result:

	Rider and Machine.	Bore and stroke.	c.c.	Time. m.	s.
1.	E. Remington (2 Matchless-Jap)	90 ×77.6	986	10	40*
2.	S. George (2 Indian)	82.5×93	994	11	12⅘
3.	G. E. Stanley (1 Singer) ...	85 ×88	499	11	27⅘
	J. A. Hellaby (2 Indian) ...	82.5×93	994	12	5⅘

*Speed, 76.43 m.p.h.

The Senior A.C.U. Championship.

The last event of the day, for which the largest number of entries had been received, was the popular Senior One Hour A.C.U. Championship Race for motor bicycles not exceeding 500 c.c., for *The Motor Cycle* Challenge Cup (presented to the R.A.C. in 1900 as a perpetual trophy for a one hour motor cycle race). Other prizes as in the preceding races.

The first lap order was Cocker, Hill, Pullin, O'Donovan, Green, Miller, Carryer, Garrett, Hoare, Edmondson, Le Vack, Grenfell, Hawkes, Baker, Cushman, and Abraham.

In the second lap Hill was the leader, Cocker second, and Pullin third. In the third lap Pullin assumed the lead, which he held for the next fourteen laps, Hill kept the second place for the next five laps, but O'Donovan, who, though driving an engine which, to use his own expression, "had not seen petrol" before the race, was gradually gaining ground, and in the eighth lap took second place, which he held for some time. Then the newness of the engine eold, and a seizure brought him up in his tenth lap. Meanwhile Pullin kept the lead, and very little separated the next two men, Cocker and Hill.

An Exciting Finish.

At the end of fifteen laps Hill had had two stops, and Green was pressing him hard. In the seventeenth lap Pullin stopped for oil, and now Cocker was ahead, and kept the lead for four laps. Meanwhile Pullin gradually picked up and amidst great excitement passed his rival in the twenty-second lap. It is a strange fact that in every race we recollect for *The Motor Cycle* Cup since 1903 there has been an exciting finish. Result:

	Rider and machine.	Bore and stroke.	c.c.	mls.	yds.
1.	C. G. Pullin (1-cyl. Rudge)	85×88	499	64	298
2.	J. Cocker (1 Singer) ...	85×88	499	63	1,707
	T. E. Green (1 Rudge) ...	85×88	499	63	1,380
	L. Hill (1 Rudge)	85×88	499	60	1,034
	F. Carryer (1 Imperial-Jap)	90×77.5	493	58	1,124
	S. F. Garrett (1 Regal-Green-Precision)	85×88	499	57	125
	W. Edmondson (1 Triumph)	85×88	499	56	800
	P. H. T. Hoare (1 C. and H. Jap)	90×77.5	493	54	1,446
	J. G. Grenfell (1 Norton)	79×100	490	53	689
	W. D. Hawkes (1 Ixion-Precision)	85×88	499	49	1,096
	G. W. Baker (1 Veloce) ...	85×88	499	46	353
	M. G. Abraham (1 Zenith-Green)	85×88	499	46	353
	L. Cushman (1 N.L.G.-Jap)	85×85	482	43	350
	H. Le Vack (2 Motosacoche)	64×77	496	38	83
	D. R. O'Donovan (1 Norton)	79×100	490	10	laps.

It's RESULTS that count!

—and the results obtained from the "RELIABLE" Belt have given perfect satisfaction to its users—for proof—note the following letters from "RELIABLE" Belt users—a few of the many received:—

"Re Reliable Belt which I bought from you on July 1st, 1913, I am pleased to tell you it is the best belt I have ever used during my twelve years riding a Motor Cycle, having run about 1,500 Miles on 3½ h.p. Motor Cycle with Sidecar and Phillipson Pulley. On August 6th I won Silver Medal (2nd Prize) in the Manchester Motor Club Reliability Run to Colwyn Bay and Back, also on Sept. 20th, Gold Medal (1st Prize) in the Manchester Motor Club Hill Climb. Both events with your Belt. I recommend it to all my Motor friends. Wishing you every success with same."

F. KNIGHT, Pendleton, Sept. 25th, '13.

"With reference to the 1 inch Reliable Belt you supplied me with in July last. I have been using this Belt continuously since that date, and have covered in all 2,294 miles—including an 800 mile tour in Wales on my 8 h.p. Matchless and Sidecar, and have not had occasion to touch the belt at all. It seems good for at least another 2,000 more miles yet. I am more pleased with it than I have ever been with any other belt before, and its flexibility and strength are most surprising, and I am sure could not be too highly praised." T. S. RIGBY, Perry Hill Farm, Quinton, 19th Sept., '13.

"You will be interested to know that I won the Triumph Cup in the Westmorland M.C.C. Reliability Trial, Sept. 21st, using your Reliable Belt. The Trial was originally held on 31st Aug., but five of us tied, and the re-run took place yesterday, over a course which included nine of the A.C.U. Six Days Test Hills. I have had to ride 500 miles to get this Cup, and the 'RELIABLE' is in A1 condition."

A. ARTHUR GREGSON, 12, Hesketh Road, Southport, Sept. 22nd, '13.

WINS on the "RELIABLE" Belt!!

At Brooklands, Sept. 30th, Mr. D. R. O'Donovan on Norton, fitted with **"RELIABLE" Belt, broke 4 World's Records, viz.:—**

CLASS C and D. FLYING 5 MILES — 4 min. 11⅗ secs. — 71.54 m.p.h. CLASS C and D. STANDING 10 MILES — 8 min. 48⅘ secs. — 68.08 m.p.h.

BRIGHTON Open Speed Trials, Sept. 20th. — CLASS II. for Racing Lightweights, Experts' Division. Mr. J. P. Le Grand, FIRST. Mr. W. A. Jacobs, SECOND — both used "RELIABLE" Belts. 3½ h.p. Norton machines, fitted with "RELIABLE" Belts, obtained the following results: — FIRST in 500 c.c. Touring Class, General. FIRST and THIRD in 500 c.c. Racing Class, General. SECOND in 750 c.c. Racing Class, General. Also a Big Four Norton (fitted with "RELIABLE" Belt) with 14-stone rider, successfully climbed STOUP HILL — which had never before been conquered by a Motor Cycle, in spite of many numerous attempts.

B.M.C.R.C. Meeting at Brooklands, Sept. 13th. TIME TRIALS. Class E. Kilo. and Mile. F. W. Barnes (Zenith) FIRST. SIDECAR RELAY RACE, F. W. Barnes (Zenith) FIRST. 10 MILE RECORD RACE FOR SIDECARS. F. W. Barnes (Zenith) FIRST and also broke the 10 MILE CLASS E SIDECAR RECORD. All on "RELIABLE" Belts.

Westmorland M.C.C. Reliability Trial, Sept. 21st. TRIUMPH CUP, WON by Mr. C. Arthur Gregson, using "RELIABLE" Belt.

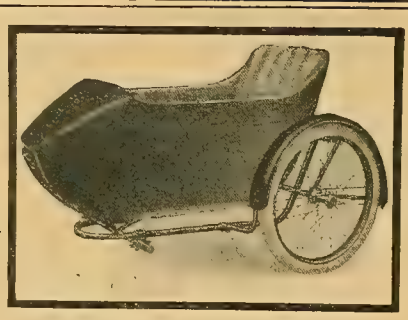
Birmingham to Carlisle and Back, Open 24 Hour Trial, Sept. 19th. S. A. Rowlandson (Rudge-Multi) GOLD MEDAL. A. G. D. Clease (Rudge) GOLD MEDAL. Both used "RELIABLE" Belts, untouched from start to finish.

—If you want to WIN events use the "RELIABLE" Belt results have proved its supremacy! Try it!! Ask for our new folder, "A Better Belt Way."

LYCETT'S, "The Saddlery," Bromley St., Birmingham.

R.H.S

Model S 4.



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"CANOELET"

AFFORDS TO YOUR PASSENGER THE PLEASURE AND COMFORT OF A SEAT IN A MOTOR CAR.

YOUR SPECIAL ATTENTION IS DIRECTED TO OUR MODEL S4.

Built and painted lust like a coach, and richly upholstered.
Adjustable seat giving five positions to suit individual taste.
Chassis, our well-known patent design, giving low body position.
Four couplings to Motor Cycle, giving double security.

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L3... .. £13 4 0
L4... .. £13 13 0
Model de Luxe £15 15 0

Body Reg. Design No. 59699/11
Chassis Patent No. 21045/11
Couplings Patent No. 24612/11

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The **Plug** with the perfect gas-tight Joint. Never misses fire, no matter how slow the engine is running or how weak the mixture. Obtainable at all first-class garages.

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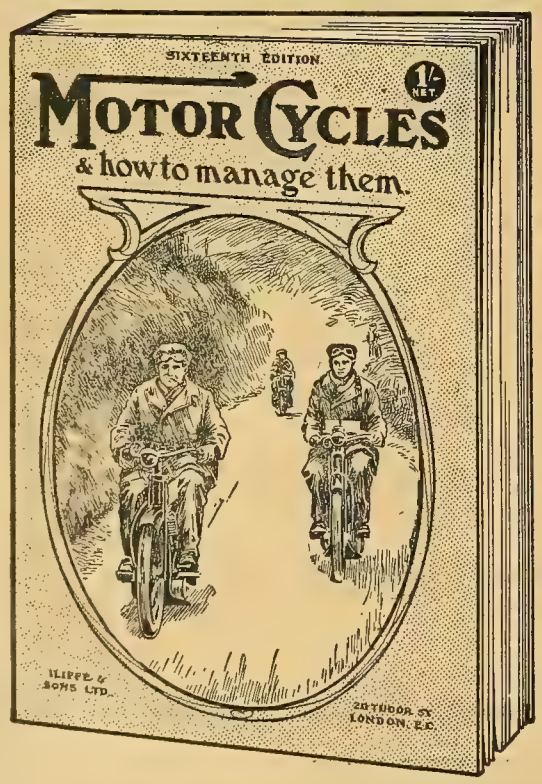


New Edition. *Now Ready.*

SIXTEENTH EDITION REVISED and ENLARGED

THIS new edition of "Motor Cycles and How to Manage Them" is, in many ways, a great improvement on its predecessors. It has been entirely revised and brought up-to-date by the staff of "The Motor Cycle." 50 extra pages and nearly 100 new illustrations have been added. The chapters on the Carburetter, Transmission, and Gearing, have been enlarged considerably, and form a very important feature of the new edition. New matter is included dealing with Cycle Cars. Every user of a motor cycle, and every purchaser of a new or second-hand machine, will find this book interesting, instructive, and helpful.

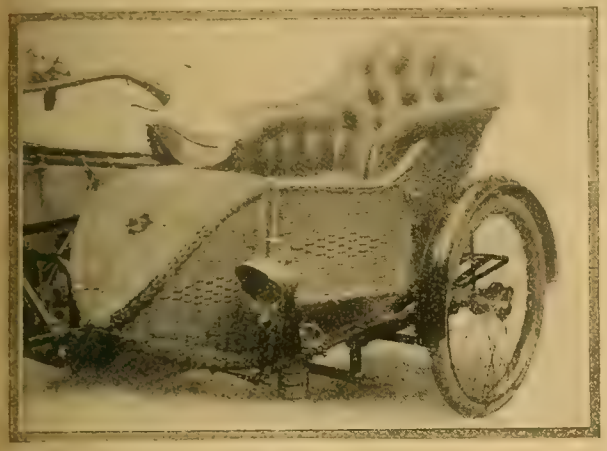
Price 1/- net. **By Post, 1/3.**

Obtainable from
Iliffe & Sons Ltd., 20, Tudor St., London, E.C.,
and all booksellers and bookstalls.

AMONG THE ACCESSORIES.

The Samson Sidecar.

A very strong and comfortable sidecar is that sold by Reg. Samson, Motor Works, Islington Row, Birmingham. The body, which is made of art cane and well upholstered throughout, is suspended on C springs on a dual dropped chassis. A spacious cupboard for spares is placed underneath the seat. Fitted

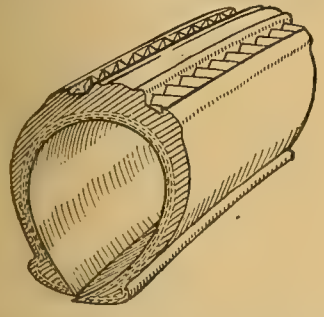


The Samson cane sidecar.

with a large apron and Clincher 2¼in. tyre, it makes a very workmanlike job, and sells for just under £12. It is shown attached to a 3½ h.p. Reg. Samson, one of the features of which is a special tank holding two and a half gallons of petrol.

Roberts Moulded Tyre.

In addition to the large variety of rubber goods handled by Messrs. the A. Roberts Non-skid Tyre Co., St. Mary Street, Birmingham, a new tyre is to be marketed shortly. Our sketch illustrates the pattern of the tread to be used on the 2¼in. tyre, which is moulded on car lines and very stoutly constructed.

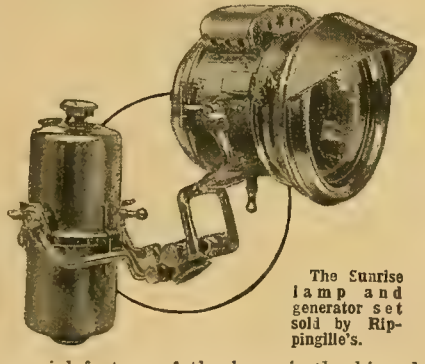


Special attention has been paid to the walls and beads, which, in some tyres, are a frequent source of trouble, and the tread has been designed to give a good rolling surface in the centre with a gripping pattern at the sides. 2¼in. and 3in. tyres will be manufactured on the same general lines, though the tread of the 3in. may be slightly varied. These tyres are made of excellent material, and, owing to their special construction, should wear well.

Rippingille's Separate Generator Lamps.

A few days ago we had an opportunity of inspecting one of the Rippingille motor cycle lamps and separate generators which this firm is marketing. Rippingilles have a splendid name for their oil stoves, and their motor cycle lamps and generators have previously been supplied mostly to trade customers, but they are launching out on their own account, and a very substantially constructed well-designed lamp was the one submitted to us, and which we illustrate. The firm have adopted the name of "Sunrise" for all their motor lamps. As will be seen, the generator has a shackle fastening for the gas joint, and the position where the gas tube leaves the generator obviates all bends in the tubing, and gives a direct feed to the lamp; it is almost an ideal position for the feed tube.

The bracket is adjustable for either ⅞in. or 1in. pillars, and both lamp and generator can be set at any desired angle. A special feature of the lamp is the hinged back, which renders the Mangin mirror easily accessible. The burner has a focussing adjustment, the bell of the lamp being fitted with a reflector extension. The dimensions of the lamp are 6½in. high, front 6in diameter, the Mangin mirror being 4¾in. in diameter; a 14 litre Roni burner is used. The generator is 8½in. high and 3¼in. diameter. This set is sold at the moderate price of 35s., nickel plated.



The Sunrise lamp and generator set sold by Rippingille's.

In addition to the above, Rippingilles make a number of small gas and oil lamps suitable for light cars and cycle cars, their latest type round generator being particularly suitable for this class of vehicle.

Improved Roc Gear.

We illustrate herewith the large clutch model Roc hub gear with double fulcrum adjustment, which is specially designed for sidecar work. One of the advantages of this gear is the ease with which the back wheel can be taken out for tyre replacement or repair.

The latest pattern Roc gear, which has a very large clutch.

Attwood's Sidecar Body.

The illustration shows a very neat sidecar body made by F. Attwood and Co. (C. H. Apsey), 99-107, Rosebery Avenue, E.C. This body is made of sheet metal panels riveted together, and has a very smart appearance. We had the pleasure of a ride in Mr. Apsey's sidecar, which was fitted to a 1913 three-speed Excelsior machine. In spite of the fact that the road surface was appalling owing to the great number of pot-holes we found the sidecar extremely comfortable. Owing to the long nose of the sidecar, there is enough leg room for the tallest person. There is a tool compartment under the seat, and the sidecar we tried was fitted with a detachable lining fastened by spring studs. The cape would protect the passenger in any weather.

The cushion was of the type employed in car practice—leather padded with horsehair and containing nine coil springs. A special feature is the large "boot."

Attwood's sidecar which has a tyre boot at the rear.

QUESTIONS & REPLIES

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Blackpool to Skipton.

Would you kindly tell me the best way, not necessarily the shortest, from Blackpool to Grassington, near Skipton, for a 3½ h.p. and sidecar, avoiding steep hills if possible?—J.B.

Route: Blackpool, Lytham, Preston, Whalley, Clitheroe, Gisburn, Skipton, Rilstone, and Grassington.

How to Find Cubic Capacity.

Will you be so kind as to give me the formula for working out the cubic capacity of a petrol engine, provided that the bore and stroke were given? In your paper I saw a formula given, but I did not understand it. It was $D^2 \times S \times 7,854$, I think, but what do D and S stand for? For example, an engine of 90 mm. bore × 90 mm. stroke, what is the cubic capacity? I see in a catalogue of J.A.P. motors an engine 120 mm. × 120 mm., two cylinders set at 90°. Is this suitable for fitting to a motor cycle?—A.R.L., Ceylon.

The formula given is quite correct. D^2 equals the bore of the cylinder squared, and S the stroke. If you multiply this by 7,854 it will give you the cubical capacity. A single-cylinder engine 90 × 90 would be 572 c.c. An engine 120 × 120 mm. two-cylinder would be too large for a motor bicycle.

North London to Brooklands.

Would you be so good as to give me some idea as to my best route from Wood Green, N., to Brooklands, avoiding the City of London, as I have a 1913 Douglas and sidecar (two-speed) and passenger?—F.W.F.

We have pleasure in giving you the following route, which is clearly shown on the R.A.C. Official Map of Recommended Routes Round London (which can be obtained from these offices, price 1s. 7d. post free): Muswell Hill, Fortis Green, Finchley, down Fitzjohn's Avenue, at the bottom of which turn right and go down West End Lane, past West Hampstead Station, down Cavendish Road, Wrentham Avenue, to Royal Oak, where turn left and follow the tramlines to Acton, then through Gunnersbury, Kew, Richmond, Petersham, and Kingston, where you join the Portsmouth Road, which follow through Cobham and then turn right for Brooklands after leaving the village.

Beckennam to Deal.

Would you kindly tell me the best route from Beckenham to Deal, passing through Westgate-on-Sea?—D.M.

Your best route would be as follows: Beckenham, Bromley, Farnborough, Riverhead, Borough Green, Maidstone, Charing, Canterbury, Westgate-on-Sea, then go through Ramsgate and Sandwich to Deal.

Acid for Batteries.

Would you kindly let we know the way to make new acid for my motor cycle battery as I want to renew it?—J.A.

If you will refer to page 222 of the sixteenth edition of "Motor Cycles and How to Manage Them" you will see instructions for filling accumulators with fresh acid. This should have a specific gravity of 1.20. The acid should always be added to the water, and the preparation should be allowed to cool before it is put into the accumulator. The specific gravity is found by means of a hydrometer.

Slow Running Difficulty.

I have lately purchased a second hand 5½ ...S.C. two-speed which I find difficult to start. I have examined magneto, and the timing seems correct from instructions in your handbook. The B. and B. carburetter, instead of being attached in the centre of the cylinders, is at the rear end of machine. Would this make any difference? The machine will not fire at a slower speed than 15 m.p.h. Would Badcock's pilot jet make any difference? The two-speed N.S.U. gear, after running a short distance, gets very loose on the shaft; it does not come off, but wobbles about tremendously, and yet before starting I can tighten it up so that it will not move a fraction either way. Would you please inform me why it should get so loose?—H.H.

See that your magneto points are clean and that the faces meet truly; if this does not cure the hard starting and enable slow running, make quite certain that there are no air leakages between the

MOTOR CYCLES IN THE WILD WEST.
A group of American motor cyclists in the back forests of America. Another instan e of the ubiquity of the motor cycle.

carburetter and the engine. We believe the engine you are speaking of is fitted with atmospheric inlet valves. The opening of these should not exceed $\frac{5}{16}$in., and it is quite possible that the springs are too stiff to allow the valves to open at low speeds. The position of the carburetter at the back of the inlet pipe is standard on that machine, and is not likely to be the cause of the trouble. Badcock's pilot jet would probably improve matters.

The trouble with the two-speed gear is unusual, and as we are unable to examine the case, we would suggest that the key, by means of which the gear is fitted to the crankshaft, is a bad fit. Probably a new key properly fitted would cure the trouble. Consult the makers.

Improving an Old Machine.

I have a 1904 2¾ h.p. Kerry to which I propose fitting a magneto which will have chain drive, being driven at half engine speed from the camshaft. (1.) I wish to know whether the camshaft, which is ⅜in. diameter and has a ⅛in. hole right through one end of it, will be sufficiently stout to withstand the strain of driving the magneto. (2.) Can you inform me why sometimes my engine suddenly stops and when restarted will run for some yards as though each explosion were a tremendous effort, and then suddenly start going properly without my having altered the position of the controls? (3.) I further propose converting my automatic inlet valve to mechanically operated by means of overhead mechanism. This will be worked by means of a cam fitted on the camshaft. Will this alteration make for distinct improvement in running, and is the conversion to be recommended? (4.) I cannot, do what I will, get the engine to take full throttle. The carburetter is a 1913 Senspray, and I use 28 jet with petrol and 26 with benzole. If I open the throttle more than about half-way the engine starts to slow up and fires erratically, yet when I bring the control back it picks up speed again. —A.R.J.

(1.) Your query as to whether the camshaft is strong enough to perform the work of driving the magneto is one that we cannot possibly answer without inspection, and we advise you to consult some practical mechanic in your neighbourhood who would be able to advise you. (2.) The symptoms you describe of your engine slowing up and then going on again quickly might be due to many things, probably unsuitable adjustment of the carburetter for slow running, insufficient lubrication, or else the jet of the carburetter has some obstruction in it which rises and falls, but does not come clear out of the jet. (3.) Probably the conversion you mention would improve the running of your machine. It is highly necessary for you to arrange that the rod working the rocker to the inlet valve should be made adjustable in order to take up wear. (4.) The reason you cannot give your engine full throttle is probably because the carburetter will give more gas than the engine will take, and in that case the engine will choke up as the mixture would get too rich. Provided you are getting good results with the throttle only partially open, we do not advise you to interfere with it.

Trouble in Gear Changing.

Will you kindly give me your advice on the following troubles which occur on my machine: (1.) I have lately purchased a 1911 model 7 h.p. V.S., with atmospheric inlet valves. The two-speed gear is in the hub, V.S. hand lever on the side of the tank. When I start the engine and change from free to low gear the machine will scarcely move unless I run at a good pace with it, and can only change into direct drive when going at about 10 m.p.h. down hill; it then changes with a terrible jerk and noise. If I attempt to change under above rate it pulls up dead. I have a nearly new 1in. Whittle belt which, on these occasions, is usually broken. The engine will gradually stop at every little rise in the ground, and seems unable to pull the load. (2.) Should I raise the exhaust valve when changing gear? (3.) It is fitted with a B. and B. single jet carburettter. What size jet would be best for this combination? (4.) Do you think the above faults are caused by the carburetter, gear, or engine?—H.H.

(1.) It looks very much as if something was binding in the low gear, causing too much friction, from the symptoms described in your letter. The only thing to do is to see that everything is perfectly free, and not to attempt to change up too early. As you are a novice you would be well advised to have the machine examined by a competent man. (2.) Of course, you must lift your exhaust valve when changing, and not drop it until the top speed is engaged. (3.) You should try a No. .033 jet. (4.) We should say the trouble is caused by some defect in the gear.

READER'S REPLY.

Tyres for High-powered Sidecar.

Being actively engaged in retreading motor cycle tyres, we venture to take mild exception to your statement in reply to "Cedax," in a recent issue, that retreading is sometimes rather a lottery. If *every tyre* sent for retreading was put in hand, your remark would doubtless be fairly true, but what reputable firm would do this? "Cedax" can be quite assured that if his cover is despatched to a responsible firm, with a reputation, it will be minutely and expertly examined, and only retreaded if, in the opinion of the firm's experts, good service is likely to result. This is our invariable rule with both car and motor cycle work, and in the course of the last ten years we have retreaded many thousands of covers, and have also rejected a great many thousands.—ALFRED ROBERTS AND SONS, LTD.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"J.G." (Staffs).—2¾ h.p. twin Levis.

"R.R.M." (Sleaford).—Wall Autowheel.

"B.R." (Leeds).—Brampton variable gear, especially with regard to free engine and belt wear.

"S.P." (Stroud Green).—2 h.p. Humber, single speed. General capabilities, wear of belt, etc.

"W.M." (Birmingham). — 2½ h.p. Veloce. Forced lubrication and metal-to-metal clutch.

"A.S.R.M." (Mysore).—1913 F.N., four-cylinder, with sidecar. Flexibility, reliability, consumption; also a.o.i.v. 7 h.p. 1913 Indian with sidecar.

"V.A.R." (Ruthin). — Benzole with 8 h.p. Matchless-Jap, Amac carburetter. Whether any alterations necessary to carburetter, size of jet, etc.

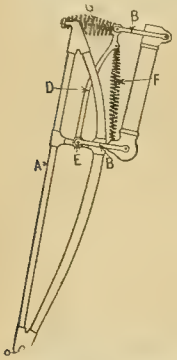
"W.S.W." (Enfield).—7 h.p. blue Indian, two-speed F.E. and sidecar, also solo. Wear, reliability, hill-climbing, consumption, and ease of control when used solo.

DANGEROUS CANAL BRIDGES IN CHESHIRE AND LANCASHIRE.

A typical example of a dangerous canal bridge on the Altrincham Warrington Road is shown above. The Roads Improvement Association is making an effort to have them removed. Though examples are encountered in all parts of the country they are most common in Cheshire and Lancashire.

A Spring Fork.

The link system of this fork permits movement of the wheel, not only vertically, but in a longitudinal direction. The girder A is connected to the top and bottom of the steering head by pairs of links B, the upper links being connected to the girder through a strut D. A pivotal support is afforded for the girder at E, permitting the compound action referred to. The disposition of the springs is clearly shown in the drawing, F acting for the vertical component, whilst the longitudinal movement is under the restraint of the spring G.—A. J. Hayes, No. 19,705, 1912.



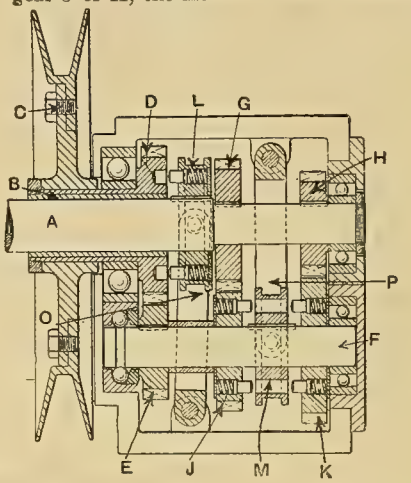
PATENTS

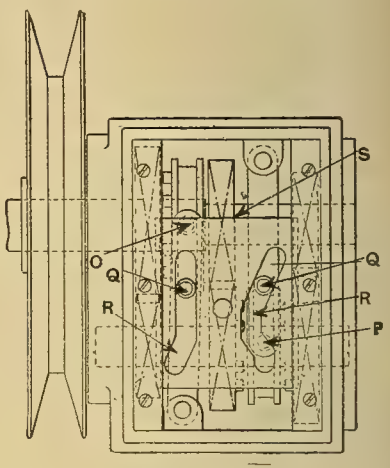
BY

ERIC W. WALFORD, F.C.I.P.A.

A Three-speed Gear Box.

The sectional plan shows the arrangement of the gears. The shaft A is driven from the engine, and has loosely mounted upon it a sleeve B to which is attached the driven pulley C. On the sleeve B is secured a gear wheel D, which meshes with a similar wheel E fixed on the layshaft F. On the driving-shaft A are keyed further gear wheels G H, engaging others J K on the layshaft. Clutch devices L M are arranged on the driving-shaft and layshaft respectively; the actual engaging means comprising spring plungers on the one part taking into holes in the other part as shown. Operation is effected by forks O P, which can rock about their pivots. When the clutch L is engaged with the gear wheel D the drive is direct. On disengaging this clutch and engaging that M with either gear J or K, the motion is from the main-shaft through the gears G J or H K to the layshaft, and thence through the gears E and D to the driven sleeve. The plan view shows the means of actuating the forks O P. Each fork has a projection Q, which is engaged by cam slots R in a plate S movable over the top of the gear box. It will be seen that, owing to the angularity of the slots, movement of the plate will effect rocking of the forks O P, and this movement is so arranged that engagement and disengagement of the gears is effected in progressive order, and no gear is engaged until that previously in operation is taken out.—J. Doherty and the D.H.K. Motor Cycle Specialities Co., Ltd., No. 23,519, 1912.





Armstrong Gear Success.

In the recent Midland reliability trial only two lightweights were successful in gaining gold medals, one of these being G. Taylor's 2½ h.p. Connaught fitted with the Armstrong gear.

Puch Motor Cycles.

Messrs. Sidley, Crawley, and Gates, Ltd., 115, Fore Street, E.C., will exhibit models of the Puch motor cycles at the Show. These are, we understand, at present being re-designed to suit the requirements of the British rider.

Up the Stelvio on a Douglas.

A postcard from Mr. Edmund Bacon (of Twickenham, Middlesex) announces that he has succeeded in climbing the Stelvio Pass, despite the snow and newly mended roads, on his 2¾ h.p. Douglas. Up to that point the machine had run 8,436 miles, and all Mr. Bacon found necessary to do was to grind the valves and scrape the cylinders.

A Novel Wicker Sidecar.

Mr. W. E. Manning, sidecar manufacturer, St. John's Works, 85, South End Road, Hampstead, N.W., informs us with reference to a neatly designed wicker sidecar attached to a 2¾ h.p. Douglas, illustrated on page 308 of our issue of the 9th inst., that this is a design registered by him in July, 1912. Mr. Manning makes a point of supplying similar sidecars which weigh only 46 lbs. to the F.N. motor agency for their light machines, and to Messrs. Robertsons for such machines of medium power as the Douglas and twin Humber.

SPARKLETS

Gaulois Road Atlas.

Messrs. Gaulois Tyres (1909), Ltd., 6, Bath Street, City Road, E.C., have lately published a road atlas of the British Isles, which is quite clear and excellent for following the principal roads in the country. It is thin and bound in stiff paper, and can be conveniently carried in the pocket.

Waterproof Gloves.

Asbestol waterproof gloves, to which we have made previous reference in *The Motor Cycle*, are to be supplied to the Aviation Corps of the French Army. They have been subjected to very severe tests during the past twelve months, from which they have successfully emerged, and are used by a large number of motor cyclists in this country.

New Home of Precision.

F. E. Baker, Ltd., makers of the Precision engines, notify us that their address now is Precision Works, King's Norton, Birmingham. The new works are three minutes only from King's Norton Station, to which there are frequent trains from Birmingham (New Street Station). The telephone address is: King's Norton 184 (two lines).

The 3½ h.p. Ariel.

All the awards in the recent Falkirk and District M.C.C. reliability trial were made to Ariel riders, viz., J. Cameron, E. Shakespeare, A. M. Cockburn, and R. M. Hope, all on 3½ h.p. Ariel motor cycles.

In addition to the ordinary prizes, J. Cameron was awarded the special prize for the best performance in the solo class and R. M. Hope in the passenger class.

Rom Tyres for 1914.

For next year the Rom Tyre Co. will continue to specialise in their well-known combination cover, which is one of the most successful tyres of this type manufactured. Among the novelties we may mention a new rubber-studded cover to go with the 2¼in. combination cover on the front wheel, designed to fit 2¼in. rims. The chief feature of these tyres is the thickness of the tread. The round tread, 650 × 65 mm., cover is sold at a very moderate price.

Albion Two-speed Gear.

In describing last week the new two-speed dog clutch counter-shaft gear introduced by the Albion Engineering Co., Ltd., we inadvertently referred to Messrs. Harris, Sons, and Co. as the makers (the title of the original firm). We publish this paragraph in order to correct any misunderstanding our reference may have caused, as the Albion Engineering Co. took over the business some considerable time ago.

For 1914—*all* Twins

N.S.U.

FOR 1914—many ingenious detail refinements, and the use of twin-cylinder engines exclusively, is the N.S.U. programme. Increased efficiency—smart appearance—and very advanced designs, ensure a popular demand for the new models.

3½ H.P. Twin-cylinder, 493 c.c., two-speed gear and free engine, belt drive.

6-7 H.P. Twin-cylinder, 870 c.c., chain drive, three-speed countershaft gear, 26×3in. tyres.

7-9 H.P. Twin-cylinder, 996 c.c., chain drive, three-speed countershaft gear, 28×3in. tyres.

THE N.S.U. TWO-SPEED GEAR AND FREE ENGINE PULLEY

can be fitted to practically every well-known make of motor cycle. Is lighter than any other gear on the market—and remarkably frictionless on the low speed.

£7 0 0 - - - (with fixed pulley)
£8 0 0 - - (with adjustab'e pulley)
Including all Fittings.
IDEAL FOR SIDECAR WORK.

THE N.S.U. MOTOR COMPANY, LIMITED.

Offices and Showrooms—186, Great Portland Street, London, W. Goods and Repairs—83-85, Bolsover Street, London, W.

REDUCTION IN PRICE

OF

PALMER MOTOR CYCLE TYRES

		26x2½
CORD TYRE (Strongest and Best) - - - - - -	per cover	38/6
HEAVY FABRIC TYRE (second only to the Palmer Cord) -	„	34/4
ORDINARY FABRIC TYRE (for light machines) - - -	„	25/4
PRIVATEER (a good cheap tyre) - - - - - - -	„	23/3

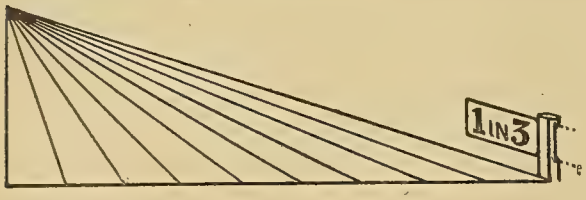
A Tyre to suit every class of rider.

The above-mentioned tyres are absolutely the best possible value ever offered to the motor cycle owner, and can be relied upon for durability and efficiency.

Write for Illustrated Booklet—

THE PALMER TYRE LTD., 119, 121, 123, Shaftesbury Avenue, LONDON, W.C.

MOTOR CYCLE DEPOT: 103, St. John Street, Clerkenwell, E.C.



Climb 1,750 feet in a mile, and you

will want to have motor-cycle tyres which grip any surface—which will stand frightful bumps and shocks, and sharp stones. At least that is what Messrs. W. B. Little, Raymond Drinkall and T. B. Westmorland found on their recent famous climbs of redoubtable Skiddaw and Helvelyn.

¶ All three of these daring riders used Stelastic tyres. Skiddaw is 3,058 feet high. There is a rise of 1,750 feet in less than a mile—an average gradient of one in three. At many places the grade is almost one in two.

¶ There is no road or pathway. For a long distance the surface is covered with loose stones of shapes and sizes calculated to strike terror into the heart of any rider —or tyre!

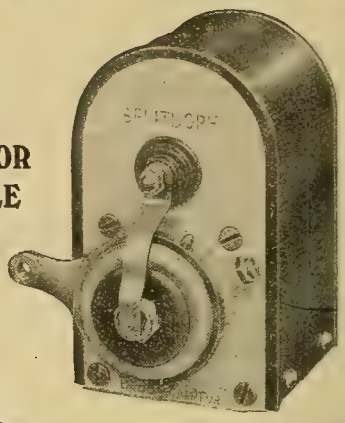
¶ But, as is now motor-cycling history, all three of these Stelastic users accomplished this marvellous climb with flying colours. On Mr. Little's machine were the same Stelastic tyres which he used in the Six Days Trial.

¶ Do you know the unique construction of Stelastic tyres which makes such almost unbelievable wear possible? Let us send you printed matter which tells about the wonderful Stelastic Tread, in which woven steel "meshes" "give and take" in perfect harmony with the purest Para rubber. Stelastic tyres are absolutely cut-proof, and almost impossible to puncture. If you do not know the address of the Stelastic Depôt nearest to you, we shall be glad to advise you.

STELASTIC TYRES, LTD.,
76, York Street, Buckingham Gate, London, S.W.

Stelastic Tyres

TRADE SPLITDORF MARK **SPLITDORF** TRADE SPLITDORF MARK



MOTOR CYCLE AND CYCLE CAR

TRADE SPLITDORF MARK **MAGNETO** TRADE SPLITDORF MARK

Represents the very best in design and workmanship. Its use on your motor cycle or cycle car will insure you against all ignition troubles.

WATERPROOF — DUSTPROOF — FOOLPROOF.

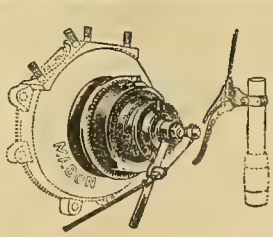
Built by a firm who entered the ignition field in 1858 and have been making magnetos ever since their adaptation to internal combustion engines.

Remember: Experience counts. A trial will convince.

SPLITDORF ELECTRICAL CO.,
6, CITY ROAD, LONDON, E.C.

THE ALL-DAY, EVERY-DAY, HARD SERVICE CHAIN IS "THE COVENTRY."

"The Coventry" Chain Co., Ltd., Coventry, England.



"MABON" VARIABLE COUNTERSHAFT GEAR (8 speeds and free engine). Easily fitted to "Triumphs," "Precisions," etc. **PRICE 7 Guineas complete.**

"MABON" MULTIPLE DISC CLUTCHES in stock for all standard engines. **Price £3 10 0.**

"MABON" CONTROLLABLE PULLEYS. PRICE 3 Guineas. *Full particulars upon request.*

MABON MOTOR WORKS,
29a, Woodside Gardens, Bruce Grove, LONDON, N.

!!!! ASKING for TROUBLE! !!!!

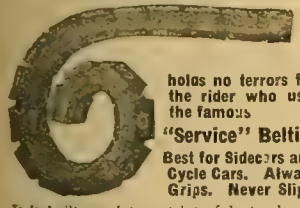
We stock only those articles which are PROVED good by our staff of experienced, practical riders. That our prices are right you can easily test.

Putting so-called cheap accessories on an otherwise reliable machine is not fair to yourself.

It is asking for trouble—which comes sooner or later—Be wise in time and have the best.

You will thank us for this tip in the end.

WET WEATHER



holds no terrors for the rider who uses the famous

"Service" Belting

Best for Sidecars and Cycle Cars. Always Grips. Never Slips.

It is built up of two strips of best selected chrome leather to take the pulling strain, and ½ inch sections of Tan Hide riveted through with strong steel eyelets for simple adjustment. It gives—1st, **extreme flexibility**; 2nd, **a perfect drive on any size pulley** 3rd, **exceptionally long life.**

PRICES—¼in., 1/9; ⅜in., 2/-; ½in., 2/3; ⅝in., 2/6; ¾in., 2/9; 1in., 3/- per foot. See our name upon it. None genuine without.

BELTICUM

will double your belt mileage. Stops slipping. Clean to handle. Carried like a plug. Have it in your toolbag. Per bar, 6d.

ARMSTRONG GEARS from STOCK.

Know your petrol consumption by fitting the

SERVICE PETROL GAUGE. (Patent.)

Fitted with movable numbers, registers accurately. Can be fitted in place of filler cap. State depth and send car when ordering.

PRICE, 10/6

Best English M'facture. For Cycle Cars and Cars.

PRICE, 21/-

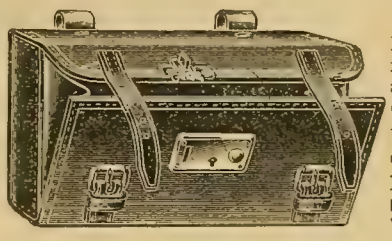
SERVICE CARBON DEPOSIT REMOVING BRUSH.

Most effective readily removes carbon deposit without injuring cylinder, is rotated with the aid of Joiners' brace. State h.p. of engine when ordering.

PRICE, 2/6.

TRADE SUPPLIED.

SERVICE CARRIER SIDE-BAGS.



It is made of leather of finest quality, and the strongest bag made. Will not rattle or shake to pieces.

PRICE, 5/3 each. With lock, 6/3 „

SERVICE HANDLE-BAR WATCHES.

Brass, **3/9.**

Ditto, in extra strong best finished case, and watch with finest movements, **25/-.**

FORWARD SPARKING PLUG.

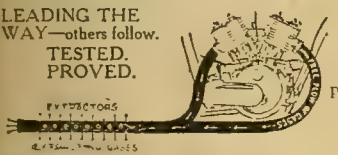
2/6 and 3/6.

The SERVICE CO., LTD., 289-292-293, High Holborn, LONDON, W.C.

EXTRACTOR SILENCERS AND PERFECT EXHAUST TUBE

LEADING THE WAY—others follow.

TESTED. PROVED.



Lists and particulars free.

DAWSONS, 197, Mill Road, CAMBRIDGE.

PARAGON **FOLDING SIDECAR**

WHEN FITTED, WILL PASS THROUGH 30 INCH SPACE.

THE WINCYCLE TRADING CO. LTD. 106, GREAT SAFFRON HILL, LONDON, E.C.

CYLINDER GRINDING

with guaranteed accuracy.

J. C. DALMAN & SONS, BIRMINGHAM.

Quality and Cheapness Combined.

Immediate dispatch of Cycle Houses from

£2 - 7 - 6.

Send to-day for catalogue, or call and inspect for proofs Telephone: Putney 785.

South Western Timber Co., High Street, FULHAM, W.

FOR QUALITY Cardam STAINES

ESTABLISHED 1860. **WORKS COVER 5 ACRES.**

6ft. x 4ft. x 7ft. high	£2	2	6
7ft. x 5ft. x 7ft. „	2	10	0
8ft. x 5ft. x 7ft. „	2	15	0
8ft. x 6ft. x 7ft. „	3	5	0
9ft. x 7ft. x 7ft. „	4	3	6
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12ft. x 8ft. x 7½ft. „	5	12	6

Double doors 2/6 extra.

Prices are on rail Staines Station.

These houses are tenants' fixtures, and can be bolted together in a few minutes. They are made of sound, well-seasoned matchboard, and complete **with floor.** Window in any desired position. Roofs of Stoniflex Felt. We treat each house with Brown Sideroleum. Catalogues with particulars of other sizes Free.

MUDPLUGGING HAS COMMENCED!

Protect your valves with a **T.F. Valve Shield,** combined with **Trouser Guard.** Keeps oil off the clothes. Fits J.A.P., Triumph, New Hudson, Premier, Rover, Precision, Bradbury, Sunbeam Immediate delivery.

Price, 4/- plain; 6/6 polished; Trouser Guard 2/-, post free.

T. FORD, Chestergate, Macclesfield.

LONDON: Service Company.

ALUMINIUM CASTINGS MADE & REPAIRED

Telephone No. 3273 Central

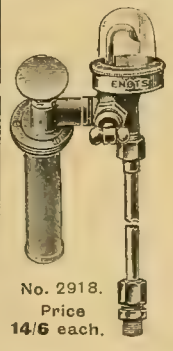
LARGE & SMALL IN PURE & HARDENED FOR ALL TRADES.

CAN CASTS CLEAN CRANK CASES

ROBERT W. COAN ONE OF THE PIONEERS OF ALUMINIUM CASTINGS

219, GOSWELL Rd, LONDON, E.C.

IRON CYLINDERS ALSO REPAIRED.



The "ENOTS" Automatic Drip with AUXILIARY PUMP

(Patent applied for)

Enables Rider to Pass A FULL CHARGE OF OIL TO ENGINE AS REQUIRED.

No Interference with Drip. No Alteration of Adjustment. Simple in Action and Construction.

On view at CYCLE SHOW, OLYMPIA STAND 244 (GALLERY), with a variety of Components and Accessories Essential to Safety and Comfort.

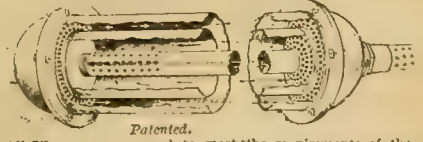
Sole Makers:

BENTON & STONE, LTD., BIRMINGHAM.

No. 2918. Price **14/6** each.

The A.C.U. Silencer Trial Bench Test.

WARBY CIRCULATING SILENCER showed the least back pressure of all Silencers tested at 960 revolutions.



Patented.

All Silencers guaranteed to meet the requirements of the New Police Regulations.

J. WARBY, Specialist in Silencing the Exhaust of Motor Engines, 16, Alfred Street, Bow Road, E.

THE LATEST AT THE LOWEST PRICE, CASH, EASY TERMS, or EXCHANGE,

At **WAUCHOPE'S**

Machines with interesting 1914 ideas.

9, Shoe Lane, Fleet St. LONDON, E.C.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To insure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmorland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

WHEN FINISHING RIDING FOR THE SEASON.

Remember we receive your present mount now in part payment of newest 1914 Model delivered at opening of 1914 season, ensuring you most favourable bargain terms, liberal cash allowance, saving all cost of storage and insurance.

The famous house for bargains in all makes for cash, exhange, or easy terms.

SEE OUR SHOW OF THE NEWEST AND BEST, AND OUR CLEARANCE LINES AT BIGGEST REDUCTIONS EVER OFFERED.

HAUCHOPE'S

TO-DAY'S LIST SENT FREE. IT INCLUDES:

7575.	3½ h.p. 1909 **TRIUMPH**	£25	0
7576.	3½ h.p. 1913 **I Y PRECISION**	£32	10
7580.	2¾ h.p. 1913 **T.T. DOUGLAS** M'l P	£41	0
7581.	2¾ h.p. 1913 **T.T. DOUGLAS** M'l P	£40	0
7584.	4 h.p. **MATCHLESS** 2-speed	£20	0
7585.	2¾ h.p. 1910 **DOUGLAS**	£22	10
	2¾ h.p. 1913 2-sp. **DOUGLAS** M'l R	£45	0
7080.	6 h.p. 1912 **CL NO** and Sidecar	£49	0
7564.	6 h.p. 1912 2-sp. **MATCHLESS** and Sidecar	£55	0
7568.	3½ h.p. 1912 2-sp. **P. & M.** and Sc.	£50	0
7570.	6 h.p. 1912 **A.C. SOCIABLE**	£60	0
7573.	3½ h.p. 1913 Standard **TRIUMPH**	£42	10
7574.	8 h.p. 1912 3-speed **CHATER LEA** and Sidecar	£60	0
7537.	7 h.p. 1912 2-sp. **INDIAN** and Sc.	£52	10
7538.	6 h.p. 1913 3-speed **CLYNO** and Clyno Sidecar	£75	0
7544.	5-6 h.p. 1913 **RUDGE,** Multi	£55	0
7549.	1913 **GLORIA** Projectile Sidecar, 30 Gns. Model	£17	10
		£40	0
7550.	3½ h.p. 1913 F.E. **ROVER**	£12	10
7551.	3½ h.p. **REX**	£35	0
7556.	2¾ h.p. 1912 2-speed **ENFIELD**	£20	0
7470.	3½ h.p. **V.S.** and Sidecar	£45	0
7471.	4 h.p. 1912 2-sp. **SINGER** and Sc.	£35	0
7480.	4 h.p. 1912 Tourist **REX**	£60	0
7507.	6 h.p. 1912 **REX-JAP** and S'car	£33	10
7515.	3½ h.p. 1911 F.E. **TRIUMPH**	£25	0
7521.	5-6 h.p. 1911 4-cyl. **F.N** and S'car	£55	0
7525.	6 h.p. 1913 3-speed No. 2 **BAT**	£17	10
7535.	3½ h.p. 2-speed **ROC** and Sidecar	£12	10
3248.	1¾ h.p. 1909 **MOTOSACOCHE**	£15	0
4230.	4½ h.p. twin **MINERVA**	£26	0
4813.	5-6 h.p. 1911 4-cylinder **F.N.**	£28	0
4833.	5-6 h.p. 1911 4-cylinder **F.N.**	£28	0
6170.	3½ h p 1911 tourist **REX**	£30	0
6179.	3 h.p. 1912 2-speed **N.S.U.**	£58	0
6343.	8 h.p. 1911 3-speed **CHATER-LEA** and Sidecar	£48	0
6378.	6 h.p. 1911 **ZENITH** and Sidecar	£18	0
6421.	3½ h.p. 1908 **MINERVA**	£47	10
6516.	8 h.p. 1911 3-sp. **CHATER-LEA**	£35	0
6543.	3½ h.p. 1911 2-sp. **ALLDAYS** & S.c.	£40	0
6799.	7 h.p. 1911 2-speed **INDIAN**	£27	0
6863.	3½ h.p. 1910 **BAT**	£38	0
6900.	3½ h.p. 1912 F.E. **ROVER**	£12	10
5976.	2 h.p. 1910 **MOTO-REVE**	£37	10
7098.	3½ h.p. 1911 **ZENITH** and Sidecar	£20	0
7108.	3 h.p. **GIVAUDAN**	£39	0
7116.	3½ h.p. 1912 2-speed **BRADBURY**	£45	0
	6 h.p. 1910 2-speed **MATCHLESS** and Sidecar	£50	0
7216.	6 h.p. 1912 2-sp. **KERRY** & S'car	£36	10
7283.	2¾ h.p. 1912 2-sp. **ROYAL ENFIELD**	£55	0
7281.	8 h.p. 1913 2-sp. chain-drive **BAT**	£32	10
7318.	3½ h.p. 1910 2-speed **P. & M.**	£15	0
7343.	6 h.p. **ANTOINE**	£55	0
7356.	5-6 h.p. 1908 2-sp. **N.S.U.** & S'car	£50	0
7383.	6 h.p. 1912 2-speed **REX** Sidette	30	Gns
7395.	2¾ h.p. 1912 3-speed **HUMBER**	£28	0
	2¼ h.p. 1910 2-speed **F.N.**		

9, Shoe Lane, Fleet St., LONDON, E.C.

Phone—Holborn, 5777. Wires—"Opificer, London.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry" or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmorland.

3½ h.p. Triumph, thorough good order; bargain, £19/10. —Dias, 53, Lowther St., Carlisle. [X3913

1911 Douglas, first-class order throughout; £19/10.—Dias, 53, Lowther St., Carlisle. [X3914

1911 F.E. Rover, tip-top order, new belt, tyres good; a snip, £26.—Thompson and Edwards, W. Hartlepool. [X4138

1913 Douglas, model P, 10 weeks old; given away, £36; perfect order. — Thompson and Edwards, West Hartlepool. [X4137

N.S.U. 2-speed Gear, to suit 1912 Bradbury, inch belt, as new; £3/10.—Dene Motor Cycle Co., Haymarket, Newcastle-on-Tyne. [X4163

B.S.A. 1913 Motor Cycle, 2-speed, chain drive, 26×2½ rubber studded tyres, Lucas horn, lamp, and generator; cost £64; only used a few times, practically new; owner going abroad, must sell; nearest offer £50 secures.—Apply, T., c/o Turvey and Co., The Motor House, Sunderland. [X3915

SECTION II.

York and Lancashire.

L.

HITCHINGS', Ltd., 74, Bold St., Liverpool.

MATCHLESS Agents, Hitchings', Ltd., sole representatives.

TRIUMPH Agents, Hitchings', Ltd., sole representatives.

RELIABLE Second-hand Machines.—Hitchings', Ltd., have a big reputation for absolutely reliable second-hands at reasonable prices. Two 1912 2-speed Matchless sidecar combinations, one 1912 Rudge, one 1911 Humber, 1 1910 Triumph, 1 1908 Triumph, and 1907 Triumph in stock now. All guaranteed, inspection and offers invited.—For courtesy, business-like attention, and entire satisfaction, deal with Hitchings', Ltd., 74, Bold St., Liverpool. [1725

LIVERPOOL, Birkenhead, and Manchester.

COLMORE Depots, 31, Renshaw St., Liverpool, and 261, Deansgate, Manchester.—New and 2nd-hand at the leading depots for the north. Colmore Depots; Manchester agents for Douglas, Scott, Matchless, Premier, etc. Liverpool agents for Douglas, Bat, Clyno, New Hudson, etc., etc.; also agents for A.C. and Morgan runabouts.—Colmore Depots, 31, Renshaw St., Liverpool, and 261, Deansgate, Manchester. [X6046

1913 Triumph, free engine, used once; £47, or near offer.—Hodgson, Kirbymoorside. [2785

ARIEL, 1910½, free engine, variable gear, splendid condition; £24.—52, Wicker, Sheffield. [X4166

1912 3½h.p. Free Engine B.S.A., and all accessories; £35, or near offer.—Balmforth, Ormskirk. [X3866

1910 Triumph, £25; 1911 Douglas, £24; 2-speed 1911 Douglas, £27.—Cross, agent, Rotherham. [X4085

'THIS WAY, SIR'

Brand New 1912 6 h.p. 2-speed **REX** de Luxe	£62	10	0
15% cash discount	9	7	6
	£53	2	6
Allowance for your 1912 2-sp. Douglas **or similar type of machine**	£38	2	6
Cash required	£15	0	0

MISCELLANEOUS MACHINES.

Cash, Exchange, or Easy Payments.

P. & M., 3½ h.p., 1911	£38	10	
NEW HUDSON, 1911, 2¾ h.p., as new	£32	10	
CLYNO, 1912, and special cane Sidecar	£49	10	
J.A.P., 6 h.p., M.O.V., free engine, spring forks	£34	10	
ARIEL, 1911, 3½ h.p., magneto, Druids	£25	0	
HUMBER, 3½ h.p., 2-speed, free engine	£26	0	
BRADBURY, 1912, 3-speed Sturmey	£47	10	
BRADBURY, chain drive, 2-speed	£45	10	
QUADRANT, 1912, free engine	£35	10	
N.S.U., 3½ h.p., magneto	£17	10	
N.S.U., 1911, 3 h.p., 2-speed, as new	£29	10	
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31	0	
V.S., twin, h.b. control	£16	10	
JAMES, 3½ h.p., 1910, magneto	£16	10	
WOLSELEY 4-cylinder 2-seater Car	£19	19	
F.N., lightweight, battery ignition	£9	10	

LIGHTWEIGHTS.

PREMIER, 1912, 2½ h.p., magneto	£26	10	
GRANDEX-PRECISION, 1912, 2½ h.p., magneto	£25	10	
BROWN-PRECISION, 2½ h.p., magneto	£23	10	
REX, 2½ h.p., magneto	£15	10	
MOTOSACOCHE, magneto	£15	10	
MOTOSACOCHE, 1911, 2 h.p., M.O.V.	£19	10	
MOTO-REVE, 2 h.p., twin, magneto	£15	10	
SINGER, 1911, magneto, lightweight	£19	19	
HUMBER, 2 h.p., magneto	£25	10	
WERNER, twin, new tyres	£12	10	
NEW HUDSON, 2¾ h.p., 3-speed Armstrong	£31	10	

REX BARGAINS.

REX, 1912, 2-speed, twin, brand new	£53	0	
REX, 1912, 4 h.p., tourist, brand new	£34	10	
REX, 1913, 2-speed, twin, little used	£45	10	
REX, 1913, 4 h.p., 2-speed, de luxe, chain drive, done about 100 miles	£49	10	
REX, 1911, 2-speed, twin, Sidette, M.O.V. engine, chain drive	£47	10	
REX, 3½ h.p., magneto, spring forks	£19	10	
REX, 3½ h.p., 1909 model, magneto	£22	10	
REX, 3½ h.p., magneto, 1910 model	£24	10	
REX, 1912, 4 h.p., 84½ × 95, 200 miles	£31	0	
REX, 1909-10, 2-speed, twin, de luxe	£29	10	
REX, 1909, 2-speed, twin, de luxe	£27	10	
REX, 1908, 2-speed, twin, and Sidecar; wants slight attention	£19	10	

£3 deposit and 5/- weekly secures any of the following machines. All are guaranteed in running order:

3½ Humber, F.E. £10 10 . 3 h.p. Humber. £8 10
3½ Rex £10 10 . 3½ F.P. £11 0
3½ Rex £12 10 . 1¾ F.N. £9 10
Twin Werner £12 10 . Twin Minerva £12 10

PERFECTION SIDECARS.
£5 5s. to £10 10s. List on application.
Best value obtainable.

1913 **REX** and **WILLIAMSON** Machines to clear. Get our exchange quotation.

£5 deposit and **7/6** week secures any of these magneto machines. All are guaranteed in running order:

5½ twin Rex ... £19 10 . 3½ 2-sp. Peugeot £16 10
5-6 Peugeot ... £16 10 . 5-6 twin V.S... £16 10
3½ Simms .... £16 10 . 1910 3½ James £16 10
3½ N.S.U. ..... £17 10 . 3½ Quadrant .. £17 10
5½ N.S.U. ..... £22 10 . 3½ Rex £19 10

Despatch on receipt of deposit and signed agreement.

The Halifax Motor Exchange

Largest Rex Dealers,
16, WESTGATE, HALIFAX.

'Phone, 766. Telegrams, "Perfection."

MOTOR BICYCLES FOR SALE.

B

COLMORE Depots, 31, Colmore Row, Birmingham; 49 John Bright St., Birmingham; and 62, High St., Leicester.

NEW and second-hand at the leading depots for the Midlands; agents for Douglas, Scott, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc., also A.C. and Morgan Runabouts.—Colmore Depots, Birmingham and Leicester. [X6047

COLMORE.—Douglas, 1910, twin-cyl., fixed gear, belt and tyres good; £20.—31, Colmore Row, Birmingham.

COLMORE.—Douglas, 1912, 2-speed, model H, footboards, in perfect order and condition, guaranteed; £37.—31, Colmore Row, Birmingham.

COLMORE.—Bradbury, 1912, 3½h.p., tyres sound, guaranteed in perfect order and condition; £22.—31, Colmore Row, Birmingham.

COLMORE.—A.J.S., 1912, 2½h.p., 2-speed, free engine, in almost new condition; £30.—31, Colmore Row, Birmingham.

COLMORE.—B.S.A., 1913, T.T. model, fitted with special engine and guaranteed in perfect order; £40.—31, Colmore Row, Birmingham.

COLMORE.—New Hudson, 1913, 3½h.p., Armstrong 3-speed gear, Dunlops, B. and B., decompressor, used about 50 miles; £50.—31, Colmore Row, Birmingham.

COLMORE.—T.T. Premier, exceptionally fast and low machine, soiled only; £48.—31, Colmore Row, Birmingham.

COLMORE.—New Hudson, 3½h.p., 3-speed, and Canoelet sidecar; £39.—31, Colmore Row, Birmingham.

COLMORE.—An exceptional bargain.—1913 3-speed Triumph and wicker sidecar, fitted with lamp, horn, speedometer, and all spares, cost over £75, and almost new condition; £55 nett cash.—31, Colmore Row, Birmingham.

COLMORE.—Clyno, 1912, 6h.p., twin, 2-speed and free engine, with wicker sidecar; £38.—31, Colmore Row Birmingham.

COLMORE.—Matchless, 1913, not been run 100 miles, 8h.p. twin, chain drive, 2-speed gear, and Canoelet sidecar; £75.—31, Colmore Row, Birmingham.

COLMORE.—Matchless, double belt drive, V.S. 2-speed gear, only been run 100 miles, guaranteed in perfect order and condition; £60.—31, Colmore Row, Birmingham.

COLMORE.—Indian, 1911, 5h.p. twin, tyres and chain good, mechanic lubricator; £28.—31, Colmore Row, Birmingham.

COLMORE.—Williamson, 1913, 8h.p., 2-speed gear and free engines, in perfect order and condition, guaranteed; £55.—31, Colmore Row, Birmingham.

COLMORE.—Enfield, 2¾h.p., 2-speed, chain drive, free engine, footboards, 1913, shop-soiled only; £43.—31, Colmore Row, Birmingham.

COLMORE.—Morgan, 1913, standard model, specially heavy tyre on rear wheel; £80.—31, Colmore Row, Birmingham.

COLMORE.—Morgan, 1913, standard model, just been overhauled and repainted, and condition throughout as new; £75.—31, Colmore Row, Birmingham.

COLMORE.—Ford car, 4-seat., fitted with hood, screen, lamps, and all accessories; bargain, £75.—31, Colmore Row, Birmingham. [X3906

ROVER, 1913, T.T., with Phillipson, shop-soiled only; £45.—P. J. Evans, John Bright St., Birmingham. [X4058

PREMIER, 3¾h.p., twin-cyl., Bosch mag.; bargain £19/10.—Brown's, 12, Bull Ring, Birmingham. [X4118

J.A.P.-CAMPION, 3½h.p., free engine, 2 speeds, £24; also sidecar, £4.—12, Bull Ring, Birmingham. [X4120

MORGAN, 1912-13, 8h.p. J.A.P., complete all spares; £65.—P. J. Evans, John Bright St., Birmingham. [X4054

TRIUMPH, 1913, Sturmey-Archer 3-speed, perfect condition; £47.—Chambers, Evington Rd., Leicester. [X3902

JAMES, 1913, 4¼h.p., free engine model, almost new; bargain, £34.—Brown's, 12, Bull Ring, Birmingham. [X4124

DOUGLAS, 1909, mag., Druids, perfect running order; £15.—Meggitt, Market Chambers, Mansfield. [X4167

ZENITH-GRADUA, 6h.p., 1912, with accessories; £45, or exchange Douglas.—B. Rhodes, Moortown, Lincoln. [3123

HUMBERETTE, 1913, brand new, latest chocolate finish; £110.—P. J. Evans, John Bright St., Birmingham. [X4055

ENFIELD, 1913, 2¾h.p., 2 speeds, kick starter, as new; £35.—P. J. Evans, John Bright St., Birmingham. [X4056

AUTO-WHEELS.—Immediate delivery of Wall Auto-Wheels from A. W. Wall, Ltd., Hay Mills, Birmingham. [0859

ARIEL, late 1911, 3½h.p., variable gear, spring forks, mag.; bargain, £25.—Brown's, 12, Bull Ring, Birmingham. [X4122

REY

Established in Motor Trade since 1900.

TO INTENDING PURCHASERS.

Before deciding on a machine, compare my prices for New or Second-hand, and save yourselves pounds.

SPECIAL SHOP-SOILED BARGAINS.

£53	0.	**BAT** No. 2, 3-speed	1913
£59	0.	**A.J.S.**, 6 h.p.	1913
£63	0.	**WILLIAMSON**, air-cooled	1913
£53	0.	**ZENITH**, 3½ h.p., kick starter, and clutch	1913
£29	0.	**LINCOLN-ELK**, 3½ h.p.	1913
£49	0.	**SINGER**, 4 h.p., 2-speed.	
£48	10.	**SINGER**, 3½ h.p., 3-speed	1913
£47	10.	**BRADBURY**, 2-speed, chain and belt	1913
£63	7.	**JAMES**, 3-speed, and Sidecar.	
£47	10.	**ROVER**, 3-speed.	
£62	6.	**CLYNO**, 6 h.p.	1913
£63	10.	**MATCHLESS**, 8 h.p., 2-speed, double belt drive	1913
£61	5.	**SCOTT**, 2-speed, water-cooled.	
£34	0.	**DOUGLAS**, Model N	1913
£41	0.	**DOUGLAS**, Model O, 2-speed, run a few miles	1913
£53	8.	**NEW IMPERIAL**, 6 h.p., 3-speed	1913
£65	0.	**MATCHLESS**, 2-speed, 6 h.p., chain drive.	
£65	0.	**MATCHLESS**, 2-speed, 8 h.p., chain drive.	
£46	0.	**RUDGE**, 750 c.c., 6 h.p.	1913
£45	0.	**RUDGE**, free engine	1913
£52	10.	**F.N.**, 4-cylinder, 2-speed.	
£81	0.	**MORGAN** Sporting Model, 3in. tyres	1913
£135	0.	**G.W.K.**, as new, complete.	
£170	0.	**SINGER** 10 h.p. Car, 4-cylinder, green.	

Easy Payments Arranged.

FOR HIRE.

Motor Cycles and Sidecars of the best makes.

Terms very moderate.

SECOND-HAND.

£16.	**F.N.**, 4-cylinder	1910	
£18.	**F.N.**, 4-cylinder	1911	
£25.	Std. **Triumph**	1909	
£18.	Twin **Motc-Reve** (lady's)	1910	
£38.	6 h.p. **Zenith** and Sidecar	1911	
£26.	Std. **Triumph**	1910	
£22.	**Rex**	1910	
£22.	F.E. **Singer**	1911	
£26.	3½ h.p. **Bradbury**	1912	
£28.	T.T. **Triumph**	1911	
£15.	Standard **Triumph.**		
£45.	**Zenith-Green**	1913	
£20.	3½ **Matchless**	1910	
£18.	5 h.p. **V.S.**	1910	
£26.	**Rex-J.A.P.**	1912	
£29.	3½ h.p. **Trump-Jap**	1912	
£40.	6 h.p. **Zenith**	1911	
£29.	T.T. **Corah**	1912	
£62.	8 h.p. **Zenith** and Millford coach-built Sidecar	1913	
£50.	4h.p. **Singer**, new	1912	
£27.	6 h.p. **Bat**	1910	
£30.	3½ h.p. **F.E. Triumph**	1911	
£28.	**Triumph**	1911	
£50.	7 h.p. **Indian** and Millford Sidecar	1912	

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From 5, Heath St., Hampstead, N.W., to

378-384, EUSTON ROAD, N.W.

(TELEPHONE 4219 REGENT),

and

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(TELEPHONE 1970 REGENT),

where communications should now be addressed.

Mending tyre covers.

Next time you have a bad cut or gash in your cover **don't scrap it.** It may look quite hopeless, but ten to one you can save it—with the aid of Chemico Tyre Stopping.

This stopping is a plastic preparation which placed in the cut or gash quickly amalgamates with the material to which it is added making a **perfect repair.** It is easy to use, cannot fall out, sets quickly and is permanent. It is **not** a liquid. Get a tin to-day and have it handy.

CHEMICO TYRE STOPPING.

CHEMICO CARBIDE—

The "All Service" Carbide.
Every particle in a tin of Chemico Carbide yields the maximum amount of gas. All impurities are removed, and the carbide itself carefully coated.

½ lb. tins 4½d. 1 lb. tin 7d.

RELIANCE PATCHES

Enable you to make a permanent repair, that is a real mend, by the roadside. They are faced with pure Para Rubber. When solution is applied, solvent action is set up, resulting in perfect cohesion.

In all sizes from 1d. upwards.

THE
County Chemical Co.,
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London.—220, Holywell Lane. **Manchester.**—2, Deansgate. **Glasgow.**—7, Carlton Place. **Dublin.**—Golden Lane. **Cardiff.**—Plymouth Street. **Paris,** Etc.

MOTOR BICYCLES FOR SALE.

NEW Machines at second-hand prices.

THE Premier Motor Co., Ltd., are offering the following machines, only slightly shop-soiled, at great reductions; only a few left.

SCOTT, latest 1913 model, list price £68/5, for £58.

TRIUMPH, latest 1913, 3½h.p., 3-speed model; list price £59/15, for £52.

TRIUMPH, latest 1913, 3½h.p., T.T. roadster; list price £49/5, for £42.

M.V. Lightweight 2h.p., single-cyl.; list price £36, for £24.

REX-J.A.P., 1912, 8h.p., 2-speed, chain drive; list price £78/10, for £58.

ALL the above carry makers' full guarantee; catalogues free upon request.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

P.M.C., 1910, 3½h.p., 2-stroke, Bosch mag., B. and B., handle-bar controlled, perfect condition; £17. —The Premier Motor Co., Ltd., Aston Rd., Birmingham.

REX, 1911, 5h.p. twin, free engine, handle starting; £28.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

REX-J.A.P., 1912, 6h.p., 2-speed, handle starting; £45.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

REX De Luxe, 1912, 4h.p., 2 speeds, condition equal to new; £33.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

TRIUMPH, 1911, 3½h.p., free engine; £28. — The Premier Motor Co., Ltd., Aston Rd., Birmingham.

MATCHLESS, 8h.p., 2-speed, double belt drive, perfect condition, £45; or with new P.M.C. No. 20 sidecar, £55.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

F.N., 1910, 5h.p., 4-cyl., very good condition; £18.— The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0316

2½h.p. Motor Cycle, B. and B., h.b.c., a smart little machine; £7.—111, Wenman St., Balsall Heath, Birmingham. [2957

HUMBER, 3½h.p., free engine, 2 speeds, mag., spring forks; bargain, £19/10.—12, Bull Ring, Birmingham. [X4126

A.J.S., 2¾h.p., twin-cyl., Dunlop tyres, Druid spring forks; bargain, £17/10.—Brown's, 12, Bull Ring, Birmingham. [X4127

LEA-FRANCIS, 1913, 3h.p., 2 speeds, kick starter, hardly soiled; £52.—P. J. Evans, John Bright St., Birmingham. [X4057

INDIAN, 7h.p., 1912, clutch model, blue, new tyres, in fine order; 40 gns.—Williamson, St. George's Sq., Stamford. [X3365

BRADBURY, 1913, 3½h.p., 3 speeds, lamp, horn, and coach sidecar; £48.—P. J. Evans, John Bright St., Birmingham. [X4050

ZENITH, 1911, 3½h.p., Gradua gear, and wicker sidecar, good order; £38.—P. J. Evans, John Bright St., Birmingham. [X4052

FORWARD Lightweight 2½h.p., 1912, Druid spring forks. Bosch mag.; bargain, £19/10. — 12, Bull Ring, Birmingham. [X4116

TRIUMPH, 1912, clutch, 1913 improvements, excellent condition, horn, whistle, etc.; £45.—Thrunscoe, Welholme Av., Grimsby. [3002

BRADBURY, late 1912, T.T. model, 3½h.p., Dunlop tyres, very fast; bargain, £26.—Brown's, 12 Bull Ring, Birmingham. [X4125

HUMBERETTE, 1913, 8h.p., standard finish, complete all accessories; £95. — P. J. Evans, John Bright St., Birmingham. [X4053

5-6h.p. Twin Matchless, 1912 model, free engine, splendid condition; offers.—Broomhead, Station Hotel Algarkirk, near Boston. [X3795

ENFIELD, 1913, 6h.p., coach combination, done 100 miles only; cost £86, £68. — P. J. Evans, John Bright St., Birmingham. [X4059

AUTO-WHEELING Revolutionises Cycling.—Opportunity of quick delivery of Auto-Wheels.—A. W. Wall, Ltd., Hay Mills, Birmingham. [0360

HUMBER 1913, 3½h.p., 3 speeds, kick starter, brand new, £47/10; with Cancelet sidecar, £57/10.—P. J. Evans, John Bright St., Birmingham. [X4060

CLYDE, 1911, late, with 3½h.p. J.A.P. engine free engine, Druid spring forks, Whittle belt; bargain, £21.—Brown's, 12, Bull Ring, Birmingham. [X4119

SINGER, 1913, 3½h.p., free engine, perfect order, used very little; £40, with accessories; too heavy for owner.—Wright, 63, Watson Rd., Worksop. [X4087

REX De Luxe, 1913, brand new, shop-soiled only, free engine, 2 speeds, Bosch watertight mag.; cost £62/10, sell, bargain, £55.—12, Bull Ring, Birmingham. [X4123

REX, 1913, 6h.p. twin Model de Luxe in stock, 2-speed, free engine, finest sidecar machine extant; £52/10; good allowance on old machine.—A. Holland Earlsdon, Coventry. [X4028

TRIUMPHS, latest 1913 3-speed, free engine, and T.T. roadster models in stock for immediate delivery; cash, exchanges, or easy payments. — Premier Motor Co., Ltd., Aston Rd., Birmingham. [0340

Quality DOES count That's why FARLOW sidecars Satisfy.

Mark 1 .. £6 5

Mark 2 .. £9 10

Mark 3 .. £8 10

Mark 4 .. £10 10

CARRIAGE PAID and complete with mat, stand, etc.

FARLOW Sidecars are constructed with a view to real hard service;

YET they are light, smart, and exceptional value.

TRY ONE ON APPROVAL.

OUR list is YOURS for asking.

The following are complete with **sidecars:—**

1911 **BRADBURY,** Bowden 2-speed	£35	0
1913 6 h.p. **REX** sidette, done 300	£55	0
1912 3½ h.p. **BROWN,** Bowden Gear	£33	0
1912 6 h.p. **CLYNO** and Sidecar	£45	0
1912 6 h.p. **REX** and Sidette Sidecar	£45	0
7 h.p. **ROC,** 2 speeds, and Sidecar	£29	0
1911 4 h.p. 2-sp. **QUADRANT** and Sidecar	£33	0
1908 5 h.p. **REX** de Luxe and Sidecar	£28	0
1910 5 h.p. 2-speed **VINDEC** and Sidecar	£30	0
1911 5 h.p **REX** de Luxe and Sidecar	£38	0

All have variable gears.
We will sell any machine without sidecar.

THIS WEEK'S BARGAINS.

1913 6 h.p. **A.J.S.,** 2 speeds, new	69 guineas	
1913 3½ h.p. **P. & M.,** 2 speeds, new	£65	0
1913 2¾ **SUNBEAM,** 2 speeds, new	£63	0
1912 3½ h.p. **RUDGE MULTI,** good	£39	0
1912 6 h.p. **REX** de Luxe, 2 speeds, free engine	£37	0
1912 Cycle Car, 7-9 Blumfield engine, 2 speeds	£35	0
1912 3½ **ARIEL,** variable gear	£29	0
3½ h.p. **ENFIELD REX,** M.O.V.	£10	0
1912 6 h.p. **CLYNO,** 2 speeds, kick starter	£42	0
1910 5-6 h.p. **VINDEC,** 2 speeds	£27	0
5-6 h.p. **REX** de Luxe, 2 speeds, etc.	£27	0
3½ h.p. 1907 **TRIUMPH,** magneto, spring fks.	£23	0
One Ditto, very good	£24	0
4 h.p. 1911 **QUADRANT,** Roc 2 speeds	£30	0
3½ h.p. 1908 **REX** Tourist, 1909 engine	£19	0
3½ h.p. 1910 **REX,** fine goer	£23	0
5-6 h.p. **REX** de Luxe, 1908, 2-speed model	£25	0
5 h.p. Magneto **REX,** clutch model	£18	0

EASY PAYMENTS.

Any of the following can be had on Easy Terms. Let us know which you would like and we will quote.

3½ h.p. **N.S.U.** mag. £15	3½ **TRIUMPH,** mag. £23
3½ **ENFIELD REX** £10	3½ h.p. mag. **REX,** £19
5 h.p. mag. **REX,** £19	2 h.p. **MOTO-REVE** £14
3½ h.p. 1910 **REX** £23	1912 3½ h.p. **ARIEL** £29

MISCELLANEOUS BARGAINS.

Cycle Car 2-speed gear, chain drive	£2 0
Cycle Car, back axle with differential	£1 10
New Best and Lloyds drip feeds, complete,	6/-
Good Second-hand Sidecar	£3 10
New twin Bosch Magnetos, D.A.V. models	£2 19 6
Ditto D.A.I.V models	50/- each
New Bosch Magneto, suit single-cyl. engine	£3 0
Good Second-hand Sidecar	£3 10
Cowey Speedometer, done 3,000	£3 0
Cowey Speedometer, done 100, perfect	£3 10
New Rubber-studded Covers, 26 x 2¼, beaded	17/6
Triumph Pattern Handle-bar, new	6/6
4½ h.p. Horizontal engine, water-cooled	£2 10

Farrar's Motor Exchange

19, 21, 23, 25, Hopwood Lane,

Telephone 919. **HALIFAX** (Two minutes from G.P.O.)

MOTOR BICYCLES FOR SALE.

ZENITH, 1912, 8h.p., with Bramble enclosed side car, wheel combination in perfect condition, 2 pairs handlebars, 2 tanks, Lucas lamp and generator, detachable dickey, Dunlop tyres on back; open to any reasonable cash bargain, £45, no offers.—Morris Garages, Oxford. [X4039

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

TOTTENHAM.—1913 3-speed Humber, new; £50.

TOTTENHAM.—1913 2½h.p. Hobart, like new, and exceptionally fast; £29.

TOTTENHAM.—1913 8h.p. F.E. Zenith, Millford Corvette sidecar, lamp, horn; £67.

TOTTENHAM.—1912 3½h.p. 2-speed Humber and sidecar; £39.

TOTTENHAM.—1912 Bradbury, N.S.U. gear, and clutch, in back wheel, with sidecar; £41.

TOTTENHAM.—1911 F.E. Singer, in fine order; £30

TOTTENHAM.—8h.p. Bat-Jap, new tyres, and belt; £35.

TOTTENHAM.—3h.p. accumulator Triumph, in perfect order; £12. 'Phone: 1982.—The Stamford Hill Motor Co., 128, High Rd., South Tottenham, N. [X4012

PREMIERS' London Showrooms, 20, Holborn Viaduct.

PREMIERS.—A few second-hand and shop-soiled motor cycles at lowest prices; terms arranged.—20, Holborn Viaduct.

BARGAIN.—1913 7-9h.p. Indian (red), 2-speed gear, speedometer, and 20 gn. Mills-Fulford car, splendid condition; £65.

ALSO a 2¾h.p. Moto-Reve, as new, perfect; £19.

TRIUMPH, 1912, 3½h.p., T.T. roadster model, fast machine, £32; Mills-Fulford and Canoelet sidecars in stock; no charge for fitting; 7-9h.p. Premier, the sidecar machine, immediate delivery; trials arranged.—Premier Depot, 20, Holborn Viaduct. Agents everywhere. [3169

2¾h.p. J.A.P., fast, reliable; £8/10.—Wilkinson, 46, 24 Camden St., N.W. [3140

8h.p. Zenith, grand specimen, late 1912; bargain, £45. —Bunting, Wealdstone. [X4077

1913 Triumph, T.T. roadster, very fine order; £38.—Bunting, Wealdstone. [X4078

GLADDEN.—3½h.p. Triumph, 1909, King Road lamp set, tools, etc., perfect; £25.

GLADDEN.—2¾h.p. Moto-Reve, 2-cyl., re-enamelled, very fast, perfect throughout; £14.

GLADDEN.—4½h.p. Stevens, with sidecar, just been overhauled, good combination; £16.

GLADDEN.—2¾h.p. Ariel, mag., B.B. carburetter, very low, up-to-date; £12.

GLADDEN.—2¾h.p. Kerry footboards, accumulator, perfect; £8, or near offer.

GLADDEN.—1913 3½h.p. Rudge, T.T., owner officer going abroad; bargain, £33.

GLADDEN.—8h.p. Humber car, with De Dion engine, 3-speed, reverse; £16.

GLADDEN.—All the above and others must be cleared to make room for 1914 stock; no reasonable offer refused. Immediate delivery of Auto-wheels.—91, Pimlico Rd. Tel.: 3066 Victoria. [3074

P. and M., 1911, Kempshalls, Lucas, done 3,000 solo only; offers over £32.—Below.

N.S.U., twin, 5h.p., lamp, horn, generator, new Rom; offers over £14.—Below.

MINERVA, 2½h.p., mag., Amac, spring forks, rebushed; offers over £10/10.—Youngs, 9, West Hampstead Mews, N.W. [3094

RUDGE Multi, 1912, with 1913 improvements, splendid order, little used; £35.

DOUGLAS, 1913, model O, 2-speed, free engine, hardly soiled, new in August, lamp, horn, handlebar watch, etc., complete; £36.—Below.

TRIUMPH 1910, free engine model, bought new 1911, splendid order; £26/10.

ENFIELD, 1912, 2¾h.p., twin-cyl., lightweight 2-speed, free engine, faultless condition; £32.

NSU., 1913, 3½h.p., 2-speed, free engine, Lucas lamp, horn, etc., new in July last, perfect order; £38, cost over £60.

SINGER, 1912, 3½h.p., free engine model, spendid order; £32.

BRADBURY, 1912, 3½h.p., 2-speed, free engine, N.S.U. gear, with adjustable pulley, a splendid sidecar machine; £34.

ALL the Above Machines are guaranteed in good order; easy terms arranged for small extra charge.—Elce and Co., 16, Bishopsgate Av., Cannonile St., E.C. 'Phone: Avenue 5548. [3154

1913 3½h.p. Zenith, hardly soiled; 38 gns.—35, St. Martin's Rd., Stockwell, S.W. [X3953

EASTERN GARAGE

EG

Security

OUR "STANDING" in the motor trade is your SECURITY.

The fact of our having merited the distinction of being appointed Official Repairers to the three representative Motoring Organisations of the Kingdom is evidence of our worthiness and reliability

If you purchase a new Motor Cycle or Cycle Car from us you will have the satisfaction of knowing that your order is entrusted with a firm who are accredited Agents of all the leading manufacturers.

We are very jealous of our good name, and we avoid the possibility of a dissatisfied customer by very carefully overhauling every second-hand machine and holding ourselves absolutely responsible for them by a written guarantee.

The following is a selection of our second-hand stock:

Date.	H.P.	Particulars.	Price.
1911	3½	**HUMBER,** 2-speed	£32
1912	3½	**HUMBER,** 2-speed, and canoe wicker Sidecar	£40
1911	2¾	**DOUGLAS,** 2-speed	£32
1912	2¾	**ENFIELD,** 2-speed	£36
1910	7	**V.S.,** 2-speed	£25
1913	6	**ROYAL ENFIELD,** 2-speed, and coach-built Sidecar	£62
1912	8	**CHATER-J.A.P.** No. 7	£54
1912	3½	**P. & M.,** 2-speed	£46
1909	3½	**QUADRANT,** Bosch magneto	£18
1910	5	**REX** de Luxe, 2-speed, and Chater-Lea Sidecar	£33
1912	6	**BAT,** Lucas lamp set	£36
1912	3½	**BAT,** 2-speed	£37
1912	3½	**RUDGE,** clutch model	£36
1907	3½	**TRIUMPH,** 2-speed, and Millford Sidecar	£24
1910	3½	**TRIUMPH,** roadster model..	£25
1911	3½	**TRIUMPH,** clutch model ...	£36
1911	3½	**TRIUMPH,** clutch model, and Gloria Sidecar	£39
1912	3½	**TRIUMPH,** clutch model ...	£40
1912	3½	**INDIAN,** clutch model	£35
1912	3½	**CORAH-J.A.P.,** clutch model	£31
1911	3½	**BRADBURY,** stand. roadster	£28
1912	3½	**BRADBURY,** 2-speed, and canoe wicker Sidecar	£43
1913	8	**ROLLO** Cycle Car, hood, screen, speedometer, head lamp, side and tail lamps, horn	£70

EASTERN GARAGE CO.,

Official Repairers to the A.C.U., R.A.C., A.A., and M.U.,

418, Romford Rd., Forest Gate, E.

Telephone: 10, Stratford.
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C.D.C.

MOTOR BICYCLES FOR SALE.

PALMER'S Garage.—Touting.—The prominent place for purchasing motor cycles.

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P. and M., new, unrated, must realise; £59.—B., 3, Queen's Av., Winchmore Hill. [2448

5-6h.p. Vindec, £17; 2¾h.p. Dion, £5; sidecar, 25/-.—53, Brownhill Rd., Catford. [3034

2h.p. 1912 Moto-Reve, splendid condition, Service belt, —C.E., 17, Lullington Rd., Anerley. [3137

TRIUMPH, 1909, perfectly new condition; £23, offer.—4, High St., Stoke Newington. [X4133

BRAND New 3½h.p. Bat-Jap, 2-speed; £48, cost £59.—108, Manor Rd., Brockley, S.E. [3036

4h.p. Roc, 2-speed, mag., good condition; £30; seen any time.—177, Roman Rd., Bow. [3110

FREE Engine Rudge, in perfect condition; £27.—Lloyd, Suburban House, Winchmore Hill. [3152

SCOTT, 1913, new, only done 600 miles, Cowey, Lucas gas lamp and generator, horn; £50.—Below.

SINGER 2½h.p. Lightweight, 1912½, T.T., Rushmore outfit, spring forks, new tyres, Stanley improvements, everything as new; £28.—Moore, 3, Avonmore Rd., West Kensington, close Olympia. [X4032

1912 Humber, 3½h.p., 2-speed, not done 2,000; £35. —H.S.D., Silverlea, Tower Rd., Worthing. [X3859

VINDEC Special, 3½h.p., 1911, free engine, spring forks; £23.—Norris, Underriver, Sevenoaks. [3066

£20.—Scott, 2-stroke, 2 speeds, water-cooled, new Palmer cords.—Speechley, 45, Church Rd., Acton. [3043

SINGER, 3½h.p., F.E., tyres as new, perfect condition; bargain, £29/15.—272, New Cross Rd., S.E. [2929

£18.—4h.p. Antoine, 1913 Bosch, and Binks carburetter, all accessories.—Bear, Tendring, Hailsham. [2998

TRIUMPH, 1912, F.E., Miller lamp, speedometer, etc.; bargain, £35.—Gilby, Wixol, Bickley, Kent. [2995

1910½ 3½h.p. Motor Cycle, excellent condition; £22; ride away; buying new.—Larkin, Brentwood. [2983

TRIUMPH, 1910, free engine, excellent condition; £25.—Nightingale, Sackville House, Crawley [X4003

MOTOR BICYCLES FOR SALE.

WANDSWORTH Motor Exchange.—Great bargains. Douglas, 1911-12, 2-speed, as new; £28/10.—Below.

WANDSWORTH.—N.S.U. 6-7h.p. twin, mag., 2 speeds, sidecar machine; £19/10.—Below.

WANDSWORTH.—Matchless-Jap, 1912, 8h.p., mag., 2 speeds, nearly new; £45.—Below.

WANDSWORTH.—Precision, latest 1913¾ 4½h.p., T.T., only ridden few miles; offers.—Below.

WANDSWORTH.—Bat-Jap, 1911, 3½-4h.p., mag., drip feed, nice order; £25/10.—Below.

WANDSWORTH.—Indian (late), 7-9h.p. twin, m.o.v., mag., powerful sidecar machine; £29/15.—Below.

WANDSWORTH.—Rex, late 1910-11, 5-6h.p. twin, mag., very fast; cheap, £22/10.—Below.

WANDSWORTH.—F.N. (late), 4½-5h.p., 4-cyls., mag., good tyres, runs well; £12/15.—Below.

WANDSWORTH.—N.S.U., 1910, 3½-4h.p., m.o.v., mag., 2 speeds; bargain, £18/10.—Below.

WANDSWORTH.—V.S., 1910-11, 7-9h.p. twin, mag., 2 speeds, good order; £27/10.—Below.

WANDSWORTH.—Singer, 3½h.p., Bosch mag., B. and B., good tyres; very cheap, £12/15.—Below.

WANDSWORTH.—Minerva, 2¾h.p., £4/15; exchanges.—Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). [X4075

3½h.p. N.S.U., mag., £16, or exchange twin; photo; 3h.p. engine, £2.—7, Hamilton Parade, Sidcup. [X4042

3h.p. Chater-Lea-De Dion, good condition and appearance; £9.—Cycle, 27, Baldwyn's Rd., Bexley, Kent. [X4023

3½h.p. Matchless, Bosch, tyres and belt nearly new; £15.—W. Wilson, Barkway, Royston, Herts. [3153

1913 A.S.L., 3½h.p. Precision, new condition; list £52, nearest £25.—34, Thornhill Rd., Barnsbury. [2965

TRIUMPH, T.T., 1911, N.S.U. 2-speed gear, free engine; £34.—7, Melbourne Grove, East Dulwich. [3104

MINERVA, 2¾h.p., with sidecar attachment, good running order.—Read, 442, Hornsey Rd., London, N. [3047

DOUGLAS, 1911, 2-speed, and clutch, tools, lamp, horn; £25.—Minifie, 45, Stanbury Rd., Peckham, S.E. [3139

F.N., 1912½, 2½h.p., done only 2,000 miles, perfect condition.—C. Lyons, The Quadrant, Winchmore Hill. [2933

ZENITH, 3½h.p., 1912, absolutely perfect; bargain, £36; not Sundays.—72, Shakespeare Rd., Herne Hill. [2422

IVY, 3½h.p., 1913, Cowey, lamp, horn, decompressor, new tyres, spares; £35.—58, Endlesham Rd., Balham. [X3956

3½h.p. M.M.C., m.o.v., Bosch, B. and B., T.T., low, lamp, etc.; £15.—F., Woodcote, Stafford Rd., Wallington. [2977

1909½ Triumph, good condition, Mabon, spare Whittle, etc.; £20.—Weller, Southville, Walton-on-Thames. [3093

3½h.p. Minerva, good running order, m.o.v., B. and B., good tyres; £7/15.—76, Summerley St., Earlsfield, S.W. [3068

BARGAIN, £9/10.—2¾h.p. Minerva, Bosch, B.B h.b.c., accessories; after 7.—97, Malvern Rd., W. Kilburn. [3050

TRIUMPH, 1912, F.E., unsoiled, Kempshalls; bargain £32; weekdays only.—290, Milkwood Rd., Herne Hill. [316

IF You Want Bargains in 2nd-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet St., London. [X9705

DOUGLAS, 1910, tyres, plating, enamelling, in perfect condition; £20.—Carter, 70, London Rd., Brighton. [3052

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DOUGLAS, 1913, complete with all accessories, done 200 miles, absolutely as new; £45.—K., 80, Oxford Gardens, W. [3143

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DOUGLAS, 1913, 2-speed, footboards, speedometer, accessories, splendid condition; £36, or near.—76, Corrance Rd., Brixton. [2816

6-7h.p. Twin-cyl. 2-speed Free Engine Roc Motor Cycle, very fast, very racy; £27, bargain.—R.W., 11, Brecknock Rd., London, N. [3138

1913 N.S.U., 3½h.p., 2-speed, cost £55 August, perfect, £47; Millford sidecar, £3. — Trew, 89a, Stroud Green Rd., Hornsey. [X4015

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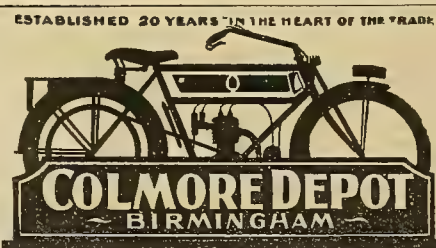

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EAGLES.—N.S.U. 3½h.p. Popular, mag., spring forks B. and B. carburetter, nice condition; £14/15.

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EAGLES and Co., High St., Acton, N.S.U. West London District Agency. Tel.: 556 Chiswick. [X4110

FOR Sale, 8h.p. V w.c. engine, Bosch mag., radiator and all fittings, new; £12, bargain.—127, Salisbury Av., Westcliff-on-Sea. [X394

REX, 2¾h.p., Bosch, B. and B., h.b.c., in good running order; £12.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [301

ROVER, 1911, 3½h.p., free engine, clutch, accessories; £30.—Agassiz, Hospital for Sick Children, Gt. Ormond St., W.C. [302

MINERVA, 1906, 3h.p., h.b.c., free engine, in good running order; £10.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [301

1911 2½h.p. 2-speed F.N., overhauled, re-plated, enamelled; £24/10; exchange 3½h.p.; no rubbish —17, Tamworth Park, Mitcham. [294

TRIUMPH, 1913, 3-speed model, condition as new, run 2,000 miles, delivered in July; price £45.—Hunts, Ltd., 117, Long Acre, W.C. [X327

TRIUMPH, 1908, engine overhauled and rebushed, Palmer cord, F.R.S. lamp, tools; £22.—Davies, 70, Shooter's Hill Rd., Blackheath. [303

BAT 5-6h.p. Twin, 2 speeds, free, 1912, just overhauled, very fast, complete; £45, or near offer.—Apply, Cook's Motor Works, Horsham. [312

SINGER, 2½h.p., free engine, cost £45 March, 1913 condition new; £29/15.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [301

5-6h.p. 4-cyl. F.N., thorough condition, B. and J. carburetter; £20, or near offer.—Box L2,976, *The Motor Cycle* Offices, 20, Tudor St., E.C. [302

23h.p. Motor Cycle, Alldays, just overhauled throughout by makers, in excellent order, spare parts, tools; £16.—15, Bruce Grove, Watford. [X394

P. and M., bought October, 1912, Kempshall tyres, splendid condition, like new; £40.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [301

1912 3-speed Premier; 1911 Triumph and sidecar best offers; separate; must sell; owner undergoing operation.—35, Denman Rd., Peckham. [308

RUDGE, 1912, free engine, Kempshall and Palmer tyres, Whittle belt, all accessories; £33/10.—Pawsons, 11, Chittle Rd., Clapham Common, S.W. [294

REX De Luxe, 6h.p., 1913, all latest improvements just delivered London agents, unable take delivery —115, Harlesden Rd., Willesden Green, London. [X403

SCOTT, 1913, perfect condition, little used, Lukin back-rest, spare chains, links, lamp, horn, tools £55, or near offer.—1, Askew Mansions, Shepherd's Bush [309

DOUGLAS, 1911, perfect condition, lamp, horn, mirror, watch, tools, pump, spares, Dunlop belt, tyres; £20.—41, Clevedon Mansions, Highgate Rd. [X321

INDIAN, 1913, 7h.p., only slightly used, with spare parts; sold subject makers' inspection if required £55.—C. Scrutton, Tilbury Hotel, Tilbury, Essex. [X399

INDIAN, 1911, red, 5-6h.p., free engine, clutch, Brooks saddle, good condition; a bargain, £23/10.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London [300

GENUINE Bargains can be obtained for cash or easy payments from Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548 [032

SCOTT, 1913, fitted Cowey speedometer, Lucas lamp and horn, only run 80 miles, abs lutely as new sell £55, cost £75.—Clay Hill Motor Garage, Haslemere [X349

1913 Zenith-Gradua, 3½h.p., condition perfect, Mille lamp, Mills jet, spare belt, valves, tools, etc. tyres good; £43, or offer.—6, Hayne Rd., Beckenham. [312

MOTOR BICYCLES FOR SALE.

1912 Triumph, August, 1913 engine, clutch model, handle-bar mag., Cowey, watch, perfect condition; £44; unpunctured.—Lloyd, 47, High St. N., East Ham. [3122

B.S.A., 1911½, free engine, speedometer, lamp, generator, perfect condition throughout; inspection invited; £32.—Neville, 59, Aytoun Rd., Brixton, S.W. [3027

MATCHLESS, 1913, 3½h.p. twin, 3 speeds, countershaft drive, only ridden 1,000 miles, lamp, horn, speedometer, all equal to new; £55, or near offer.—Below.

NEW Hudson, 1912½, 4h.p., 3 speeds, all accessories, perfect condition throughout; £35, or nearest.—Below.

HUMBER, 1912, 2¾h.p. twin, T.T., very fast and powerful, only wants seeing; £32.—Below.

SINGER, 1912¾, 2½h.p., lamp, horn, etc., not scratched; £25.—Below.

5 N., 2¾h.p., in good running order, £7; Douglas, 1912½, 2¾h.p., 2 speeds, excellent condition throughout; £35, or near offer.

ARTHUR MYLAM and Co. (Streatham Motor Cycle Depot), 42, High Rd., Streatham, S.W. 'Phone: 1451. [3158

TRIUMPH, 1913, clutch, roadster, done 600, Lucas accessories, beautiful condition, nearly new; £45, cost £58 three months ago.—48, Grenville Rd., Hornsey Rise, N. [X3973

DOUGLAS, model G, new last October, little used, condition perfect, tools, horn, lamp, £31; speedometer, 40/-. 'Phone: Tilbury 106.—Westwood, outfitter, Grays. [3088

REX, 3½h.p., owner in India, good appearance and power, new tyres, 1912 B.B., footboards, and many improvements, accessories; £12, offers.—12, Moore Park Rd., Fulham. [X3506

BRADBURY, 3½h.p., 3 speeds, free engine, only done 2,000 miles, accessories, splendid condition; £32; lightweight part.—Bramlea, Charlton Rd., Shepperton-on-Thames. [3044

CALTHORPE, 3½h.p. Precision, 1911, just re-enamelled and plated throughout, new lamp, speedometer, etc., perfect order; £25.—Child, Draper, Canterbury. [3102

A GENUINE Offer.—3½h.p. Rex, engine perfect, new belt, lamp, horn, spares, only requires new tyres; lowest £8/10.—Box L2,978, *The Motor Cycle* Offices, 20, Tudor St., E.C. [3177

DOUGLAS, 1913, model P, just arrived from the works; immediate delivery; £48; exchanges; lowest easy payments.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [3007

HUMBER, 3½h.p., 2-speed, free, Bosch, B. and B., Dunlop tyres, belt, handle start, lamp, horn, tools, splendid condition; £20; after 5.—Wright, 133, Clonmell Rd., Tottenham. [X3993

BRADBURY, 1912½, and sidecar, 2-speed, free engine, B. and B. carburetter, lamp, spare tyre, etc., splendid touring combination; £39.—Burnside, Hallswelle Rd., Golders Green. [X3943

ZENITH, 6h.p., 1913, Gradua gear, kick starter, and clutch, new; usual price £78/15, slightly shop-soiled, £58/15.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [3006

ZENITH-GRADUA, 3½h.p., 1911, splendid condition throughout, almost new, heavy Kempshall back, accessories, lamp, speedometer; £32. — Sundals, 282, Selsdon Rd., Croydon. [3065

1911 3½h.p. Humber, Bosch, B. and B., new, Dunlop belt, generator and lamp costing 3 gns., complete; can be seen any time.—Gardner, 109, Caulfield Rd., East Ham. [3058

F.N., 2¼h.p., 1912, 2-speed, free engine, shaft drive, perfect gem, not done 3,000, only wants seeing, spares, etc., £25; lamp, Cowey, and mirror, £5 extra.—Roscoe, Asylum, Brentwood. [3067

INDIAN, 1911, 7h.p., red, T.T. bars, 1913 Pilot jet carburetter, footboards, free engine, clutch, in splendid condition; £30.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [3021

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled and are in perfect order.—Can be seen at above address. [0131

N.S.U. 3h.p. Twin, fitted with 2-speed variable gear new 3 months ago, has only done 500 miles; price £38, cost £60, with accessories.—Esmond, Holborn Hall, Gray's Inn Rd. 'Phone: 6492 Holborn. [0362

DOUGLAS, 1913½, model R, kick start, clutch, 2 speeds, 1,200 miles, speedometer, P. and H. lamp, generator, all accessories, perfect; £42.—Checksfield, 154, Canterbury St., Gillingham, Kent. [2949

FIRST Fair Offer Accepted.—4-cyl. F.N., 6h.p. (special) 650×65 tyres, unpunctured, also torpedo sidecar very low, all perfect, and equal to new; any trial any time.—245, Camberwell New Rd., S.E. [2937

F.N., 4-cyl., 5-6h.p., May, 1912, fitted with 2 speeds clutch, and nearly new light car tyres; price £35 or £30 without saddle and tyres; private owner.—Oak Tree Cottage, Grove Hill Rd., Harrow. [X4016

1913 8h.p. Matchless, with Miller lamp set, speedometer, and all accessories, in very fine condition. spare Hutchinson tyre, never been used.—Hawthorn Lodge, Vicarage Rd., Sunbury-on-Thames. [2945

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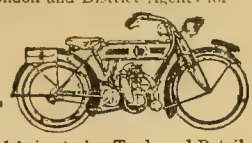

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We have also some high-class Combinations to offer at very low figures. All are machines that can be recommended, and are in first-class order. We have no crocks to offer.

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1912 5 h.p. **A.J.S.**, 2-sp., foot starter, complete with Sidecar	£72 0	**£51 0**
1912 5 h.p. **A.J.S.**, 2-sp., foot starter, and coach-built Sidecar	£78 0	**£55 0**
1912 6 h.p. **REX** de Luxe, 2-speed, and coach-built Sidecar, lamp, horn, and speed indicator	£80 0	**£45 10**
1912 8 h.p. **MATCHLESS**, 2-sp., coach-built Sidecar, hood, screen, accessories	£90 0	**£50 0**
1912 3½ h.p. **P. & M.**, 2-speed, foot starter, fine condition	£60 0	**£46 0**
1911 3½ h.p. **P. & M.**, 2-speed, in grand condition	£60 0	**£36 0**
1913 2¾ h.p. **DOUGLAS** Model P, 2-speed, T.T. model, ridden one trial, condition as new	£48 0	**£44 0**
1912 3½ h.p. **BRADBURY**, 2-speed, fine sidecar machine	£60 0	**£36 0**
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WOLF, 2¼h.p., 1914 model, just arrived; look at the price, 24 gns.; a marvel. Call or write for particulars. Immediate delivery at present.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [3014

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DOUGLAS, model R, 2-speed gear, free engine clutch, with kick starting pedal, footboards, and new model mudguards, just arrived from works; £52, cash, or lowest easy payments.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [3012

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BARGAINS.—1913 2-speed Douglas, bought July, 38 gns.; 1913 model N Douglas, only done 30 miles, 35 gns.; 1913 countershaft Premier, shop-soiled, new, 50 gns.; late 1912 3½h.p. Bat-Jap, all accessories, 25 gns.; late 1912 3½h.p. 2-speed Bradbury, £30.—Reeves Garage, Purley Surrey. 'Phone: 384. [2976

MESSRS. PALMER and Kitson, South Eastern Garage, Herne Hill, London, S.E., guarantee all the following machines to be in running order: 3½h.p. 1912 Zenith-Gradua, £36; 5h.p. 1911 F.N., £24; 2¼h.p. Clement, £9; 1910 Douglas, £17; 1912 2½h.p. Calcott, £26. 1911 6h.p. 2-speed N.S.U. and sidecar, £32; 2½h.p. Kerry, £9; 2½h.p. 1911 Motosacoche, £21; 3h.p. 1908 N.S.U., mag., £12; 4h.p. 1909½ Roc, 2-speed, sidecar, £22; 3½h.p. Kerry-Abingdon, 1911 2-speed sidecar, £32; 1909 Triumph, £23; 1912 Triumph, F.E., £42; 1913 Williamson, 2-speed, sidecar, £68; 4½h.p. Antoine tricar, 2 speeds, £15; 3½h.p. 1910 Bradbury, £22; 1910 Kerry-Abingdon and sidecar, £28.

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SECTION IX.

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ARIELS, 1913, the success of the season, from £47/10; order now; early delivery.—Moon Bros., Duke St., Plymouth. [19.6

2¾h.p. Excelsior, good running order, new tyre, good climber; £5/10, offers, exchange.—10, Park Rd., St. Mary Church, Torquay [X39

MOTOR BICYCLES FOR SALE.

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ABERDEEN and District Agent for Scott, Levis, P. and M., A.J.S., Matchless, and Sun, also Premier cycle car; any other make supplied.—George Cumming, 165, Holburn St. [9406

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1913½ Clutch Model Triumph, perfect order, only done 1,000 miles; for sale, £45, no offers.—Holland, Athenry. [2962

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A.C. Sociable, 1912, in splendid condition; £55.—Ryl-stone House, Montpellier Parade, Cheltenham. [X4066

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PREMIER, 1913, as new, few weeks old, complete equipment.—Seen, tried, Parson's Garage, Gidea Park, Johnstone, 6, Hill Rd., Dovercourt. [2943

DUO, new, special reduction of £5 for immediate purchase, fitted hood, screen; also new 1913 J.A.P. engine for sale.—Depford Co., 2, Evelyn St., Deptford S.E. [2979

G.W.K., 1913, new May, done 4,200 miles, new tyres, cost with accessories £168; any trial; price £130.—Owner, Meyers, 5, St. Albans Rd., Kingston-on-Thames. [3136

LAYTONS.—Perry 1913 light car, 2-cyl., water-cooled, complete with hood, screen, lamps, horn, detachable wheels; £136/10; delivery of one car from stock.—Laytons, Bicester Oxon. [X3991

ROLLO 1913 Sociable, hood, screen, lamps, etc.; cost recently £105, take good combination and cash adjustment, or sell £75; any trial; bargain.—Smith, 45 Wherstead Rd., Ipswich. [X4146

LAYTONS.—Premier 1913 cycle car, quite new, 7-9 h.p., complete with very smart 2-seat. body, hood, screen, etc.; catalogue price £115, our price £90, bargain.—Laytons, Bicester, Oxon. [X3992

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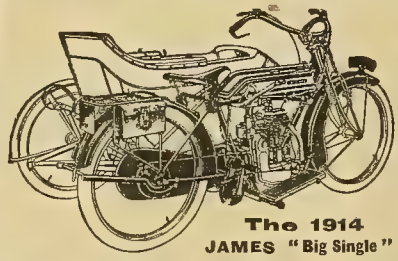

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PALMER'S Garage, Tooting, for auction catalogue, terms, and list of second-hand and new cycle cars in stock.

PALMER'S Garage, Tooting, have in stock new and second-hand Bedelias, Duos, Automobilettes, Humberettes, Baby Peugeots, Warnes, Sabellas, Matchless, A.C. Sociables, etc.

PALMER'S Garage, Tooting.—The bargains below are all in stock and subject unsold, many of them will be offered in next auction sale on October 29th.

PALMER'S Garage, Tooting.—8-10h.p. Arden 1913 Sociable, J.A.P. engine, shaft drive, 3 speeds and reverse, hood, screen, all as new; £105.

PALMER'S Garage, Tooting.—5-6h.p. Bedelia, 1913, touring model, shop-soiled only: £65.

PALMER'S Garage, Tooting.—8-10h.p. 1913 Bedelia, similar model Grand Prix winner, brand new; delivery 3 days: £109.

PALMER'S Garage, Tooting.—8-10h.p. 1912 Bedelia, actual winner 1912 Le Mans Races; £90.

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PALMER'S Garage, Tooting.—Globe Sociables, brand new; usual price £152, Palmer's price £117/10. Exchanges. Write for booklet.

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PALMER'S Garage, Tooting.—8-10h.p. 1912 Bedelia, streamline model; clearance price £45.

PALMER'S Garage, Tooting.—8-10h.p. 1913 Bedelia Model de Luxe, hood, screen, latest mag., side step, double steering, as new; £90.

PALMER'S Garage, Tooting.—8-10h.p. 1913 Humberette, fully equipped; £95, no offers.

PALMER'S Garage, Tooting.—5½h.p. 1912 Bedelia, streamline model, mag.; £45.

PALMER'S Garage, Tooting.—6-10h.p. Automobilette 1913 3-seat., 2-cyl., shaft drive, Bosch mag.; immediate delivery; £120.

PALMER'S Garage, Tooting.—8-10h.p. 1913 Duo, with special bucket body brand new, 3rd seat fitted if desired: £100.

PALMER'S Garage, Tooting.—5-6h.p. A.C. Sociable, nice lot; clearance bargain, £45.

PALMER'S Garage, Tooting.—8-10h.p. 1913 Duo chassis only, brand new, £77/10; single or 2-seat body, built to order for this in about 10 days.

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PALMER'S Garage, Tooting.—4½h.p. 1911 Bedelia touring model; clearance price £25.

PALMER'S Garage, Tooting.—Write at once for No. 3 of new monthly booklet containing illustrations and descriptions of leading makes of cycle cars, together with details of nearly 100 automobiles of all kinds, ready now, post free on application.

PALMER'S Garage, Tooting.—Sole address, L. N. Palmer's Garage, Merton Tram Terminus, Tooting. 'Phone: 208 Streatham (20 mins. Victoria, 10 mins. Wimbledon). [2927

WALL Tricarriage, 5h.p. Precision engine, 2 speeds, luxurious 2-seat. body, hood, screen, lamps, etc., new tyres; cost £110, £55.—The Premier Motor Co., Ltd., Aston Rd., Birmingham [0356

SWIFT Cycle Car, latest model, all complete; 130 gns.; immediate delivery. We teach you to drive, and deliver to your door free.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [3002

A.C. Model de Luxe, hood, screen, doors, curtains, speedometer, head light, lamps, every accessory, spares; offers; trial, examination; little used.—21, High St., East Ham. 'Phone: 239 East Ham. [3059

MOTORETTE, 1912, 6-7h.p., water-cooled, 2 speeds, chain drive, nearly new Dunlop tyres, hood and wind screen, guaranteed perfect; £55.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0356

HUMBERETTE, not travelled 100 miles; cost with accessories £130, price £105; owner having purchased larger car; seen any time by appointment.—Harvey, 24c, Grand Parade, Harringay, London, N. [X3894

CYCLE Car Builders.—A low chassis, with lovely 3-speed gear box, artillery wheels, excellent tyres, Singer cycle car size, 2-seat. body, complete less engine, £12; 4-cyl. magneto, H.T. Simms, £2.—11, Lesley Rd., Southport. [X4019

G.W.K. Cycle Car, latest model, all complete; £150, or exchange; immediate delivery; free trial; we teach you to drive and deliver to your door free.—Apply for easy payment terms, which are the lowest and easiest available, Wauchope's, 9, Shoe Lane, Fleet St., London, E.C. [X3946

OCTOBER 30TH, 1913.

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Must Motor Cycles Carry Rear Lights?

SOMETHING like a bombshell was dropped upon the heads of motor cyclists last week, the explosion of which may reverberate far and wide for some time to come. The facts are briefly that a motor cyclist was recently summoned before the Epping magistrates for failing to show a warning rear light and was convicted under the Motor Car Act, 1903, and fined. An appeal was lodged and came before the Divisional Court last week before Justices Bailhache, Ridley, and Scrutton. In the end the two former judges upheld the decision of the magistrates, and the appeal was therefore dismissed by a majority of the judges, Mr. Justice Scrutton not concurring, as he considered that a motor cycle was a cycle or velocipede under the Local Government Act, 1888, and therefore need only carry one light, which the Motor Act, 1903 ordains should illuminate one number, and this is usually the front. But it may be mentioned that if it be established that it is compulsory to light the rear of a machine, motor cyclists will prefer to illuminate the rear number, which is clearly permissible under the Act, 1903, and it will then be no longer incumbent upon riders also to illuminate the front number. There is this consolation that it will, under these conditions, be possible to have the front numbers attached in a more sightly position than at present.

The situation thus created is somewhat piquant, for it shows up several curious defects in our legal system. Here we have the fact that for ten years motor cyclists have been allowed to proceed peacefully about after dark with only a front lamp, and now, suddenly, a chance prosecution brings the apparant wrongdoing of a decade ago to a head. The Motor Car Act, 1903, is often described as the most loosely drawn up Act on the statute book, and if it is possible, as is said to be the case, to drive a horse and trap through any Act of Parliament, it is surely easy to drive the largest limousine through this Act without danger of scraping the sides.

Of course, things cannot remain in the present *impasse*. Some authoritative and final statement must be issued, and that without delay. Either we must, or need not, carry tail lamps and already we note that the large motoring organisations such as the A.C.U. and the A.A. and M.U. have got into touch with the Local Government Board, and it is hoped and expected that that department will lose no time in settling the matter in dispute.

There are urgent reasons why they should do so, for even if motor cyclists wish to obey the law as it stands under the Divisional Courts' ruling, they really cannot do so, as there is no suitable lamp on the market at the present time. Several manufacturers have stated their intention of marketing such an accessory with the least possible delay, but doubtless they will hold their hands pending the result of the Government decision.

We ourselves confess to little sympathy with the necessity of carrying a rear lamp, but we think that the best class of reflex red light is a most useful and desirable fitment, which has over and over again proved its utility. There appears to be an unfortunate feeling against these warning devices among cyclists, but if only one of first-class manufacture is fitted, the results given are excellent. It is the cheap imitation brands that are practically valueless.

But, as a matter of fact, the necessity of rear lights on motor cycles is hard to establish. Probably there is no vehicle upon the roads in less need of them. Cars carry rear lights mainly to illuminate their registration numbers. On motor cycles this is done by the front lamp. As we have time and again pointed out, it is the slow moving vehicles, the drover of cattle and the cyclist who are in danger, and a danger themselves to the faster travelling traffic propelled by motors. Make rear lights compulsory for all and sundry road users and we have no complaints to make, but to pick out the fastest traffic for this distinction is ridiculous. Meanwhile motor cyclists are continuing to use their machines at night time without rear lights and are still unmolested so far as we can ascertain. The Auto Cycle Union has decided to defend any motor cyclists against whom proceedings are taken.

If this matter achieves nothing else it has shown up the absurdities of the Motor Car Act, 1903. We often hear of a spasmodic effort to get it amended. Perhaps politicians will now spare the necessary time to the repeal of this Act, and the passage of another in its place more liberal in its ideas and more literal in its wording. Motoring and the motor movement have progressed a good deal since the dark ages of 1903, and we think we are entitled to pursue our motoring pleasures and business under a more liberal *régime* than at present obtains.

The 1914 Watford Speedometer.

THE Watford motor cycle speedometer is one of the most popular on the market. It is exquisitely made, very accurate, and wonderfully steady, and, consequently, our readers will not be surprised to learn that in the instrument itself very few alterations have been made. One of these, however, is the provision of an adjustable ball bearing, shown in fig. 1, for the top of the governor spindle, which has a cone-shaped end. As in last year's model, the bottom end of the shaft still runs in a similar type of bearing. The brass block, indicated in fig. 1, which is split, is screwed on to the plate which carries the mile registering mechanism, and the extension of the cup runs through this plate into the hole in the block. To adjust the bearing it is only necessary to loosen the screw in the split end of the block and push the bearing on to the coned end of the spindle.

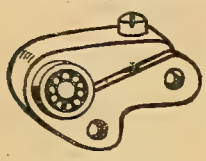


Fig. 1.—Adjustable ball bearing top of governor shaft of the 1914 Watford.

Fig. 2 shows the new driving gear box, which is half the size of last year's pattern and half the weight, and a remarkably neat job. Another innovation is the introduction of spirally cut teeth on the driving ring and pinion. This Messrs. Nicole, Nielsen and Co. find quieter than the model with the straight cut teeth, and also if the driving gear box bracket becomes loose, the tendency is for it not to be thrown into the spokes of the wheel, but in the reverse direction. Messrs. Nicole, Nielson and Co. have been experimenting with this gearing for some time, and have practically decided on its final adoption.

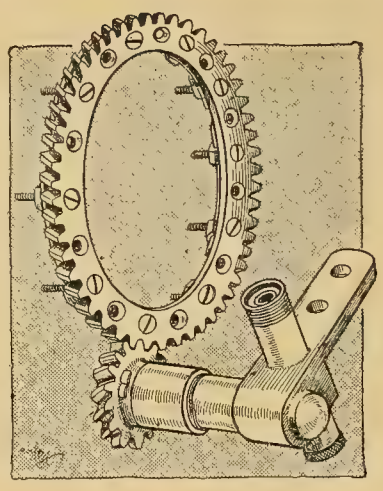
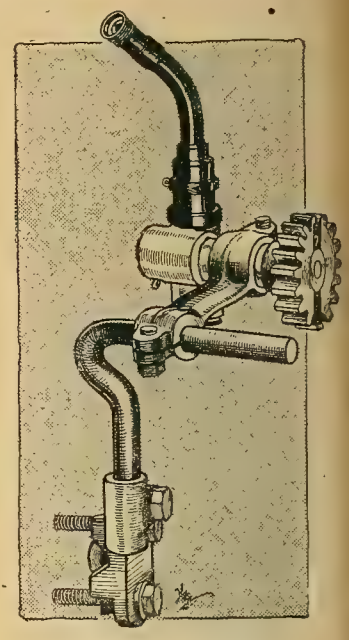


Fig. 2.—Skew gearing and gear box.

Fig. 3 illustrates the new driving gear box and bracket for cycle cars. The clip at the bottom is designed to be attached to such awkwardly shaped steering arms as the Chater-Lea, which is tapered, and other patterns are made suitable for other cycle cars. From the accompanying drawing it will be seen that the gear box may be fixed in any position as a universal movement can be obtained. To obviate trouble which occurred occasionally in the older pattern through the cable breaking near the joint, a short piece of pipe, capable of movement in any direction, is now fitted to the driving gear box, which contains a short piece of cable, terminating in a joint, to which the flexible cable is attached. This is a particularly neat fitting, and quite a clever piece of design.

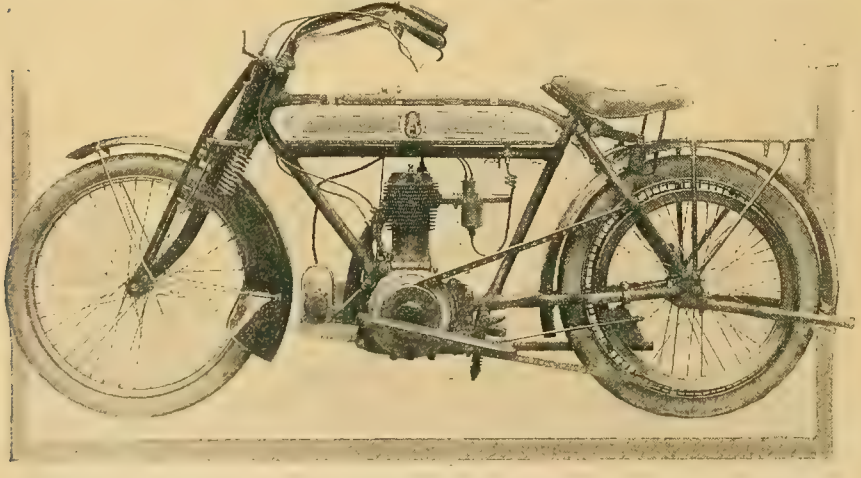


New bracket for the cycle car pattern 1914 Watford speedometer.

The Over-Seas Motor Cycle.

A NEW company has just been floated in Birmingham called the Over-Seas Motor Co., Ltd., for the manufacture of a motor bicycle for the overseas trade. The offices are at 1a, Johnstone Street, Ladywood, Birmingham, and the machine, which we illustrate, has been designed by Mr. W. J. Lloyd, the original designer of the Quadrant motor cycle. Mr. Sparke is associated with Mr. Lloyd in the production of this machine, and both are managing directors.

The machine, which we had the pleasure of inspecting last week, is a 3½ h.p. single-cylinder, 85 mm. × 88 mm. bore and stroke, with ball bearings t main shaft, roller bearings to connectin rod big end, and is provided with decompressor. The lever operating th decompressor moves the exhaust rocke on to another cam when the decom pressor is in action.



New "Over-Seas" model, which, as its name implies, has been specially designed for colonial and foreign markets. The standard type has a 3½ h.p. single-cylinder engine, but no pedalling gear. Starting is facilitated by means of a decompressor operating on the exhaust valve.

A Sound Specification.

The specification of the machine in cludes Druid spring forks, Bosch mag neto, 1914 B. and B. carburetter, 2½in tyres, Lyso saddle, 1in. belt, spring footboards, long tube silencer, spring-u stand, tubular carrier, and pannier bag on the carrier sides fitted in meta holders. It is sold at the very moderat price of £39, and fitted with Sturmey Archer three-speed hub the price is £49 When a change speed gear is supplied a handle starting device is fitted on the off side of the rear forks. The engine has 5in. clearance from the ground, and well-fitted brakes are provided, the rear brake being operated by the heel and acting on the belt rim, and the front brake is a Bowden.

The Over-Seas Co. has been formed to save Colonial importers the trouble of assembling machines from fittings. Every care has been taken to include standard parts where possible, but it is not intended to make the slightest departure from the standard specification.

OCCASIONAL COMMENTS

BY "IXION"

An Ingenious Cycle Car.

The other day we illustrated a cycle car which I should advise all passenger enthusiasts to study very closely, first on paper, and later—if they get the chance, as they surely will—on the road. I refer to the 8 h.p. Jackson (see page 1349, issue of October 16th). It was a lingering reminiscence that drew my eye to its details, for did I not drive many a mile in the old Eagle tandem, which was its great grandmother eleven years ago; but my eye, once drawn, simply glued to the page. Here we have a genuinely light vehicle, with springs which look as if they do what so few springs can effect, and hold the road without a lot of weight on top of them; an engine that is cheap to make and promises to combine high efficiency with ladylike demeanour, and a chassis all a-bristle with ingenious details, not the least of which is a charming seat-engine-starter. I like the one-piece body, too; the member of the staff who described the Jackson has evidently sampled a wood-cum-steel lightweight body after its ten thousandth mile. Mine has bits of rubber tacked in cunning corners all over it to keep the squeaks down. Mr. Jackson has evidently digested the motto which brought success to the Scott and Douglas and many another, "Why be conventional?"

Re-starting Classes in Hill Climbs.

I am always a little sorry that the winner in the re-starting tests at a crack hill-climb is the man who accomplishes the fastest time. Indeed, I think that as at present conducted these classes are worse than useless, for we all know that any low-geared free-engined machine of 500 c.c. or over can start on any gradient. Therefore these classes serve to provide a spectacle, not to furnish information. And what is the spectacle? A man comes tearing up the hill as if he were out to win the fastest time of the day medal. As he nears the first fateful white line across the road he slows down; there is probably a horrid squeaking of brakes, a violent skid, and he comes to rest with his engine kicking up a pretty din between the two limit lines. A brief interval is occupied by the rider's haggard stare at his wheel position, his threatening concentration on the officiating marshal, and hustling of the spectators by two or three amateur policemen who are trying to keep the road clear. Suddenly the rider makes a few lightning movements of the hands, and leans sideways in the saddle as though his hips were paralysed, while simultaneously his engine emits the most fiendish uproar imaginable. Fortunately, however, his left leg is not paralysed, and with the aid of a few thrusts from it he manages to get his machine in motion. To all appearance he suddenly becomes concerned about the amount of water in his generator, for he leans flat forward and peers into it anxiously as the engine accumulates its revolutions up the rest of the hill. This alarming exhibition is supposed to illustrate the beautiful convenience of the modern three-speeder when one is stalled by a sheep on a severe gradient. Could anything be more absurd? The prize ought really to go to the smoothest and neatest restart, quite irrespective of pace. The awards might be awkward for a mere man to make under these conditions, and it might be wise to entrust them to a committee of ladies. But no! Some of our crack riders are as distressingly handsome as others are repulsive (I am thinking of them, of course, as grimed with oil and perspiration after a hasty tune-up and reluctant start). I think the ideal judge would be some corpulent old buffer from the audience, who is seriously thinking of purchasing his first motor bicycle, but is nervous about that awkward hairpin bend in his front drive.

Hub Gears Again.

I have no idea who "L.A.," who complains of a two-speed in our issue of October 16th, may be, but I should deem it a very grievous injustice if his experiences were regarded as representative. I have personally covered a distance of over 20,000 miles on three-speed hubs of modern design, and during that distance the sole replacements I have required were a minute bell crank stamping forming part of the control, and a threaded and milled piece used for adjusting the rod from the lever to the hub. I trod on the bell crank when it was detached during a tyre change and bent it, afterwards breaking it in my attempts to straighten it, and the milled adjuster snapped when I was tightening it owing to a flaw in

A SIDECAR AT A CARNIVAL.

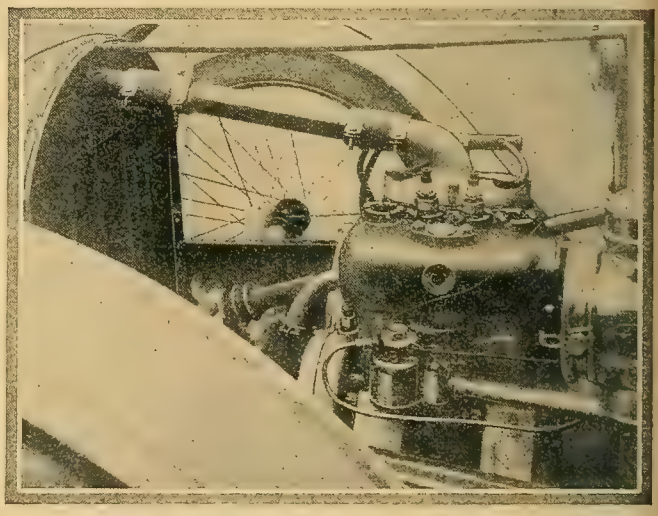
A New Imperial Jap with Bramble sidecar decorated for the Aberdare Football Carnival. The tableau was named "Our Empire," St. George and Dragon being mounted on the machine with Britannia in the sidecar.

A group of members of the Pontardawe A.C., all mounted on Matchless machines of various types supplied by H. Francis and Son.

the casting. My expenditure on spares has thus been limited to the not excessive sum of 3d. I have never had to walk a mile through any defect or breakdown in these three hubs. Further, friends riding three-speed hub machines must have covered well over 200,000 miles in my company if I compute the mileage done in the company of squads of clubmen, etc., and not one of these companions has ever been stranded or put to any expense in connection with his hub whilst in my company. This is a pretty good testimonial to their average reliability. Isolated cases of sheer misfortune or of careless usage ought not to be taken too seriously. I think the advice not to use the clutches in these hubs is a trifle misguided. I can only say that all my friends and I have used our clutches whenever we felt inclined to be lazy, and we have had no trouble with them. Indeed, my memory holds numerous instances of minor troubles with the old type of hub disc clutch (single-geared) and none at all with the clutch of a three-speed hub. Stay! I forget one humorous instance. A *very* crack rider of my acquaintance came in one day cursing the Sturmey hub by all his gods because the clutch was afflicted with incurable slipping. When we made a careful diagnosis it turned out that he had removed his wheel to change a tyre, and that he failed to notice that the three legs of Man on the tiny adjuster fitting were of different lengths, so he had refitted it in the wrong position and thrown his clutch out of adjustment. We took off the three legs and replaced them at a different setting, when the clutch stuck to its job like a bailiff. It says something for the clutch that he had worn out a heavy Kempshall cover before he had occasion even to inspect the clutch adjuster.

Timing Gear Troubles.

In the course of a year I receive a great many complaints from the less experienced type of motor cyclists, and I am bound to say that I discount the vast majority—they are so obviously ascribable to the most egregious lack of ordinary commonsense on the part of the complainants. But when I was destroying a long file of such letters the other day, I happened to be struck by the preponderance of grumbles anent timing gears, and, sorting out the letters in question, I found I had received eleven letters from owners of 1913 machines whose timing gears had collapsed on the road, and that in four cases the wheels were not marked to assist re-engagement. This is a tolerably disgraceful state of things for the year 1913. Motor bicycles are now being ridden by enormous numbers of unmechanical persons; we may not be able to protect them against an occasional broken valve or sheared cotter, but any maker should be able to ensure that such a baffling and complex disaster (for this type of rider) as a deranged timing gear should never occur. Stripped pinions, broken rockers, broken keys, etc., are all easily preventable by well-known means, and the occurrence of such a breakdown is simply unpardonable. I can boast that I have not been afflicted by a broken down timing gear since the year 1906, but I was considerably taken aback at the start of a big trial not so very long ago when a rider in the employ of the firm who make the machine I then bestrode slipped a package of pinions and rockers into my hands at the start and said, "These may come in useful; we've had a good few break lately!" The maker who was the culprit in this incident has overcome his troubles, but I know another of equal reputation who has not, and my post-bag suggests in no uncertain fashion that one or two others whom I have not patronised lately are equally callous or stupid. Some of our engineers have no imagination. They construct their engine with nobody but the Brooklands knut in their mind's eye, and think it worth while including a light and flimsy detail for the sake of a few extra revolutions per minute on the track, remaining utterly oblivious of those numerous riders who could only sit down and cry if they fractured a valve rocker. Till the maker can absolutely trust his valve gear his only honest plan is to send out a spare set of rockers and pinions in every tool-bag, so clearly stamped that the veriest novice could hardly make a mistake in fitting them.



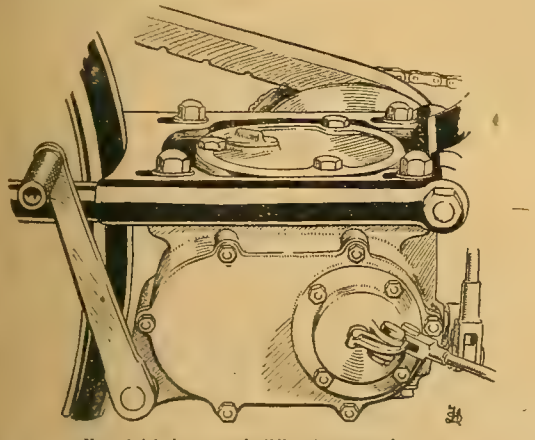
Twin-cylinder engine of the Adamson cycle car, showing position of carburetter, radiator, etc. (This vehicle is described on page 1401.)

To North Wales on a 1914 Ariel.

SOME weeks ago we received an invitation to test the 1914 single-cylinder Ariel as soon as it was ready for the road with a new counter-shaft gear, and it was on Tuesday, 21st, that Mr. F. C. North arrived at our offices with a forerunner of the new 3½ h.p. model and announced that all was ready for a start. It was arranged that we should head for the valley of Dinas Mawddwy that day, and on the morrow climb the celebrated Bwlch-y-Groes and return—quite a busy day-and-a-half trip. It was nearly one o'clock when our examination of the new mount was complete and we set out from the city of the three spires.

The New Ariel Gearbox.

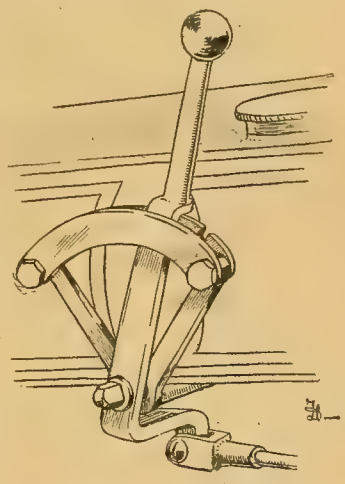
With the exception of a new three-speed counter-shaft gear the Ariel is but little altered, other changes consisting of improved lugs and butted frame tubes, and provision for removing the cylinder without the necessity of a detachable lower rail. The transmission is by chain to a cork insert clutch, having two cork plates, thence through the gear box, which is of the sliding type, having for engagement purposes two pairs of dogs and one pair of gear wheels, and finally by belt running over large pulleys. The standard gear ratios will be approximately as follows: 5.3, 8.7, and 15.3 to 1, but the machine on test had somewhat



New Ariel three-speed sliding type gear box.

higher ratios, as there was one tooth more than usual in the driving sprocket.

Our first stop was outside Castle Bromwich, where we had lunch and a welcome warm up at the Parson and Clerk. On restarting we changed places with the driver, and were soon bowling along the Holyhead Road at a smart pace. The machine starts perfectly with the kick starter and decompressor, is easy to control, and gear changing is simple, though it is found advisable to use the clutch as in car-practice. The run was without incident until Shrewsbury was reached, where a traffic stop on Wyle Kop made a good opportunity for a test of re-starting. The start on the gradient was, however, accomplished with ease.



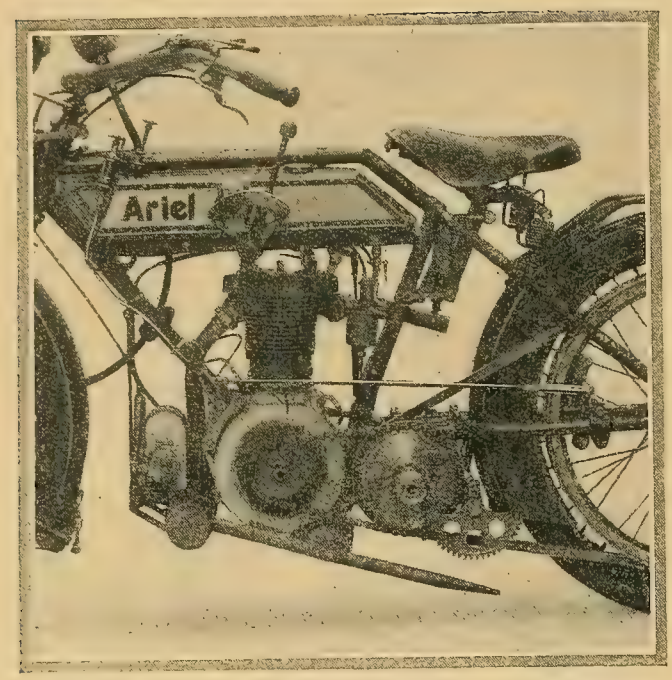
Striking lever of Ariel three-speed counter-shaft gear.

At the top North again took control, and our next incident was a stop for lamp charging at Welshpool. About eight miles out of the town we missed a left-handed turning and went several miles out of the way. The cross roads by which we regained the route were so rough and narrow that we lost much time, and almost decided to stop the night at Cann Office. However, we determined to push on over the last section. The roads now became narrower and undulating, and we ran into a sharp rainstorm, but it was not long before we were on the long down grade, and crossing the Dovey, pulled up at the Buckley Arms at Dinas Mawddwy. Here we had an excellent supper and recounted the day's run over a pipe before turning in.

The Ascent of the Pass.

The following morning broke clear and frosty, and after changing a plug which had shown signs of intermittent misfiring, and blowing up a rather slack tyre, we set off in search of petrol, and finally procured a gallon of No. 2 for 2s. Now came the real work, and we wound our way through narrow and greasy lanes, in which we met many carts going to the Dinas Fair, towards Bwlch-y-Groes. At length the famous pass came in sight, and with a well warmed engine the climb was begun. The acute right-handed hairpin at the foot was taken close in over the steepest pitch, but the engine never faltered, and shortly afterwards we were once more in second gear. The ratio, however, was slightly too high, and first was used for a longish stretch. On this gear the engine played with its load, and only a small throttle opening was required to keep up a steady pace. The second gear was used for one more stretch, and then came the crux of the climb. Fortunately the gate was open and changing

To North Wales on a 1914 Ariel.—



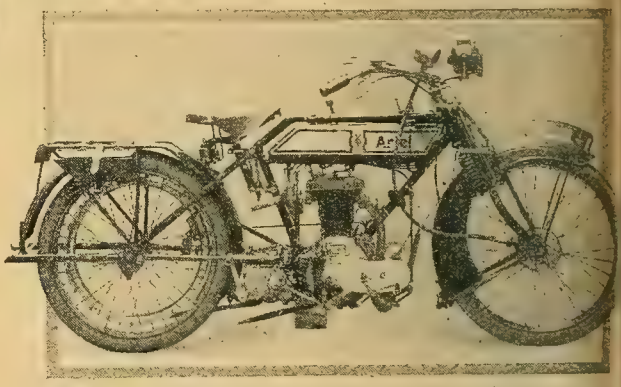
Power unit and new counter-shaft three-speed gear on the 3½ h.p. Ariel. Observe belt and chain drive, kick-starter mechanism, and gear change lever mounted on the tank.

into first the throttle was opened and the machine roared away over the steepest part of the hill with plenty of power in hand and not a sign of overheating. At the crest of the hill after congratulating the driver we enjoyed the scenery for a few moments before starting the descent. The "Pass of the Cross" is close on two miles long, in which distance the road rises 1,750 feet, and the surface is of small loose shale. The gradient is really severe for the whole length of the hill, and it was up this climb that the sturdy 500 c.c. Ariel engine had pulled a fairly heavy sidecar with a driver and passenger weighing 21½ stones. Added to this were heavy overalls, a complete equipment of tools, spares, lamps, speed indicator, etc., the only missing part being the sidecar mudguard, which had been damaged before the start of the run. Surely this is a fine performance if ever there was one, and 1914 Ariel riders need have no qualms about the hill-climbing capabilities of their mounts. The hill was taken on the run, and the engine was absolutely standard. No trick driving was done, and the passenger remained normally seated throughout.

A Further Climbing Test.

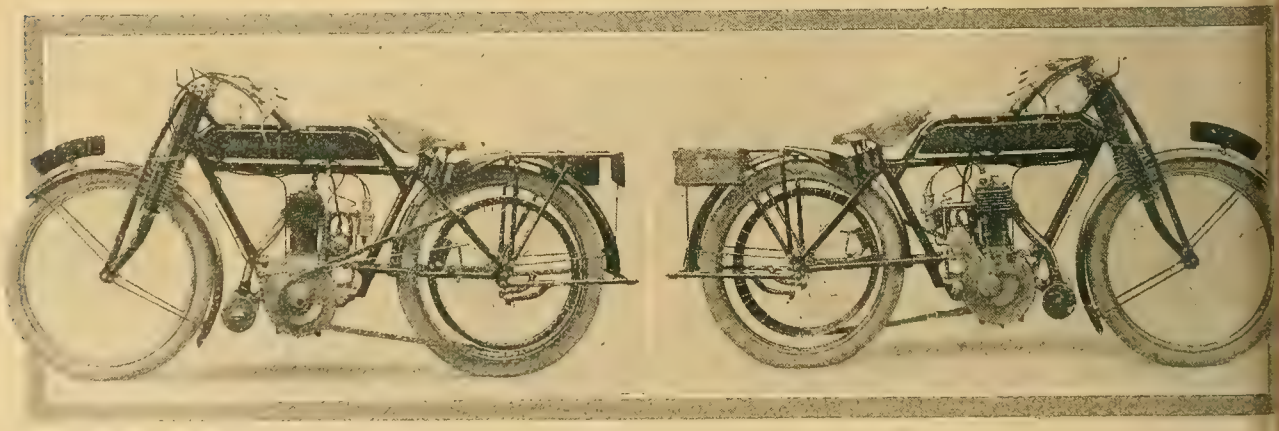
The descent was safely accomplished, and we set out for the pass to Dolgelly, which is so often confused with the real Bwlch-y-Groes. Dinas Mawddwy is the hill on which so many failed (including ourselves) in the Shrewsbury six days trials less than five years ago, and yet we climbed it almost all the way on middle gear. Our task was now accomplished, and after a hearty lunch we started for Birmingham at a smart pace. The return journey was uneventful, but we were forcibly struck by the wonderful way in which the engine may be driven on nearly full throttle for mile after mile without showing a sign of overheating.

We reached Birmingham in good time, and so ended a pleasant trip and a most successful test. Components, Ltd., are to be thoroughly congratulated on their gear, which renders the 3½ h.p. machine a go-anywhere sidecar mount. There never was any doubt about the efficiency of the engine, which seems capable of pegging away indefinitely. Our adjustments on the road were nil, and the new Pedley belt was never touched, nor were the Liberty tyres except for a few strokes of the pump in the garage.

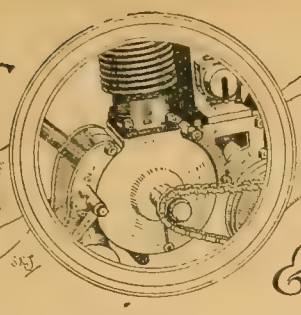


Valve side of the 3½ h.p. Ariel-showing kick starter and spring seat-pillar.

A SINGLE GEARED TOURIST ARNO.



A new model 3½ h.p. T.T. tourist Arno, which is finished throughout in red and sells at a very moderate price. The head and seat lugs are formed in one piece.



QUESTIONS & REPLIES

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Baldock (Herts.) to Bournemouth.

I shall be much obliged if you could tell me my best route from Baldock to Bournemouth *via* Farnham.—T.A.P. (Baldock).

Your best route would be as follows: Baldock, Stevenage, Welwyn, Hatfield, St. Albans, Watford, Rickmansworth, Uxbridge, Staines, Chertsey, Weybridge, straight on past Brooklands Track, round to the left as if you were going to Cobham, then the first on the right which will take you on to the Portsmouth Road, which follow through Guildford, then continue through Farnham, Alton, Winchester, Romsey, Cadnam, Lyndhurst, Christchurch, to Bournemouth.

The Moment of Maximum Pressure.

I should be very glad if you would kindly answer the following questions for me, relating to a 90 mm. × 90 mm. motor cycle engine. (1.) How far down the firing stroke is the piston at the moment of maximum explosion pressure? (2.) What are the factors which determine the position of the piston at the moment of maximum explosion pressure, *i.e.*, does this position depend on—*(a)* The design of valves and ports? *(b)* The revolutions per minute? *(c)* The size and capacity of the engine; that is, would it be the same for a long stroke and a short stroke engine, developing the same h.p.? *(d)* Would the fact that the engine was *désaxé* affect it? *(e)* Would the fuel affect it; that is, would it be the same for petrol as for benzole? In all the above, assume the spark to be set as far advanced as possible without causing the engine to knock.—D.P.C.

(1.) It is impossible to give you the exact position of the piston at the moment of maximum explosion pressure, as it depends on so many variable features. We would recommend you to "The Petrol Engine," by Dugald Clerk, which is a good work, including this subject. (2.) This position, as you suggest, does depend to a certain degree on design of valves and ports, and, under certain circumstances, to the revolutions per minute, the pressure increasing as the r.p.m. fall off. At the same time, the position of the piston and the maximum pressure should be the same regardless of r.p.m. The capacity of the engine will not vary the position except for varying the bore and stroke ratios; the fact of the engine being *désaxé* would certainly affect it and also the fuel used. Benzole gives more even and gentler explosions, so that the piston would be somewhat further down its stroke at the point of maximum pressure.

Excessive Tyre Wear.

I wish to ask your opinion with regard to trouble I have had in connection with my motor cycle. Last Easter I took delivery of a 2¾ h.p. machine. Within 500 miles I had numerous punctures, and by 800 miles the back cover was worn in places down to the canvas. I sent it to the makers and obtained a new one at a special price. Meanwhile I fitted another make of tyre which has given me very good service on former machines. I have now ridden it 400 miles, and the beads already show signs of considerable wear. Seeing this, I naturally began to suspect that the wheels were out of alignment, but I have tried every conceivable dodge and can find no error in this respect. The rear wheel appears to be slightly to one side. This error, however, if it exists at all, is very slight, and I fail to see how that could cause excessive tyre wear, as it would not make the tyre drag. There is also a very minute wobble in the wheel. An agent tells me that these two faults are fairly common, and would not produce the effect of which I complain. I am therefore at a loss, and shall be interested to know if you can suggest anything which has escaped me. Another proof that the wheel is not out of alignment is that the belt was perfectly true and shows no sign of wear, being untouched in 1,250 miles.—A.G.M.

It is very difficult to give you any precise answer as to your trouble without examining the machine; but, generally speaking, it would appear that you are committing the fault of not sufficiently inflating the tyres. Particularly should tyres be well inflated if the machine is fitted with a hub gear, as the additional weight of this in the back wheel is considerable. You also do not mention the size of tyres fitted, but we should imagine that they would be 2¼in.; they should certainly not be less, and, if your rim will take it, we should advise the new 2⅜in. cover to be fitted when you next purchase a cover. The numerous punctures you complain of would not, of course, be caused by any slight misalignment of the wheel, but the second tyre which you say has given you general satisfaction would be most unlikely to go at the beads in such a short space of time unless insufficiently inflated. We need hardly point out to you that it is essential, if satisfactory results are to be obtained from tyres, that the wheels of the motor cycle should be correctly aligned, and although a slight amount of misalignment is met with in many machines, it does not follow that this is correct, and you should certainly take steps to have even the smallest fault in this respect remedied by a competent man. We note, however, that you say at the end of your letter that the belt is running perfectly true, and, therefore, if the pulleys are set correctly, the wheel must also be in line. Have you correctly examined your back wheel to see that it is not slightly buckled?

"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates:—Unmounted prints, half plate 1/6 post free; mounted, 1/9 post free. Thirteen to photographs taken by "THE MOTOR CYCLE."

Orders, which must be accompanied with remittance, should be addressed to the Photographic Department—Iliffe and Sons Limited, 20, Tudor Street, London, E.C.

Cheshire to Olympia.

As it is my intention to visit the Olympia Show by motor and sidecar, I should be glad if you would advise me as to the least congested route to approach the place from Alderley Edge. I am not particular to going a few miles out of my way if this will attain my object of avoiding traffic.—R.F.

Your best route from Alderley Edge to the Olympia Show is Alderley Edge, Congleton, Leek, Ashbourne, Derby, Castle Donington, Loughborough, Leicester, Market Harborough, Northampton, Newport Pagnell, Woburn, Dunstable, St. Albans, Barnet; entrance to London by the Edgware Road, cross Oxford Street at Marble Arch, go down Park Lane, turn to your right at Hyde Park Corner, and through Knightsbridge, Kensington High Street, Olympia. None of this is really very difficult traffic riding, but great care must be exercised at the turn from Park Lane into Knightsbridge, where the traffic is usually very thick and comes from several directions at once.

B. F. G. Fowke (3½ h.p. Blackburne) starting from Leaves Green, near Keston, for the Single Gear Club's run.

A Question of Reliability.

Whilst riding a motor cycle through a village I suddenly observed a cow some thirty yards away charging towards me at a big speed, with a dog running alongside and barking at its head as though trying to stop it. I saw it would be very risky to attempt to pass, so I pulled up. Although I was only running at eight to ten miles per hour at the time, the cow drew abreast of the front wheel just as the machine had come to a dead stop and I had dropped my feet on to the ground. The dog at that moment succeeded in diverting the cow's direction, with the result that the animal came right across the front wheel, upsetting both myself and the machine. Luckily, I was uninjured, but the front of the machine was badly damaged. From enquiries I made it appears that the cow was being driven with others, from the village, and that it was running back to its cowshed. Is the owner of the cow liable for the damage?—E.H.D.

We have submitted your query to our legal adviser, who replies as follows: "Your correspondent does not say whether the owner of the cow is also the owner of the dog. If he is the matter is somewhat simplified, but if he is not, then the question arises as to which was the primary cause of the mischief, the dog or the cow. Evidently the cow was not under proper control, but to recover damages I think your correspondent would have to show that the owner of the cow knew of its mischievous propensity. If the cow and the dog belong to different owners, there would be very great difficulty in getting compensation from either."

A Scored Cylinder.

I have a 1912 3½ h.p. motor cycle, the cylinder of which is scored rather badly on both sides due to the gudgeon pin working loose. This scoring causes the engine to lose compression. You will greatly oblige me by answering the following questions: (1.) Would it be the best plan to have a new cylinder? (2.) Or would it be as good to have the present cylinder rebored and ground, and fit new piston and rings. I may state I have only had this new piston about six weeks. Should I send this piston up to the firm and have a cylinder to fit it? (3.) I have rather a nasty bulge in the left-hand side of the tank. Could this be taken out? If so, please advise me how it can be done. (4.) The back rim is flattened in a few places where the bead of the tyre fits the rim. Kindly advise me how I can remove these flats.—B.V.M.

(1.) No; we do not think this necessary. (2.) We should think that you could have the cylinder reground and a new piston fitted. A new one should not be necessary. It is absolutely essential that a new piston should be fitted if the cylinder is reground. (3.) It would be very difficult to get the dent out of the petrol tank. Probably it would entail it being taken to pieces, and this is not a job which you could do yourself. (4.) The flats in the back rim could be taken out by hammering the rim up against a hard piece of wood with a wooden mallet.

Liability with regard to Stored Machines.

I shall be glad to have your opinion on the following: On August Bank Holiday last two cycles were stored by two gentlemen, for which they paid the usual charge. On returning to claim the machines the same evening, it was discovered that two lamps, alleged to have been fixed on the lamp brackets at the time of storing, had disappeared. The cyclists now claim the price of the lamps. Will you kindly state if any liability rests on the storekeeper as regards the lamps, and whether there can be any legal claim?—W.C.B.

Our legal adviser writes as follows: "In order that the cyclists can claim for the value of the lamps which had disappeared, they must show that there was some negligence on the part of the storekeeper or his employés. For instance, if the storekeeper left the cycles in a position easily accessible to the public, or negligently left the place unattended, then the cyclists could recover. It is not quite clear whether your correspondent is one of the cyclists or the storekeeper. If he is the latter, I should recommend him to have a notice conspicuously posted up showing that he does not hold himself responsible for damage by theft or fire, and also to have a small receipt book printed with similar words printed thereon, and which receipt he would hand to the customer when the cycles were stored, in cases where payment is made in advance."

Shortening Magnets.

I am changing my ignition from accumulator to magneto. Unfortunately, the magneto is too high to fit in behind the cylinder—the place I had intended to put it. Would it matter if I cut one inch off the magnets, which are fairly long?—M.A.G.

Personally, we should say that it would not much matter if you cut a little off the magnets. The magnets, however, would require to be re-magnetised after the process, and another effect might be to reduce slightly the power of the current produced by the magneto.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"J.B." (Newmarket). — Bramptor variable gear on 3½ h.p. sidecar machine

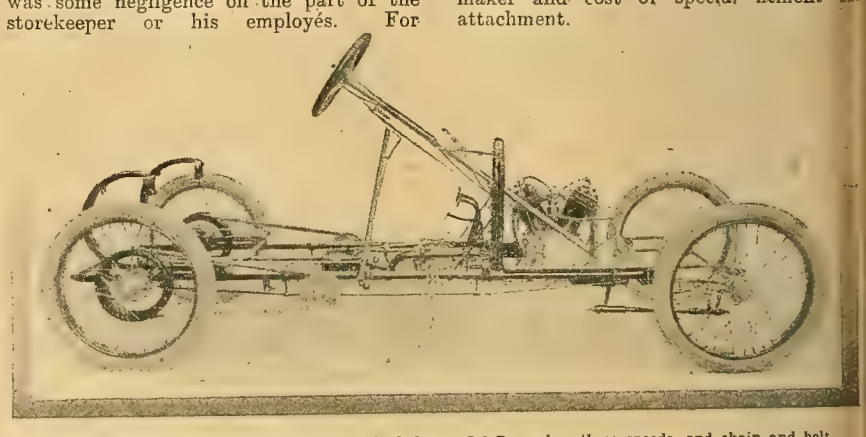
"A.S." (Dorset).—3¾ h.p. Scott. Reliability, hill-climbing, consumption, life of chains, and speed.

"A.A.P." (London).—Scott and 7 h.p Indian, solo and sidecar on same gear Vibration, reliability and durability.

"E.H.M." (Perth).—New type Bink and Lukin carburetters on 1913 Scot and sidecar.

"J.M.S." (Plumstead). — 3½ h.p single Indian with sidecar, in hilly district. Also 7 h.p. Indian as genera solo mount in traffic.

"C.L.S." (Bedford Park). — Binks Lukin, and Senspray carburetters wit 1913 2½ h.p. Douglas. Also name o maker and cost of special fitment fo attachment.



AT THE PARIS SHOW. The Jouve, which has a J.A.P. engine, three speeds, and chain and belt transmission. The front axle only is sprung.

Merry Miles—

every one of them—when your saddle does its duty by you—

MERRY MILES—when the road shock is successfully absorbed and the rebound modified—

MERRY MILES—when your comfort is ensured through the medium of the

BROOKS—

The Saddle with the Compound Springs.

These are an exclusive feature of the BROOKS and, being so, the advantages which follow are equally exclusive.

Each consists of a spring within a spring—the outer one is long and supple, and within it is another short and stiff—these act in perfect unison in the absorption of the initial shock yet check each other in the after movement and—never "toss you in the air."

MERRY MILES—and, when you think of all the weary ones which the saddle with the "simple" spring has given you, you desire those "merry miles" exceedingly—

Then let your agent introduce you to the BROOKS, but first write us for the book that tells you all about it.

J. B. BROOKS & Co., Ld., 49, Criterion Wks., B'ham.

Note that a full range of the BROOKS Cycle and Motor Cycle Specialities may be seen at our **London Showrooms—Criterion House, 11, Grape Street, Shaftesbury Avenue, W.C.** *(Oxford St. end).*

The BROOKS B170 Motor Cycle Saddle, with BROOKS Patent Compound Springs.

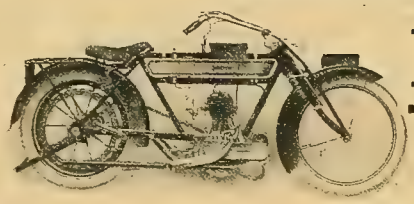
Olympia Cycle and Motor Cycle Show—Nov. 24-29, Stand No. 227.

IT CLIMBS

THE
SHEFFIELD and HALLAMSHIRE HILL-CLIMB
on OCTOBER 13th, 1913.

On TIME	**NORTON 1st**	-	Mr. Dan Bradbury.
	NORTON 2nd	-	Mr. R. G. E. Flint.
On FORMULA	**NORTON 1st**	-	Mr. Dan Bradbury.
	NORTON 2nd	-	Mr. R. G. E. Flint.

and FASTEST TIME of the day.



IT MOVES!! Why not get one?

TELEGRAMS: "NORTOMO." PHONE: VIC. 481.

NORTON MOTORS, BIRMINGHAM.

Bournville Cocoa

Cadbury

Sustains

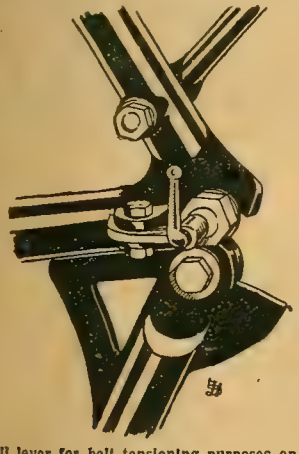
The 1914 Rudge Motor Cycles.

Features: Large fuel capacity; 650 × 65 mm. tyres on car type rims; foot-operated oil pumps; special belt tensioning device.

THERE are no really startling changes to record in the Rudge machines for 1914, but that must not be taken to mean that progress is absent. Far from it, for, although to the eye the machines are much the same as the 1913 models, there are a great many minor detail improvements which go towards making a thoroughly satisfactory and dependable mount. The main features of these always distinctive machines have been retained, namely, the multi-gear, the engine-shaft clutch, quick detachable wheels, all-black finish, and overhead inlet valve. The motors will, as heretofore, be of two sizes, the 500 c.c. and the 750 c.c., the latter being primarily designed for sidecar work. There will be a slight reduction in price of the multi-gear models.

Plenty of Fuel and Greater Silence.

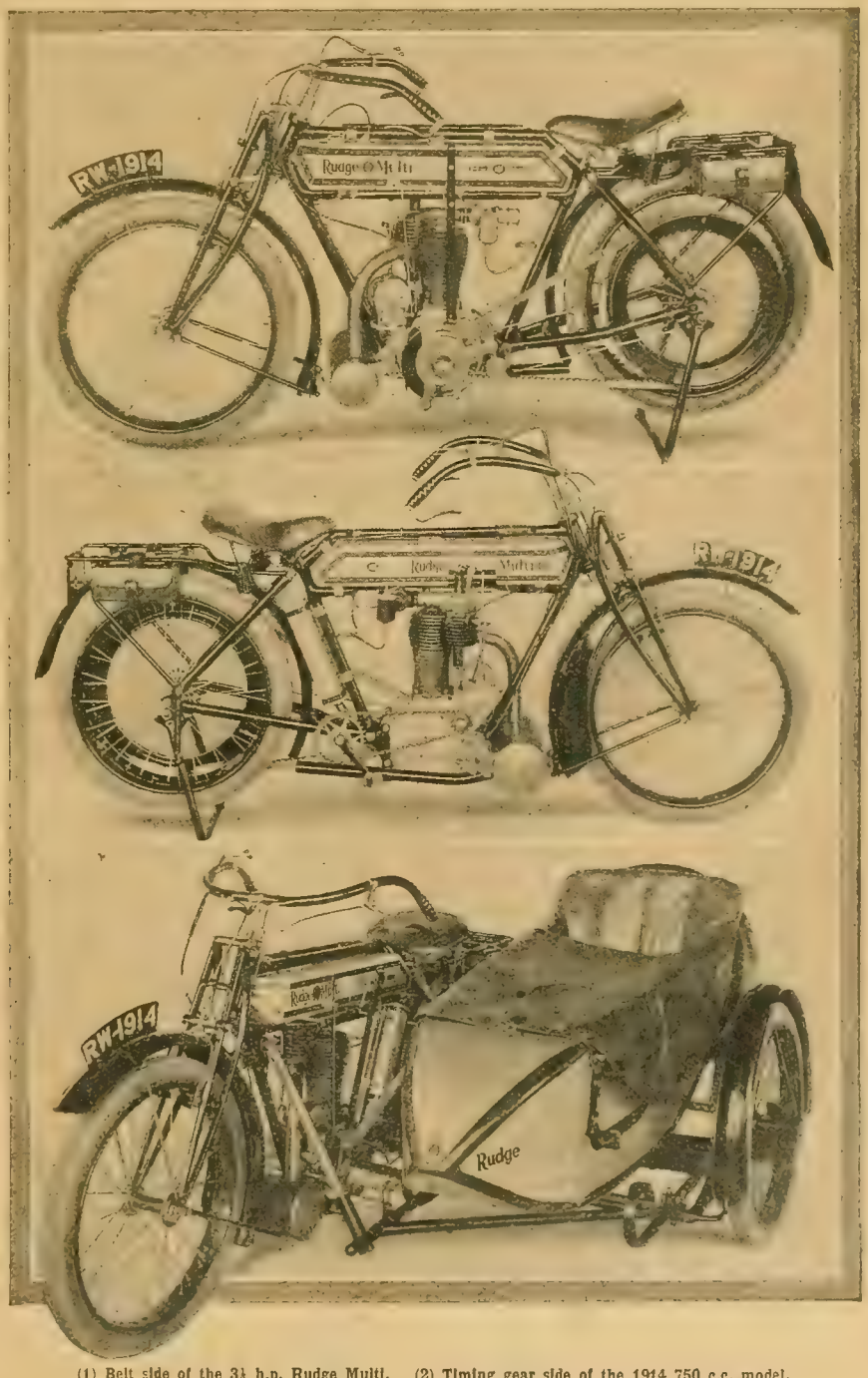
The improvement which catches the eye immediately on the T.T. and the 750 c.c. models is the provision of a separate oil tank fixed to the tube from the saddle to the bottom bracket, thus leaving the tank proper to carry petrol only, the result being that nearly two and a half gallons of petrol and five pints of oil can now be carried, a highly desirable state of affairs which *The Motor Cycle* has never ceased to urge.



Small lever for belt tensioning purposes on the 1914 Model Rudge machines.

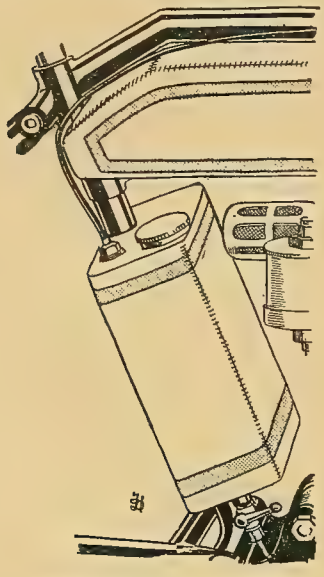
The oil tank is neatly fitted, and at the same time is readily detachable if necessary. Oil is forced into the motor from the oil tank by a foot-operated pump worked by a Bowden wire, on the touring model by pressure of the rider's heel and on the racing machines by the toe. Another considerable improvement will be found in the design of the silencer, which is now of very large size, with a pipe to the rear wheel. The cubical capacity of the expansion chamber is five times greater than that of the cylinder. This silencer is the result of a very careful study of the A.C.U. silencer test report, and should go far to do away with any backslidings which this make has committed in the past in the matter of noisiness. But if silence has not hitherto been an outstanding feature of this make, a supply of wonderful efficiency has been the lot of Rudge riders, and now, for next year, we are promised a combination of these two virtues.

Starting at the front of the machine, the wet-excluding front hubs, which have proved so satisfactory this season, have been retained. The design of the front forks and steering head remains unaltered, and Rudges have long been famous for



(1) Belt side of the 3½ h.p. Rudge Multi. (2) Timing gear side of the 1914 750 c.c. model. (3) Three-quarter front view of the complete 5-6 h.p. Rudge Multi sidecar outfit.

The 1914 Rudge Motor Cycles.— their perfect steering qualities. An improvement is the fixing of greasers to the shackle bolts. The ignition is by Ruthardt magneto, carried on a platform cast integral with the base chamber. Most exhaustive tests have been made with this magneto, out of which, we



Oil tank fitted to the Brooklands model Rudge.

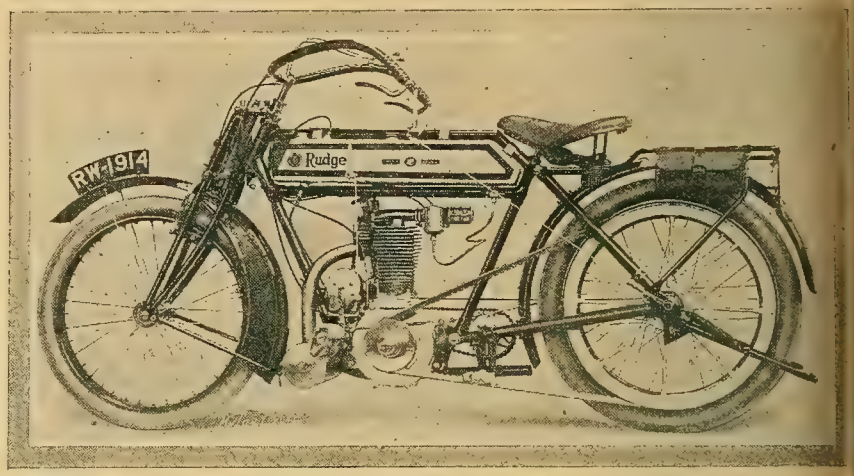
are informed, it has emerged with flying colours. In the engine an extensive use is made of roller bearings, the main shaft and the big and little ends of the connecting rod being so equipped; in fact, the Rudge designers are evidently enthusiasts for this form of carrying the load, and declare that tests have shown them that it is the most lasting method obtainable, one of the main reasons given being that oil finds its way into roller bearings with greater freedom than into any other kind. On the new models the rear pulley flange is built up with the rim, the spoke nipples taking the drive. Ribbed pattern tyres of 650 × 65 mm. section are adopted for the first time as standard, fitted to rims of the beaded edge car type, conforming to S.M.M.T. gauges.

Belt slip should not in future worry users of the multi-gear. A very neat little screw adjustment, which we illustrate, is used to tension the slack of the belt if this becomes excessive. This is done by screwing together the flanges of the rear pulley, which, of course, tends slightly to raise the gear ratio. This simple device enables a rider to get home when he would otherwise have to stop and tighten his belt, an annoying performance if the weather is wet or the roads muddy.

Rudge engines are vigorously tested both on the bench and on the road before delivery.

The Rudge Sidecar.

The coachbuilt sidecar made by this firm is specially designed for use with the 750 c.c. multi. It is very roomy, beautifully sprung, and wonderfully comfortable. A special point is the construction of the wheel, which has the outside set of spokes flared outwards from the rim to the hub at a considerable angle, as in the Rudge-Whitworth car wheels. This gives great strength, and collapse of a wheel when sudden severe corner strains are thrown upon it is practically impossible. Rigidity is an outstanding feature of the sidecar, which has four-point attachment, and is constructed of straight tubes throughout. A double bracket for lamp and generator is provided. The upholstery of the sidecar is carried out in a very thorough manner, and a serviceable storm apron is supplied, which may be used as a cover when the sidecar is not in use. The price of the sidecar is sixteen guineas.



The above 3½ h.p. Rudge, with Sturmey-Archer gear, has been added to the Rudge range for 1914.

New Records by the Calthorpe.

The 10 h.p. four-cylinder Calthorpe (62 mm. × 90 mm.) was successful in breaking seven records at Brooklands on Thursday, October 23rd. On the whole, it put up a particularly good performance, for during the first part of the time the fog was thick and materially affected the carburation. During the latter half the petrol tank was leaking rather badly, and this leakage caused several stops for petrol. Each back tyre was changed once. One was punctured about the twenty-eighth lap; the other had two nails imbedded in the tread.

Non-stop Engine Run.

The engine ran non-stop for six hours. It ran on Vacuum Mobiloil (B.B.) and Pratt's spirit. Palmer tyres were used, and the fact that the front tyres were untouched and showed no appreciable wear at the end of the day reflects very creditably upon the makers.

We examined the car at the end of the day and noted that part of the exhaust pipe was lost; that the petrol tank was leaking in several places; and that the starting handle was broken off.

It was certainly dogged perseverance that caused the ultimate success of the Calthorpe, for, as will be noted below, no records were broken till the car had run for nearly four hours. The drivers showed themselves thorough sportsmen, since they had to put up with very cold weather and fog, a puddle of petrol to sit in, and several other minor troubles.

The times were as follows:

Hours.	Miles.	Yards
1	66	1117
2	129	1737
3	196	1581

The undermentioned are records:

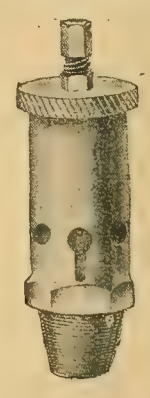
Hours.	Miles.	Yards.	m.p.h.
4	263	878	65.87
5	330	919	66.10
6	393	450	65.54

Miles.	h.	m.	s.	m.p.h.
250	3	51	8⅗	64.89
300	4	30	38⅕	66.51
350	5	18	27⅘	65.94
400	6	6	37	65.46

It was decided to attempt the short distance records as soon as the conditions were favourable.

AUXILIARY AIR INLET.

Messrs. Brown Bros., Ltd., Great Eastern Street, E.C., have introduced an exceedingly ingenious and well-designed extra air inlet. The method of its working is clearly shown in the accompanying illustration. The chief point about its design is the fact that the valve bottoms on a cone seating, so that in the closed position no air leak is possible. Some of the air holes are shaped like a keyhole so that when the valve is slightly opened only a small amount of air is admitted.



AVON

An ENDURING Non=skid.

THIS AVON Combination Cover, with its clean-cut bars of thick rubber alternating with steel studs, is rapidly acquiring a unique reputation in cycle car work. It combines the road-gripping qualities of the fully-armoured type with the durability of an all-rubber tread, and stands up to the severest work with remarkable vitality.

A.J.S. & Six Days' Trial.

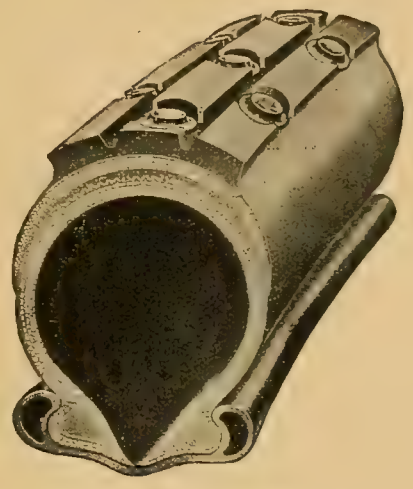
Messrs. A. J. Stevens and Co., Ltd., Wolverhampton, writes:

"There has long been a need for a tyre to fit to the driving wheel of a passenger combination, and we think you are the first to supply that one. Some time ago we gave one of your combination tyres a thorough test, and we were so satisfied with its behaviour that our Mr. A. J. Stevens decided to use one in the Six Days' Trial. For the first time he was able to go through the whole Trial without having to change the driving tyre.

"It would perhaps be as well to explain that the necessity for changing tyres in the previous Trials was not because the tyres wore out, but because the non-skid properties entirely disappeared in about three days, and a new tyre would be necessary, to prevent slip when climbing very steep hills. In the case of your tyre, however, its non-skid properties were as good at the end of the Trial as at the beginning.

"We have recommended your combination tyre to many of our clients, and in every case they have been well pleased with the result."

Every motor cyclist should carry a shilling box of KURKUT (Cure-cut), a handy stopping for the instant "healing" of cuts and gashes. KURKUT is the "stitch in time that saves nine."



The Avon 'Combination'

Steel Studs and Rubber Bars.

Regd. No 623056.

Example Prices:

26 x 2¼	26 x 2½	26 x 2½ To fit 2¼in. Rim.	26 x 3
48/3	50/-	52/6	54 3

Tubes: 8/8, 9/4, 10/9.

There are Avon tyres to fit all rims, and to suit all machines, from lightweight "Solos" to heavy "Passengers." Write for new Catalogue and address of nearest Stockist.

Registered Trade Mark.

THE AVON INDIA RUBBER CO., LTD.,

Wires: "Rubber, Melksham." MELKSHAM, Wilts. 'Phone: No. 2, Melksham.

Branches:

London, Bristol, Birmingham, Manchester, Glasgow, Paris.

The LIGHT CAR 1D.

The Light Car issue of "The Autocar."

A Weekly Journal devoted to the interests of users and potential users of small cars.

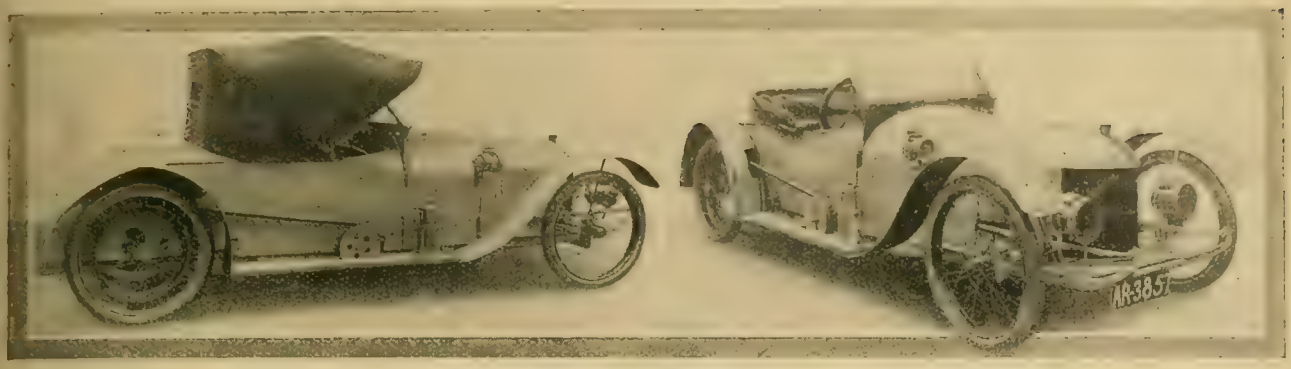
Now on sale everywhere.

Published EVERY TUESDAY.

Price ONE PENNY.

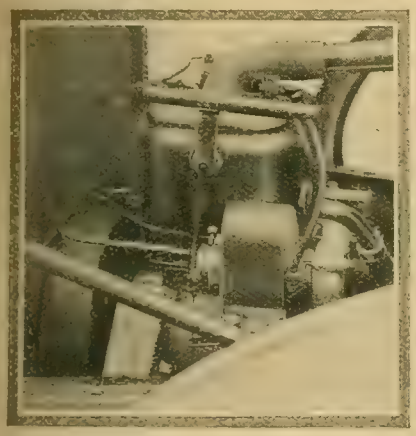
The LIGHT CAR 1D.

The 10 h.p. Adamson Cycle Car.



Two aspects of the twin-cylinder Adamson, which has an underslung frame, belt drive and water cooling.

THE 10 h.p. Adamson is the production of a firm of engineers, Messrs. Barton, Adamson and Co., Enfield Highway, whose business is general engineering and the running of motor lorries. The vehicle being belt-driven, having a chassis weight of 4½ cwt. and a complete weight of 7¾ cwt., may be called a true cycle car. It possesses many original features which show careful forethought. The chassis is of pressed high-tensile steel narrowed in front and carried first down and then upswept at the rear. It is underslung, and suspended on very long semi-elliptical springs. The engine,



Magneto side of the water-cooled Adamson power unit.

which is bolted direct on to the chassis, is a 10 h.p. Alpha, 85 × 95 mm., 1,099 c.c., and fitted with a Solex carburetter. The camshaft is driven by gearing, but the magneto is chain-driven, the chain being enclosed. The valves are also covered in and adjustable tappets are provided. Apart from the method of springing the chassis, the most interesting portion of the vehicle is aft of the clutch, and the general arrangement is clearly shown by the accompanying drawing. The male member of the clutch is kept in engagement with the female portion by means of long flat springs, which terminate in shackles from which pins run through the edge of the flywheel, and are secured by nuts and lock nuts, by means of which the tension of the springs is adjusted. The forward part of the short shaft between clutch and gear box has a castellated end, while the rearward end is fitted with a leather disc type universal joint. The gear box is carried on a detachable inner frame.

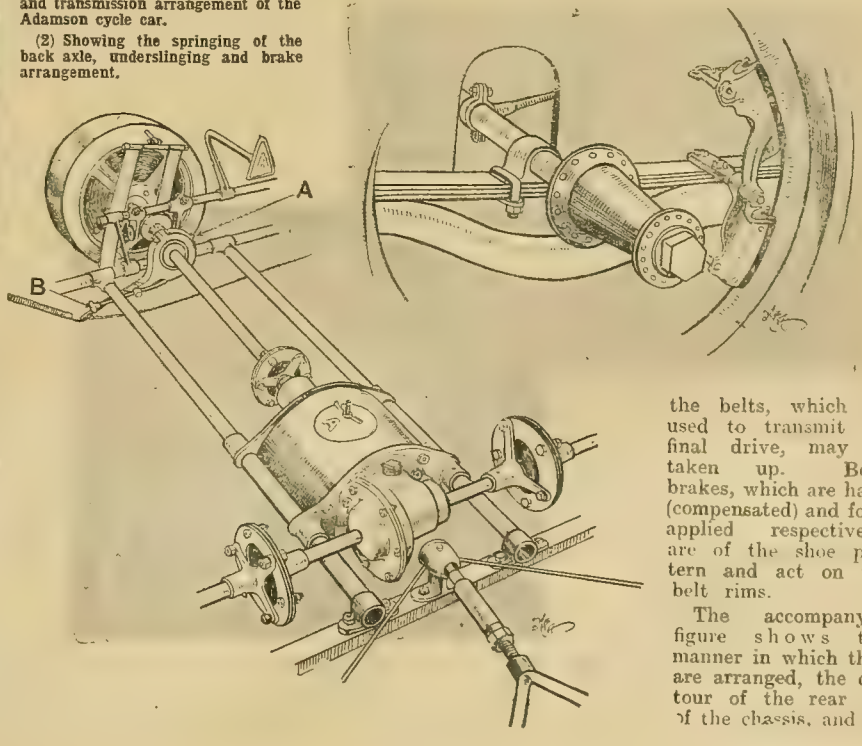
Engine Started from the Seat.

But before dealing with the former, reference must be made to the starting device, which is worked from inside the body. This is a ratchet and pawl arrangement surrounding the short shaft, and marked A in the drawing. Connected with the arm is a wire cable passing through pulleys attached to the body and not shown in the drawing, and ending in a handle conveniently placed near the driver's hand.

Injury through a back fire is impossible, as should this occur the arm of the starting device is flung back against the adjacent member of the inner frame, which is struck first by the trigger B, which immediately releases the pawl and throws the starting device out of action. The gear box, which contains three speeds and reverse, the change of which is effected through a gate, is cylindrical in shape, and consists of two cheeks of aluminium, which are the end plates, filled in by an 18-gauge steel tube. The top speed is direct and the gears slide on castellated shafts. Motion is transmitted to the counter-shaft by means of a bevel, and this counter-shaft, it will be noticed, is provided with two leather disc pattern universal joints so as to allow for any whip in the frame. Each end of the counter-shaft, to which large diameter pulleys are fixed, runs in ball bearings carried in brackets. A V-shaped distance rod runs from the gear box to the rearmost cross member of the chassis, which ends in a ball joint and an adjusting screw, by means of which any slack in

(1) Clutch mechanism, seat starting, and transmission arrangement of the Adamson cycle car.

(2) Showing the springing of the back axle, underslinging and brake arrangement.



the belts, which are used to transmit the final drive, may be taken up. Both brakes, which are hand (compensated) and foot-applied respectively, are of the shoe pattern and act on the belt rims.

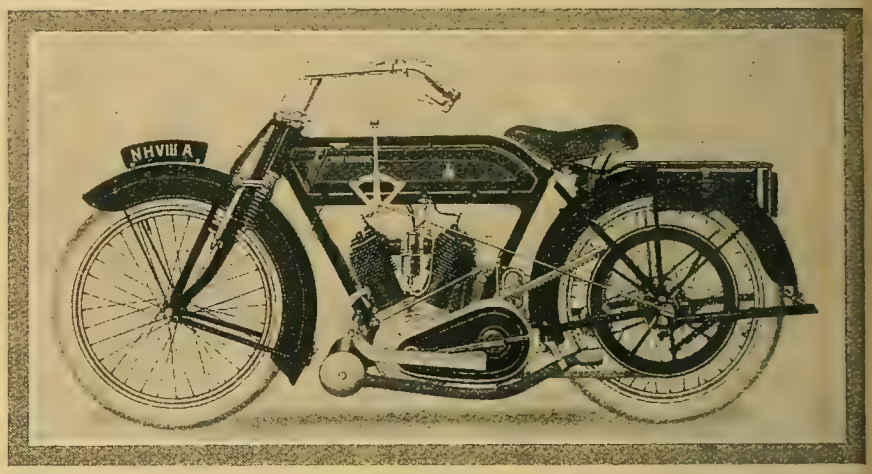
The accompanying figure shows the manner in which these are arranged, the contour of the rear end of the chassis, and the

The 10 h.p. Adamson Cycle Car.—way in which the back axle passes through the body. The tubular front axle passes also over the chassis just behind the radiator. Wire steering is fitted, and the cable employed is of larger dimensions than is commonly found in vehicles of this type. The steering swivels are supported on ball bearings above and in steel bushes at the bottom. The body, it will be noticed, has particularly pleasing lines, is provided with running boards, and has a large-sized locker at the rear. Taken altogether, the Adamson is one of the best examples of the belt-driven type of cycle car we have yet seen, and should prove very popular.

The New Hudson 6 h.p. Twin.

FEATURES: Chain and Belt Drive; Large Petrol and Oil Capacity.

The general lines of this machine do not differ materially from the 3½ h.p. model. The frame is similar, but is strengthened throughout. The countershaft drive, giving the advantage of a large pulley, is retained. This is driven by a chain from the engine-shaft, while a belt transmits the power to the Mark VII. Armstrong three-speed hub, which gives gears of 5, 7½, and 12 to 1, and contains a multiple plate clutch of large area. The engine has a bore and stroke of 76 × 85 mm., and the cylinders are set at 50°. The lubrication is by drip feed; the tank is of large capacity, being capable of holding two gallons of petrol and half a gallon of oil. The wheels have small car rims fitted with extra heavy Dunlop 650 × 65 mm. tyres as standard, with a choice of Palmer cords, Kempshalls, or Hutchinsons. The back part of the rear mudguard is made detachable to facilitate tyre repairs. It will be noticed that the magneto is placed in a rather unusual position behind the down tube, where it should be well out of the way of dirt. The footboards are sprung at the rear, turned up and pivoted in front. The machine is finished in the usual New Hudson style, which is too well known to need any further description. The machine is said to have attained a speed of 55 m.p.h. with a sidecar attached and, of course, carrying a passenger.

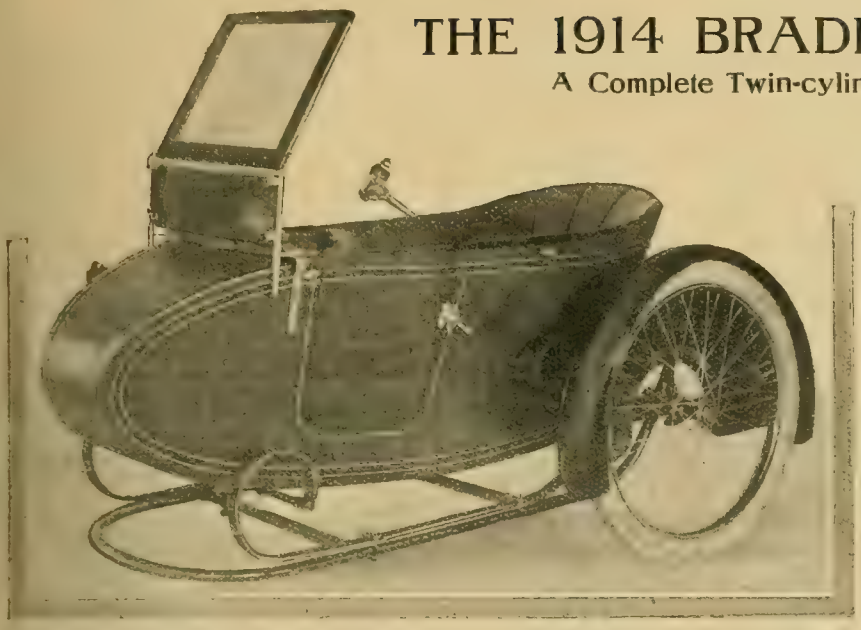


Transmission side of the 1914 6 h.p. three-speed New Hudson. The Mark VII. Armstrong gear is employed with chain-cum-belt drive.

APPROACHING THE MEMBERS' BRIDGE.
An impressive group of sidecars and cycle cars in the hour race of the B.M.C.R.C. at Brooklands.

THE 1914 BRADBURY MODELS.

A Complete Twin-cylinder Sidecar Outfit.



The attractive coach-built sidecar introduced by Bradbury & Co.

TWO outstanding features of the Bradbury programme for next year are the production of a very fine twin-cylinder three-speed machine specially designed for sidecar work, and a luxurious sidecar specially designed for use with this machine. The 3½ h.p. single-cylinder machine is now fitted with comfortable footboards, a kick starter in the counter-shaft, and direct belt transmission. A Sturmey-Archer three-speed gear is fitted.

A Powerful Sidecar Machine.

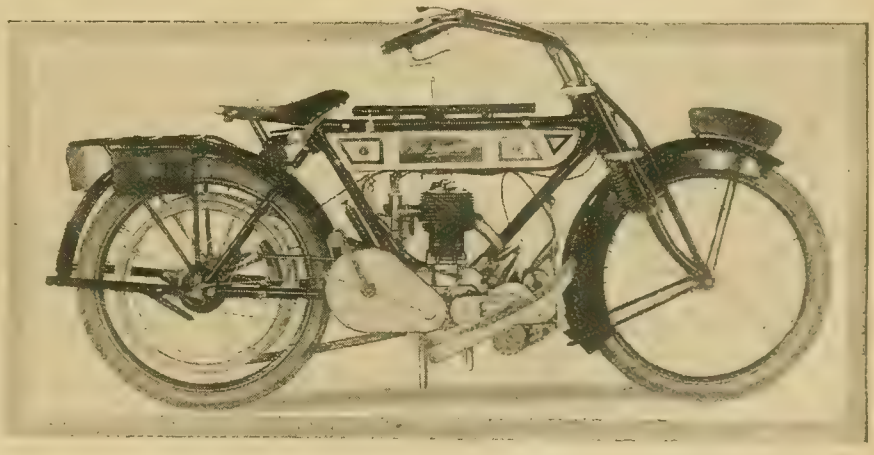
The 6 h.p. twin is a fine example of a powerful motor cycle. The transmission is by chain throughout, the chains being entirely enclosed. A well designed three-speed gear box is fitted, on the counter-shaft principle, the gears being of the sliding type. The gears are changed by a large lever working in a quadrant on the right-hand side of the tank. Ample sized footboards with deep heel pieces are fitted. The engine is of 750 c.c. capacity, the bore and stroke being 74.75 × 86 mm. respectively. The cylinders are held down by long rods to the base chamber, joined by a yoke over the cylinders. A feature of the machine is the excellently large toolkit leather box situated on the top tube of the frame, which is, we consider, the ideal position for the kit to be carried.

Luxurious Bradbury Sidecar.

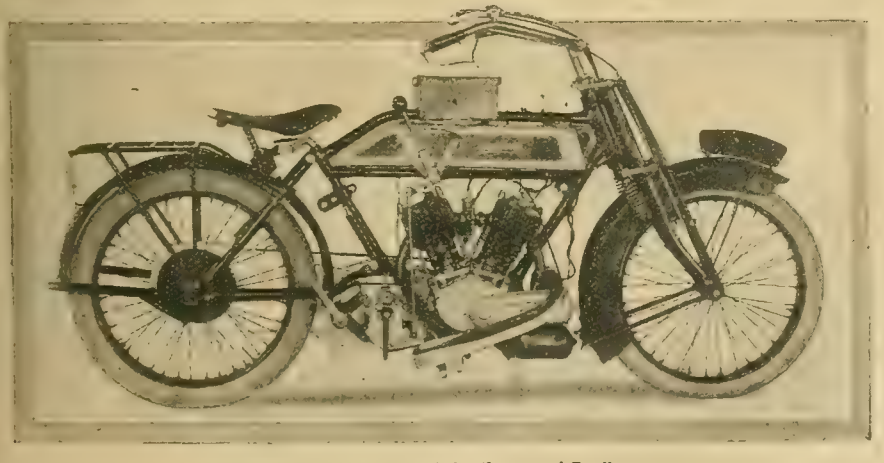
The sidecar is a wonderfully roomy and well designed attachment. It is coachbuilt, and entrance is gained by a very wide door. The chassis is underslung, and a feature to be noticed is the admirable way in which the sidecar wheel is mudguarded. An adjustable wind screen is fitted and a hood can be supplied if required.

One of the best features of this sidecar is the excellent length for tall riders. The chassis is carried well to the front of the body.

This sidecar is specially designed for use with powerful machines, and with the twin Bradbury in particular.



A 3½ h.p. single-cylinder Bradbury.



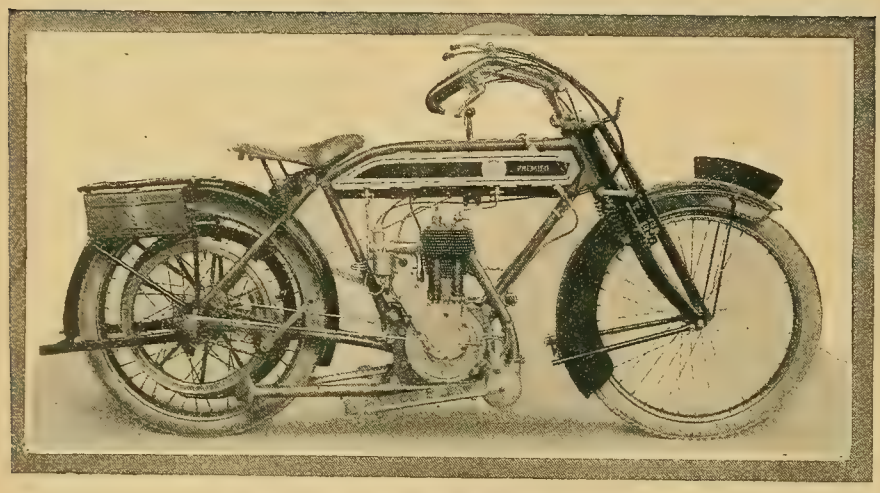
The new 6 h.p. twin-cylinder three-speed Bradbury.

A NEW FEATHERWEIGHT CALTHORPE.

A Two-speed Machine under 100 lbs.

This machine, which will be known as the "Calthorpe Minor," is a replica of the high powered machine of the same make as regards frame construction, carburetter, ignition, etc. The power is obtained from a 1¼ h.p. Precision 60 × 60 mm., 179 c.c.; this engine is said to produce 3 h.p. at 5,000 revolutions per minute, which is quite credible, as the Dendy Marshall formula places the h.p. at this speed at 3¼ approximately. The two-speed gear is incorporated in the crank case and operated by dog clutches worked by the foot; the gear ratios are 6 to 8 to 1 on top and 12 to 16 to 1 on low. The Calthorpe Minor should appeal to a large number of people who have no wish to use a heavy motor cycle.

The Latest 3½ h.p. Premier.



A new 3½ h.p. Premier with footboards and kick-starter.

Our illustration depicts an attractive model just produced by the Premier Cycle Co., Ltd. The power unit is the well-known 3½ h.p. Premier motor with the auxiliary exhaust device. Druid front forks are fitted, and the mudguards have been extended to give greater protection. Comfortable footboards are fitted, and an enlarged silencer with pipe to the rear is supplied. The drive is by belt to an Armstrong Mark VII. three-speed hub of the latest design, and a kick-starter is provided. A new departure is the colour of the tank, which is enamelled bronze instead of aluminium. A very low saddle position is given, and the shape of the handle-bars has been greatly improved. Altogether this machine looks very serviceable.

We regret that last week we inadvertently gave the address of Alfred Roberts and Sons, Ltd., as St. Mary Street, Birmingham. The correct address of this firm is Gripwell Works, St. Mary's Row, Birmingham.

Motosacoche 1914 Models.

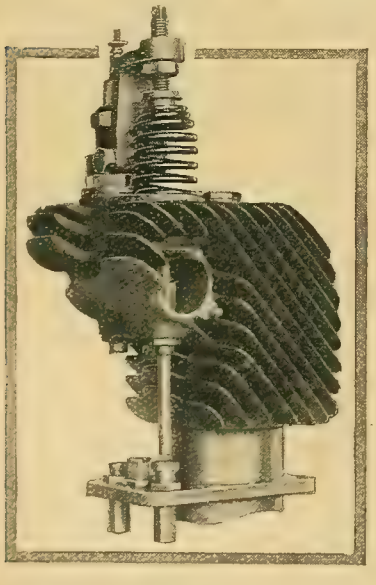
THE 2½ h.p. single-cylinder Motosacoche and the 3½ h.p. twin of the same make will be supplied with or without Mr. De Lissa's patent valve, which will not, however, be fitted to the 6 h.p. twin sidecar model owing to the overhead inlet valves which are a feature of the M.A.G. engine on this model.

The Sidecar Model.

The details of the 2½ h.p. and 3½ h.p. are unaltered, and the specification of the sidecar model is, 6 h.p. V twin-cylinder M.A.G. engine, overhead inlets, Enfield two-speed counter-shaft gear, chain transmission throughout, and a cushioning device in the drive to the rear hub. The front fork is a Druid, and the forks are made sufficiently wide to take the whole width of the mudguard without trapping. An automatic drip-feed lubricator is employed.

The sidecar chassis is very strongly built with three cross tubes connecting the side members, and can be fitted with any type body.

We had a short run in a sidecar fitted to a 3½ h.p. twin which Mr. De Lissa uses, and found the speed of which this engine is capable quite surprising; it was fitted with the patent exhaust valves to which we refer above. This valve has been previously described in *The Motor Cycle*, but its advantages are not fully understood; it will, therefore, be of interest to refer to it again, as it will be a Motosacoche fitting next year.



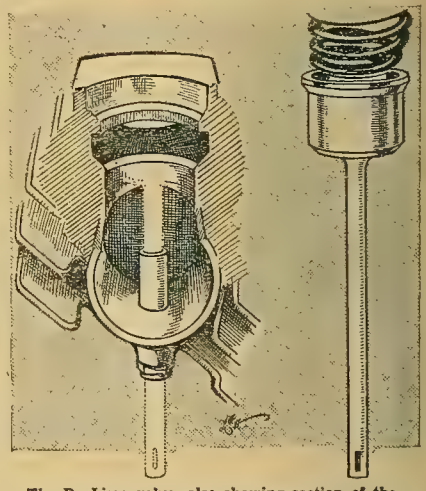
The De Lissa valve as fitted to a Motosacoche cylinder.

The De Lissa Exhaust Valve now Standardised.

The illustrations explain the working, and it will be noticed that the greatest advantage is the exposure of the valve head to the air, which keeps it remarkably cool, and the absence of internal pressure on the head. An ordinary exhaust valve has to lift against a strong pressure in the cylinder varying with the throttle opening; in the De Lissa valve this pressure acts on the sides of the valve, and it is claimed that it assists in lifting it, the only negative work done being to open the valve against the pressure of the coil spring. Another advantage is that the head cannot break off, and a valve breakage is unknown. The ordinary valve spring tends to drag the stem from the head, because it pulls the valve back to its seat and exerts a hammering action which tends to break off the head. In the De Lissa valve the stem only acts as a tappet, and the valve will work if the stem were cut off below the exhaust port and that amount of length added to the usual tappet. The coolness of the valve after running is notable, as oil, which in the ordinary case gets burnt off the seat and head, remains liquid on the De Lissa valve.

How the Valve is set.

In setting this valve a strong spring is necessary to prevent it rising too early, as it will do if the spring tension be slackly adjusted. The spring is screwed down until the sound of the explosion getting away through the seating is inaudible, with throttle fully open and ignition advanced. "Knocking," as ordinarily known, is with this valve absent, because, should explosions occur too early for the speed of the engine, the valve lifts slightly and acts as a decompressor. We had ocular proof of the coolness of the cylinders, as, after running a few miles, we laid the business ends of some ordinary wood matches on the cylinder heads, and they failed to ignite, whereas matches held near the exhaust pipes blazed up almost before they touched the pipe.



The De Lissa valve, also showing section of the cylinder to accommodate the valve.

The 10 h.p. A.C.

FEATURES—Four-cylinder High Speed Engine; Novel Clutch and Brake; Minimum Weight.

THE well-known firm of Auto-Carriers, Ltd., of Thames Ditton, have now taken one more step forward into light vehicle production by placing on the market a small four-cylinder car, which comes within the definition of a cycle car.

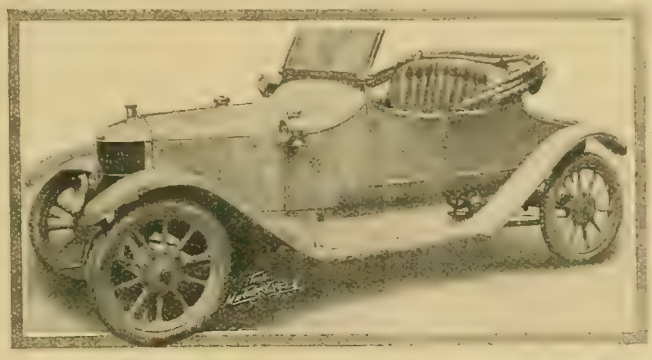
The source of power is a four-cylinder water-cooled engine of very clean appearance, having a bore and stroke of 59 mm. by 100 mm., giving a total capacity of 1,096 c.c. The valves are totally enclosed. Cooling is effected on thermo-syphon principles, in conjunction with a pointed radiator fitted with extra large oval tubes, through which air is drawn by means of a fan embodied in the fly-wheel. The Bosch magneto, which is driven through a flexible coupling, takes up an accessible position on the off side, the near side being reserved for the Zenith carburetter controlled by an adjustable accelerator pedal, operating in conjunction with a hand control on the steering column, the latter being used to set the engine at the minimum speed required. An automatic pump forces lubricant to the main bearings, other moving parts relying on splash troughs placed under the big ends, and should any obstruction or leakage occur a tell-tale indicator on the dash notifies the driver of such a crisis. The crankshaft runs on two journals, and the engine can turn round at a maximum of 2,500 r.p.m., thus giving the vehicle a really creditable speed on top gear.

Details of the Transmission.

The clutch is quite a new departure, a Ferodo covered flat ring replacing the usual cone. Much experimental work was carried out in this direction, resulting in a very sweet acting mechanism. A gate change allows for the selecting of the gears, performed by a lever, which is a neat steel stamping, whilst the power for sliding the gears is transmitted to the striking forks by neat rods passing along on either side of the torque tube which encases the propeller-shaft.

It should be explained here that the gear box casing is cast in one with the torque tube and extends into a further compartment, housing the worm and differential, thus allowing the whole unit to be encased on one large chamber.

There are one or two very neat details concerning the gear changing parts, which are worthy of attention. Great ingenuity has been displayed in devising a means for locking the striking rods in position. This consists of a ball and spring placed in an eccentric casing, which can be rotated, thus performing the required adjustment, its final position being fixed by a set screw. A double ball journal in a steel housing is provided for the engine shaft, the layshaft running in a similar type but with single balls. Three speeds forward and a reverse sum up the changes, the gears being $3\frac{3}{8}$, 7, and $12\frac{1}{4}$ to 1, with direct drive on top.



The 1914 model A.C., which has a four-cylinder water-cooled engine.

Great trouble has been taken with the mounting of the worm shaft, and the bearings are most substantial.

It would be as well, perhaps, to describe this rear brake now, since its design is a unique and rigid structure. Its action is similar to that of the clutch, because a plate is used instead of the usual shoes working in a drum. A stationary disc faced with Ferodo is brought up against a plate fixed firmly to the worm shaft, which is splined, the direction of the thrust being opposed to that exerted by the worm in propelling the car. Being an overhead drive the worm wheel hangs below in two brackets, large duplex ball thrust bearings, placed in pressed steel casings being responsible for the support. The bevel differential is of generous dimensions, splined axle shafts forming the attachments for the bevels, a very commendable refinement. At the wheel end of these shafts, brakes are fitted and arranged to work right in the centre of the hub. Therefore, with Sankey wheels, the general appearance is greatly enhanced as well as the whole mechanism being weatherproof.

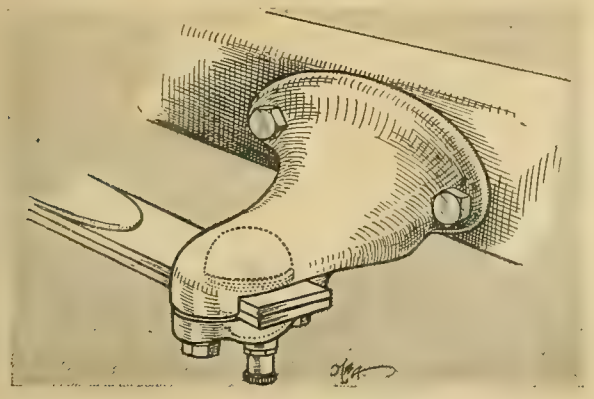
Grasshopper springs provide the suspension at the rear; transverse springs, lubricated by greasers, make it possible to in-sweep the front end of the chassis frame, giving at the same time exceptional lock to the steering. A great deal of useless weight has been disposed of in designing the frame, pressed channel steel giving the required lightness with the maximum of strength. Its actual length is 6ft., but the type of rear springing adopted makes the wheelbase 8ft. $5\frac{1}{2}$in.

Comfort in the Coachwork.

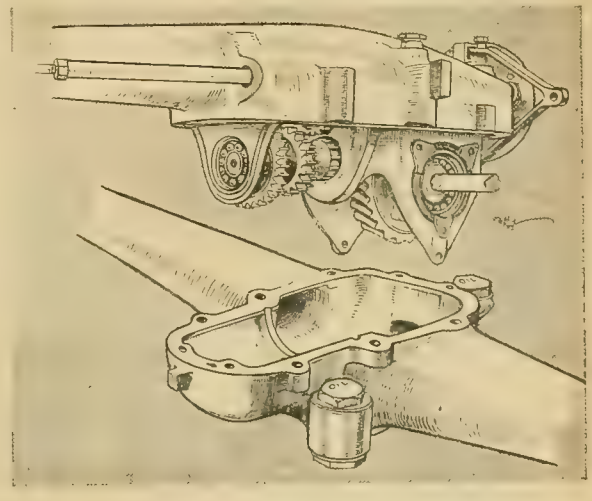
A very neat coachbuilt body, constructed on streamline principles with tulip dash, gives ample seating accommodation. Care is taken to have the cushions at the angle of greatest comfort.

It is impossible to do justice to such a fine piece of engineering in so short an article, but the main factors can be summed up in the following:

Steel stampings are used in every possible case, accessibility is always kept to the fore, highest grades of material, only, are utilised, and further the price complete, including heavy car Clincher tyres 700 × 80 mm., hood, glass windscreen, large kit of tools, three lamps, horn, tyre pumps, jack, etc., is £175.



Spring bracket on the new A.C. showing ball device, allowing end of rear spring universal and sliding movement.



A.C. rear axle showing arrangement of gear box, also brake on end of worm shaft.

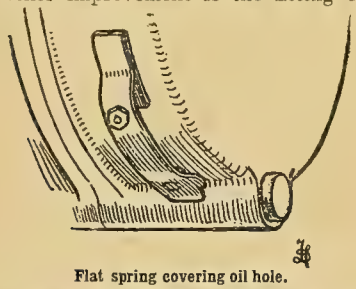
The 10 h.p. A.C.—

The other model marketed by this firm is furnished with the well-tried single-cylinder engine used in the three-wheeled sociables. A dummy radiator is made in one with the bonnet, its shape being similar to that of the larger model. Two speeds forward and a reverse comprise the reduction gears, which are epicyclic. The final drive is by a single enclosed chain to a solid axle, one wheel being fitted with a slipping clutch in place of a differential. Grasshopper springs form the rear suspension, transverse springs the front. We have no hesitation in saying that the value of the car at £100, with complete equipment and ready for the road, is wonderful.

TRIUMPHS IN 1914.

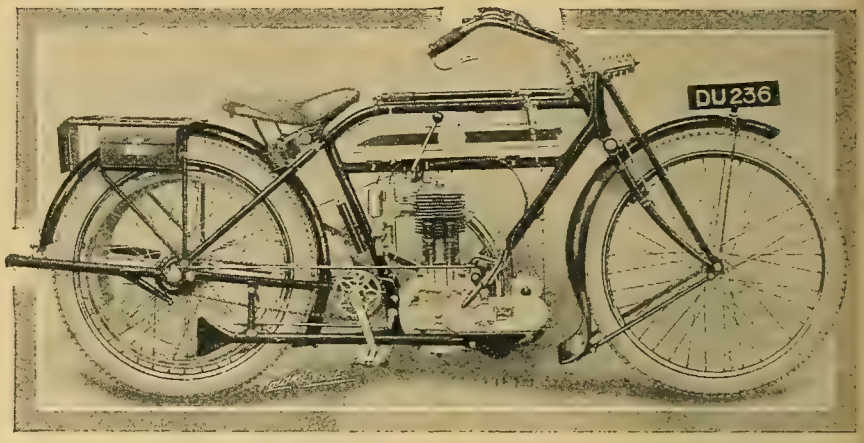
Features: Dropped Frames, Semi-automatic Lubricator.

WE are able to illustrate this week two of the new model Triumph motor cycles as they will be exhibited at Olympia. It will be observed that a dropped top tube has been adopted (this is common to all types), giving a lower riding position. Another improvement is the fitting of a

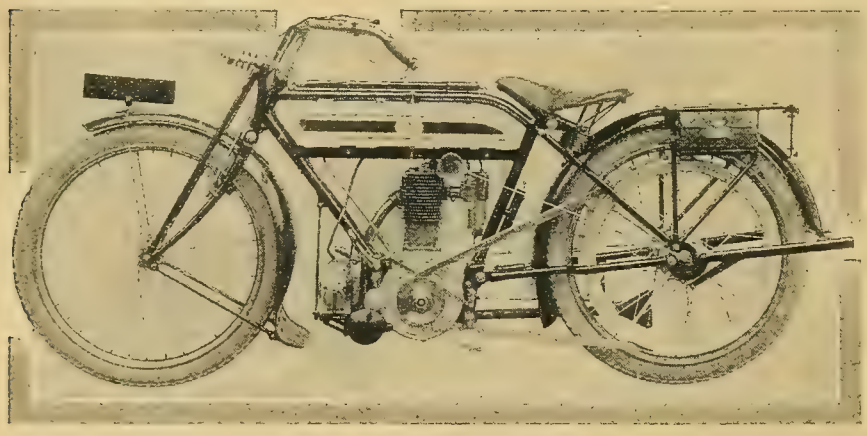


Flat spring covering oil hole.

Best and Lloyd semi-automatic drip feed lubricator, the pump being arranged in an inclined position as usual to render its depression an easy operation whilst sitting in the saddle. There are, of course, many detail improvements on the new Triumphs, but these must form the subject of an article in our next issue, when we purpose dealing with an entirely new single-cylinder mount the Triumph Co. will market in 1914, and, it is expected, exhibit at Olympia.



The Standard three-speed touring Triumph.



Belt side of the 1914 model T.T. Triumph roadster.

This machine has been kept in the background, and the news of its adoption will come as a distinct surprise. At the moment we are bound to secrecy.

Another new fitting is the flat spring fitting over the oil drain in the crank case in place of the screw plug which is liable to shake loose and be lost.

Those who have been anxiously awaiting the appearance of a twin-cylinder Triumph will still have to wait in patience, as next year this famous firm will specialise once more in single-cylinders

IVY-PRECISION.

The maker of the Ivy motor cycles (Mr. S. A. Newman, Ivy Works, Lichfield Road, Birmingham) will exhibit at the Show a 1½ h.p. lightweight Ivy. This is fitted with the Precision lightweight set, consisting of a miniature engine with two-speed gear box incorporated with the crank case. The transmission is by belt from a pulley on the half-time shaft.

Other models are the 3½ h.p. with Sturmey-Archer gear; 3½ h.p T.T., to which a larger tank is fitted; 4 h.p. twin, with new Precision engine and Sturmey-Archer gear; 2½ h.p. touring single-cylinder; and 4¼ h.p. single-cylinder sidecar combination. The latter will have chain drive and G.H. three-speed counter-shaft gear. On the change-speed hub models, the kick starting device on the offside has been improved by brazing the clip for the crank axle to the chain stays. The foot brake now has the shoe working in the groove of the belt rim, which facilitates the removal of the back wheel.

On the change-speed models this brake operates against a separate belt rim attached to the offside of the wheel, and in the single-geared models against the belt rim on the near side. Celluloid-covered handle-bars are adopted as standard on all models, and B. and L. drip-feed lubricators.

Mr. Newman also intends to exhibit a 2½ h.p. two-stroke lightweight. This machine has a 60 × 60 mm. engine made on orthodox two-stroke lines, crank case compression being employed. The magneto is mounted on a neat platform at the rear of the crank case, and an outside flywheel is fitted. Hoffmann ball bearings are fitted to the crankshaft, which is of very substantial proportions. As these bearings are a particularly good fit, it is not expected that compression washers will be required. The transmission is by belt, and the method of lubrication is to mix a certain proportion of lubricating oil with the petrol, which feeds through the carburetter to the engine. During the experiments a drip-feed lubricator was employed, in addition to the above, but it will probably be discarded on future models.

It will thus be seen that a comprehensive range is being marketed for 1914.

The Third Meeting of the F.I.C.M. in Paris.

THE third meeting since its foundation of the Fédération Internationale des Clubs Motocyclistes was held at the Automobile Club of France, Paris, at 5 p.m. on Saturday last. The following is a list of the countries represented and their delegates:

GREAT BRITAIN.—Messrs. E. M. P. Boileau and T. W. Loughborough (Secretary F.I.C.M.).

FRANCE.—MM. le Chevalier René de Kuyff, G. Longuemare, F. G. Fenton, and Charles Fourreau (Secretary Competitions Committee A.C.F. and U.M.F.).

GERMANY.—Dr. Brückmayer and Herr M. Hein.

BELGIUM.—Baron Nothomb and M. Michant.

DENMARK AND HOLLAND.—Herr N. Jamink.

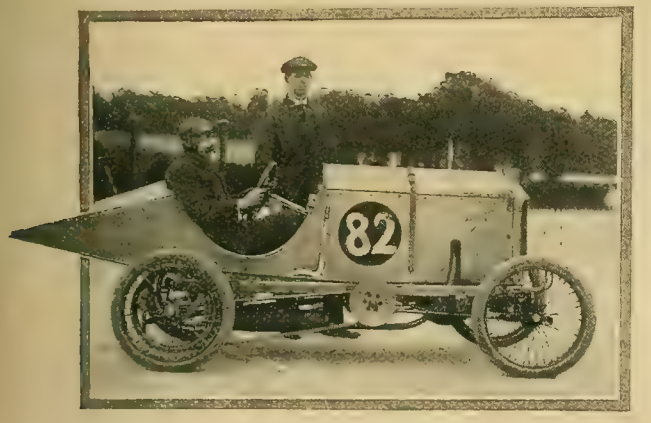
ITALY.—F. A. Head.

SWITZERLAND.—M. Mégevet.

The Chevalier René de Kuyff, who occupied the chair, called on M. Fourreau to read the minutes of the last meeting in French.

Next Year's Competition.

Mr. Boileau then read the report of the International touring trial, and after both the above had been passed, Mr. F. G. Fenton proposed that the F.I.C.M International touring competition which is to be held in France next year should start from Paris and then be held from a centre for three



THE BUCKINGHAM CYCLE CAR AT BROOKLANDS.

The designer, J.F. Buckingham, who is seen at the wheel, recently set up new 750 c.c. records for the mile and kilometre.

or four days, and should finish in the French metropolis. Several districts were mentioned, such as the Lyons district, the Auvergne, and the Vosges. He reported that on behalf of the Union Motocycliste de France, MM. Longuemare, Koechlin, and himself had been instructed to find a suitable course. This proposal was adopted. It was also decided to hold the International Touring Trial in Germany in 1915. Mr. Fenton then raised the question of international records, and after a brief discussion it was agreed that the following should be recognised as world's records: The flying kilometre and the flying mile, the flying five miles and the flying five kilometres. 10 miles and 10 kilometres, 50 miles and 50 kilometres, 100 miles and 100 kilometres, 200 miles and 200 kilometres, 1 to 6 hours inclusive, 12 hours, and 24 hours It was agreed to recommend that the A.C.U. should alter class A, for motor cycles up to 275 c.c. to read "for motor cycles up to 250 c.c." It was also decided that the same rules governing records should be adopted as were laid down by the International Association of Automobile Clubs, but that for the present short distance records need not be electrically timed. M. Mégevet was asked to submit estimates for electrical timing apparatus at the next F.I.C.M. meeting. The following proposals, put forward by the representative of Holland, were adopted: That in international trials no "secret courses" should be used; that the organisers should send to the competing clubs one month before the competition a route card, giving all particulars as to the route and hills, and that all checking stations should be marked by a banner across the road

Cycle Cars may have Three Wheels.

Mr. Boileau then made the following proposal, which was carried unanimously: "That all motor cycles with three wheels be classified as cycle cars other than motor bicycles with sidecars, that by the term 'motor bicycle with sidecar' is meant a three-wheeled vehicle, consisting of a motor bicycle to which a chassis is attached carrying a body or seat for the passenger." The original draft possessed the words "passenger or passengers," but as the last two words if included might bring about a difficulty on the question of the taxation of cycle cars which is now being considered by the French Minister of Finance, they were omitted. The result is that sidecars carrying more than one passenger must in future competitions be classified as cycle cars.

Protests Considered.

Two protests were then considered, one emanating from Switzerland regarding the question of ballast, as the competitor's machine was over the minimum weight and his weight was under the minimum allowed for its rider. The second protest was from Italy, and made on behalf of a competitor who, contrary to the regulations, removed his silencer. This was not permissible, as, curiously enough, though the exhaust may be free in speed contests, silencers must not be removed. Both protests were disallowed.

The following officers were elected to constitute the Central Bureau: President, the Hon. Arthur Stanley, M.V.O., M.P., Chairman of the Royal Automobile Club and President of the Auto Cycle Union; vice-presidents, M. Longuemare (France), Dr. Brückmayer (Germany), and the President of the Moto Club d'Italia (Italy). Mr. G. F. Sharp was elected treasurer and Mr. T. W. Loughborough secretary.

In recognition of his services to the Federation, Mr. Loughborough was granted a sum of money representing 10% of the subscriptions received.

The meeting passed very smoothly and on no single occasion had the chairman to ring his bell

A volunteer fire brigade of Green Street Green, Kent, on their 6 h.p. Enfield sidecar. (See Current Chat.)

TIME TO LIGHT LAMPS.

Oct.	30th	5.36 p.m.
Nov.	1st	5.32 ,,
,,	3rd	5.29 ,,
,,	5th	5.25 ,,

Saturday's Speed Trial Postponed.

The Herts M.C.C. flexibility speed trials at Brookman's Park have been postponed until the spring. Only fifty entries had been received for the trials, and the committee considered that sixty was a minimum to proceed with the event.

The Effect of Benzole on Tanks.

A short time ago we published a paragraph asking readers who had found benzole to have a deleterious effect upon their tanks to communicate with us. Of course it was the inside of a tank that was meant, but all those who have been kind enough to write have misunderstood us to mean the enamel on the tank. This property of benzole is, of course, well known.

Alphabetical List of Miscellaneous Advertisements.

Commencing with the next issue, the miscellaneous advertisements in *The Motor Cycle* will be classified under the various makes of machines and arranged alphabetically—a system which has so long been adopted in connection with our sister journal *The Autocar*. Nowadays a reader has usually made up his mind as to the make of machine he wishes to buy, and we feel sure the change will be appreciated. The numerous advertisements of passenger motor cycles, which have hitherto not been sectioned up, will in future be much more easy of reference, as they will be grouped under their proper heading with solo mounts.

The Robbialac Competition.

Those of our readers who took part in the great Robbialac painting competition, as well as those interested in a really capital exhibition, will be pleased to learn that the County Chemical Co., Ltd., Chemico Works, Birmingham, have arranged for the whole of the articles sent in, and their number is legion, to be on exhibition for a fortnight commencing Monday, October 27th, at Daimler House, Paradise Street, Birmingham. It is not often that such a wonderful exhibit of amateur work is staged. The number, the great variety, the ingenuity, and the high standard in most cases attained has surprised everyone who has a hand in the organisation of this competition. Once the articles are staged, the judging will be carried out as expeditiously as possible, and results published with as little delay as possible afterwards.

A Belgian Hill-climb.

We have received an interesting letter from A. J. Dixon, the well-known Singer rider, written from Liège, where he went last week to compete in a hill-climb organised by the Motor Club Liègeois. The climb was held on a hill one kilomètre in length with 150 yds. in which to get up speed, and an average gradient of 1 in 7½. Dixon describes it as a perfectly ideal hill for the purpose, and the entrants included Triumph, Singer, and Sarolea machines, but Dixon was the only English rider. He was successful in winning, doing best on time and formula. He pays a high tribute to the kindness extended to him by the Liège M.C.

Kent Firemen's Sidecar Equipment.

Green Street Green, a village near Sevenoaks, is remarkable for the fact that the village fire brigade uses a sidecar outfit to get with speed to an outbreak of fire. The machine used is a 6 h.p. Royal Enfield combination, which, in addition to carrying four men, also conveys several lengths of fire hose. The roads round about this neighbourhood are exceedingly hilly, but the Enfield manages to take its heavy load round without faltering.

SPECIAL FEATURES:

MANY NEW MODELS.

UP BWLCH-Y-GROES ON A 3½ H.P. SIDECAR.

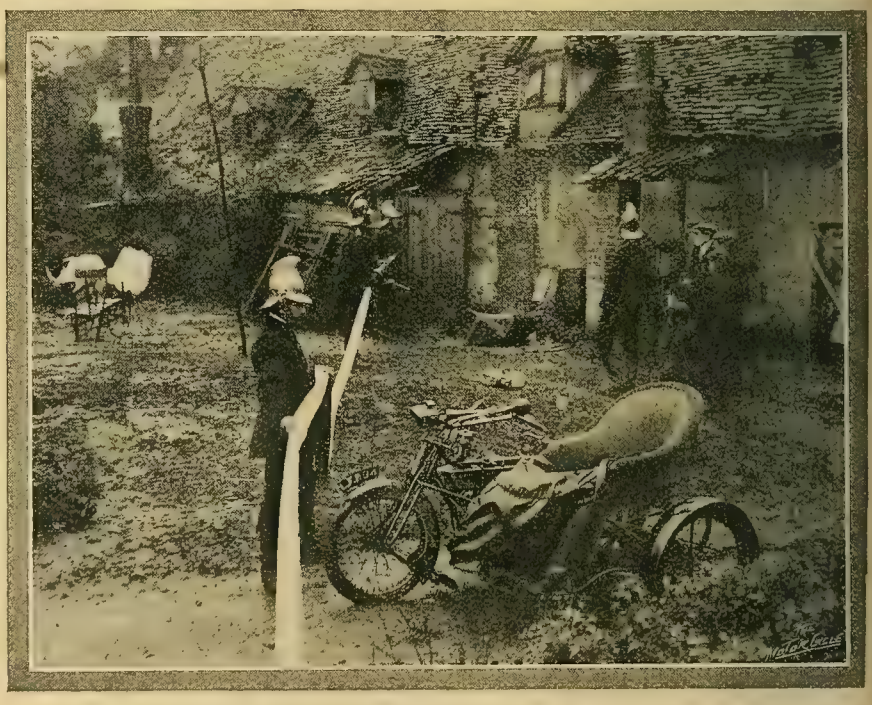
THE REAR LIGHT QUESTION.

The Flexibility Hill-climb.

We are asked to make it clear that it was a 3½ h.p. three-speed Sunbeam on which J. S. Watson made the best performance in the flexibility hill-climb of the Sutton Coldfield A.C., and not a 2¾ h.p. as stated in the official results.

Indian 1914 Programme.

Colossal extensions, both in capital and plant, have lately been made by the Hendee Manufacturing Co., makers of the Indian motor cycle, and next year, with their increased facilities for production, it is expected that no fewer than 300 complete machines will be turned out by the factory daily. In London the company expect to be in occupation of their large new premises, 366-368, Euston Road, N.W., before the Show opens at Olympia. This depot will serve as a distributing centre, not only for the United Kingdom, but for the whole of Europe.



A volunteer motor cycle fire brigade of Green Street Green, Kent, who use a 6 h.p. Enfield sidecar. Two sit in the sidecar and one on the luggage carrier. (See paragraph.)

Racing in Italy.

The Circuito Amiata, which recently took place over a course of 124 miles, was won by Baron Sergadi on a Triumph in 3h. 0m. 55s.

Road Obstruction by Traction Engine.

At the Exeter County Court, a fortnight ago, Mr. E. O. Babbington brought a successful action against the owner of a traction engine which blocked up the entire road (no look-out being kept), and consequently did considerable damage to his motor cycle and sidecar, as he was unable to pull up in time after rounding a curve. He was awarded damages to the extent of £23 18s. 8d. and costs.

Italian Sidecar Trial.

Motor cycles are gaining a strong hold on the sport-loving Italians, and last week the first sidecar trial for machines up to 1.000 c.c. was held at Perugia over a course of 160 kilometres. The competitor who reached an average speed nearest to forty kilometres an hour was declared the winner. The result was: 1, Sebastiani (Motosacoche), who averaged 39.994 km.; 2, Spadoni, who rode an Italian machine, a Frera, average speed 38.660 km.; 3, Bonainti (Williamson), average speed 36 km. A Singer was fourth.

Important International Competitions in 1914.

In the fixture list published by the Union Motocycliste de France, which is a similar body to the A.C.U. in England, we note the following important events:

March 18 to 25.—Paris-Nice Trial (M.C. de Nice).

March 29.—Grand Prix de Champagne (T.M.C. de France).

June 1st (week-end).—Grand Prix du M.C.M.

July 26.—International Motor Cycle Cup Race, Le Mans (A.C.S.O.).

Aug. 4 to 9.—F.I.C.M. International Competition.

British manufacturers who have felt the burden of the numerous Continental competitions this year would do well in 1914 to support only those of importance.

Trap.

We have received notification of a police trap between Ross and Ledbury, situated about four miles from Ross.

An Attractive Carburetter.

Next week we hope to publish an article describing a new variable jet carburetter, controllable from the saddle, which enables a racing twin, geared $3\frac{5}{8}$ to 1, to fire even on both cylinders whilst walking alongside. We have proved this to our own satisfaction. The carburetter will be exhibited at Olympia for the first time.

London-Exeter-London Run.

Mr. Harold Karslake, who is organising secretary of the London-Exeter-London M.C.C. Christmas run, informs us that this year the start and finish will take place at Staines instead of Hounslow, in order to avoid travelling over the bad piece of road between those places. Arrangements are going well forward, and the regulations will be issued early in November. Persons other than members desiring to enter for this event are requested to make an early application to the hon. sec., Mr. Southcomb May, 34, Gower Place, W.C.

The Strength of Wire Wheels.

The strength of a modern high-class motor cycle and sidecar is well demonstrated by the illustration which we give of a 6 h.p. Royal Enfield combination, showing it after a collision with a gate. It was being ridden by the Rev. J. Unwin, of Bordesley, Birmingham, and the accident happened at night time when he was on his way to preach at an outlying church. As he approached the gate, the road turns sharp to the right, but the lamp showed up the drive through the gate, and the rider, mistaking this drive for the road, and not noticing the gate, crashed through it, with the result that considerable damage was done. Despite the severe impact, however, none of the wheels were out of truth, which shows the strength of the Enfield.

A Warning.

Last week the Herefordshire police had a cut-out demonstration, since when they are very sharp on noisy motor cycles.

A.A. and M.U. Notes.

SPECIAL ROAD WARNINGS.—Dorset: The authorities in the county of Dorset have hitherto abstained from strictly enforcing the provisions of the Motor Car Act, but the Chief Constable informs the association, that unless complaints cease with regard to motorists driving dangerously round corners, and across cross-roads, measured distances will be instituted.

Saturday's Instructive Trial.

Saturday next is the date fixed for the novel trial to be held by the Streatham and District M.C.C. The trial will consist of an acceleration test, a reliability trial consisting of a seventy mile section before lunch, a thirty mile section after lunch, a speed trial on Brooklands, and a stopping and starting test which will take place on a gradient (the last-mentioned feature is one which has always been recommended by *The Motor Cycle*). The start will take place at eight o'clock, and competitors sign on at the Clayton Arms, Godstone, before 7.30 a.m., or they will not be allowed to start.

A Flexibility Hill-climb.

The Purley and District M.C.C. ran off their annual flexibility hill-climb for the Edge Cup, on the 25th inst., with the following results:

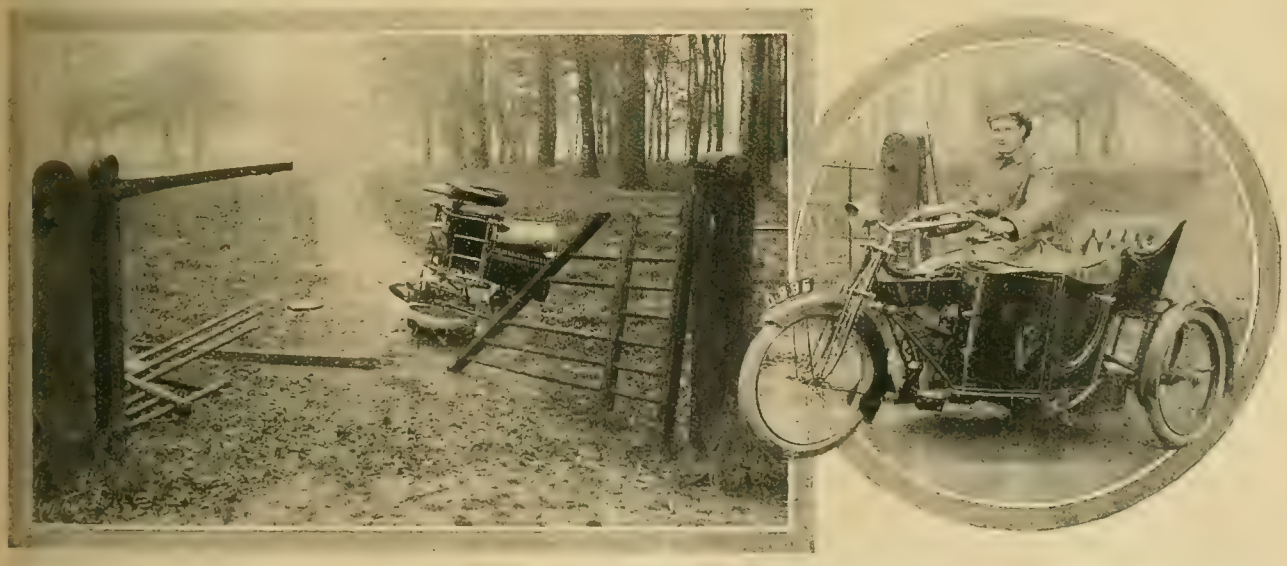
Class I. (up to 350 c.c.)—1, S. J. Taylor ($2\frac{1}{2}$ A.J.S.); 2, C. A. H. Mason ($2\frac{3}{4}$ Douglas).

Class II. (350 to 600 c.c.)—1, C. W. Meredith (Bradbury); 2, M. C. Breese (B.S.A.)

Class III. (over 600 c.c.)—1, E. J. Webster (8 Matchless); 2, R. G. Charlesworth (6 Zenith).

Class IV. (passenger machines, any capacity).—1, C. W. Meredith (Bradbury sc.); 2, W. G. Fowler (8 Morgan).

Webster wins the Edge Cup for best result of the day.

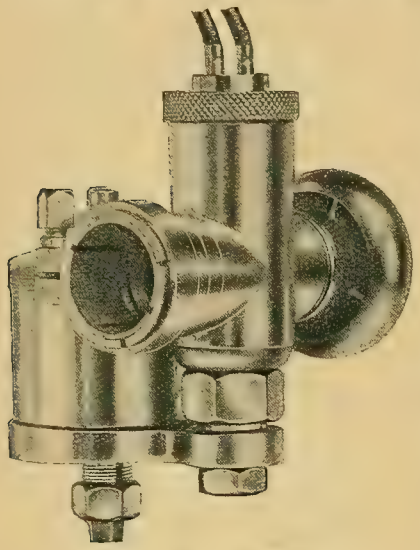


The Rev. J. Unwin and the gate through which he crashed late one evening without seriously damaging his 6 n.p. Enfield sidecar. (See paragraph.

Improved Amac Carburetter.

A Shield to Prevent Blow-back. Neat Double-clip Attachment.

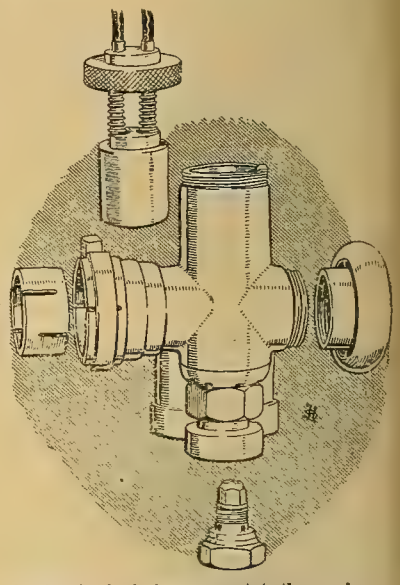
THE following definite alterations and improvements have now been decided upon in connection with the Amac standard carburetter for 1914. The base, to which the float chamber and vaporising chamber are attached, is now a gun metal casting, as also is the vaporising chamber. The float chamber lid is screwed on in place of the spring catch arrangement previously fitted, and the jet is removable from the base without disturbing any other portion of the carburetter. To compensate for the different sizes of jets which may be employed, and to improve vaporisation, air enters at the base through small holes in a cup, which can be changed for other cups with smaller or larger air holes. The effect of this is to give a correct mixture for slow running even when a large jet is used for maximum power. Previously, if the jet were changed no variation could be made in the air supply induced except by the position of the air slide, which acted, and continues to act, as a variable choke. A slight alteration to the interior of the carburetter now enables a clearer straight-through passage from the main air inlet to throttle.



The 1914 model Amac carburetter.

On the main air inlet is fitted a shield or cup arrangement which catches any petrol which may be blown back from the vaporising chamber, and thus economises petrol consumption. We illustrate the new clip attachment, by which it will be seen that no air leakages can take place, owing to the sawed clip being double, the saw cuts being spaced out so that the slots do not come together. This new attachment will be supplied in about two or three months At present the nut fixing is standard.

At the Olympia Show the Aston Motor Accessories Co., Ltd., Aston Cross, Birmingham, will show a carburetter designed for cycle cars of the automatic type, and will be sold at a price which will enable it to be used on low-priced small cars and cycle cars.

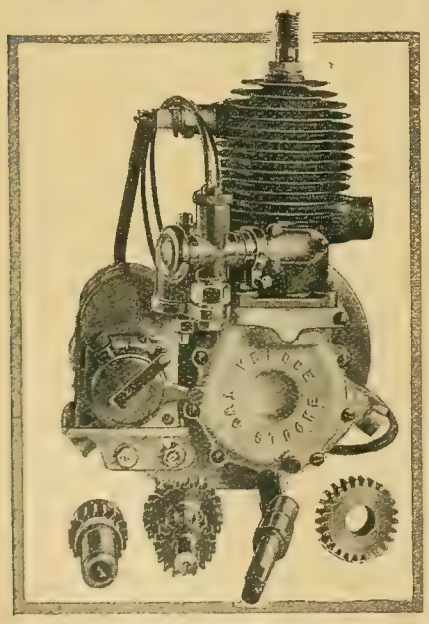


Showing clearly the improvements to the new Amac.

A New 2 h.p. Two-stroke.

A Departure for Veloce, Ltd. Mechanical Lubrication.

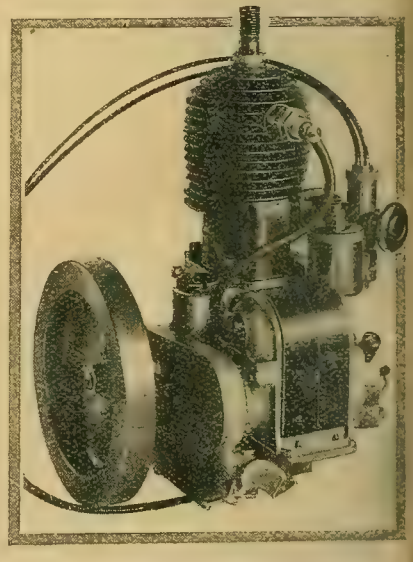
Among the many firms who have lately been experimenting with two-stroke engines are the Veloce, Ltd., of Birmingham. Their experiments have led them to prepare for the market the neat little power unit shown herewith. The engine is of the three port type, and has a bore of 60½ mm. and a stroke of 73 mm., the piston having one broad ring only. The cylinder is offset ¼in. and the crankshaft is made in such a way as to enable a solid big end bearing to be used. A very simple form of lubrication is used in conjunction with an oil sump and chain, the oil being led through the crankshaft to the big end. The chain adjustment for the magneto has been made particularly simple. A two-speed countershaft gear can be supplied at option and is constructed on the sliding dog lines, all parts being solidly made. The engine is designed for cheap but sound construction, and we hear that a single-geared model will sell for 25 guineas. Another model, with the two-speed gear in the bottom bracket and chain drive throughout, will be listed at 30 guineas.



Another view of the single-cylinder two-stroke Veloce from the carburetter side.

A NEW MODEL ARNO.

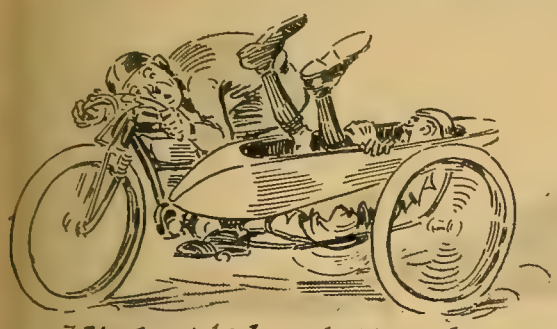
A new model Arno is now ready for the market. It is built on the well-known Arno lines but with a shorter frame The 500 c.c. engine carries the magneto on an extension of the crank case behind the cylinder. The engine unit is suspended on platforms and is very easily detachable. The usual Arno head and seat pillar lugs are retained, and Druid forks are fitted. The whole machine is finished in red, and with a complete equipment of tools, etc., sells at an attractively low figure.



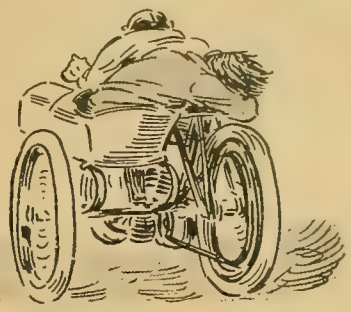
New two-stroke Veloce. Back view showing magneto, transfer port and oil filler.

THE RACING SIDECAR BECOMES MORE AN OBJECT OF INTEREST EVERY DAY.

Our artist who attended the last Brooklands meeting has put on paper his impressions of existing conditions, and ideas of possible future developments in racing sidecar design.

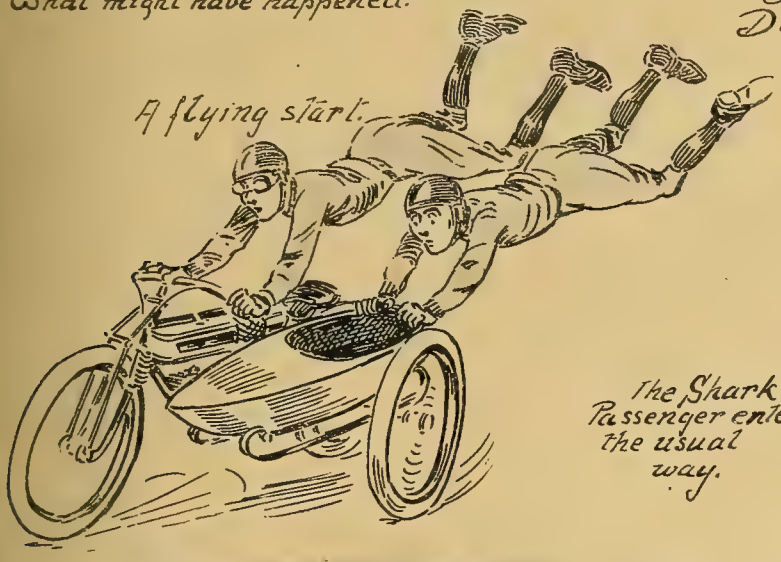


What might have happened.



One way of doing it.

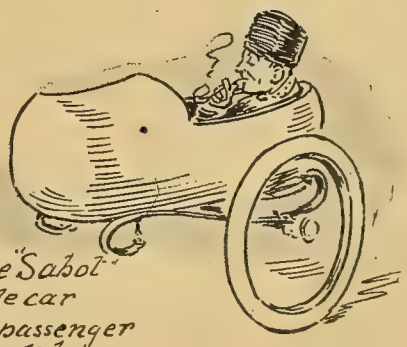
Sidecar Designs



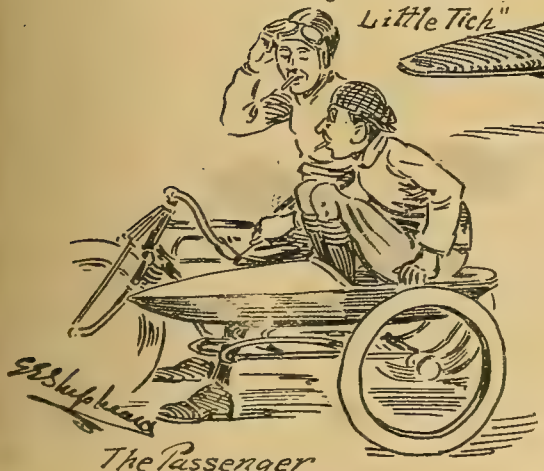
A flying start.

"The Shark" Passenger enter the usual way.

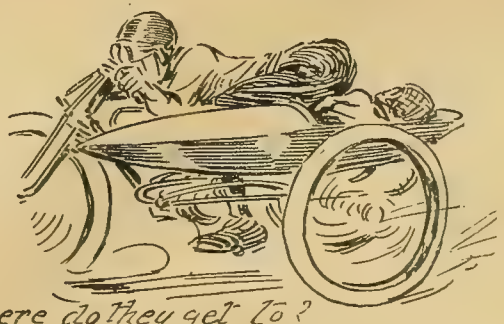
"The Mummy" and the "Little Tich"



The "Sahol" Sidecar and passenger to match.



The Passenger Problem.



or where do they get to?

New Bowden Two-speed Counter-shaft Gear.

THE new Bowden two-speed counter-shaft gear, made especially for sidecar work by Messrs. Bowden Wire, Ltd., 37-41, Pratt Street, Camden Town, N.W., is a fine piece of workmanship.

The drive employed is, as usual, by chain from engine-shaft to counter-shaft, thence by belt to the back wheel. The diameter of the belt pulley on the counter-shaft is 8in., and the reason for this is to prevent belt slip.

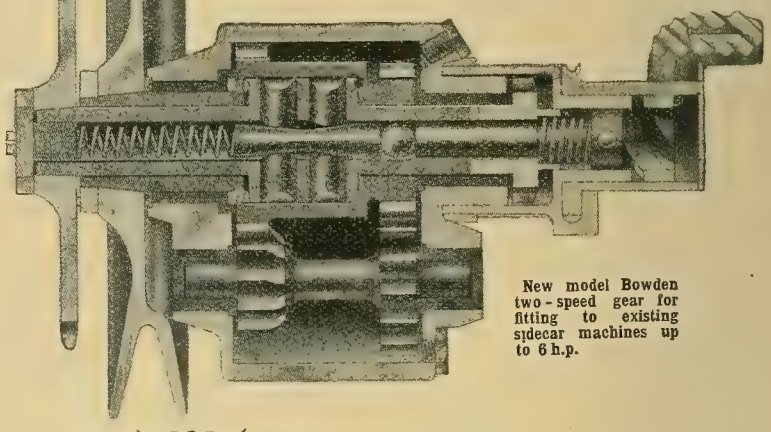
The working of the gear is comparatively simple, and, briefly, is as follows: There is a hollow shaft which carries high and low gear clutches, and which has a double taper wedge. There are two slots through the centre of the shaft, in which are fitted two sets of clutch blocks. The clutches are turned slightly oval internally, and either the high or low gear blocks are forced up by a taper wedge into the oval clutch that receives them.

The wedge is in the form of a spindle with flats milled upon it in such a manner that when forced in either direction it expands the blocks. To change gear, it is necessary to pass through the neutral position, so that both gears are unable to be in mesh together.

Direct drive is on top gear. The low gear is transmitted through a layshaft. Gear changing is effected by either foot or handle-bar control

All gear parts are strengthened. The clutches and big end bearings are of larger diameter. The gear wheels on the layshaft have wider teeth. All gear parts are of a finer pitch, which give sweeter running. The clutch blocks are interchangeable. The casing is greatly strengthened, especially round the kick-starter spindle.

The spiral sleeve has an improved method of fixing. The kick-starter is geared slightly lower. The kick-starter stop is now incorporated in a bracket to which is anchored the spiral sleeve to the case. The thrust between the wedge and operating plunger is taken by a ¼in. ball, instead of the ⅜in. as formerly. The device is light and easily fitted.



New model Bowden two-speed gear for fitting to existing sidecar machines up to 6 h.p.

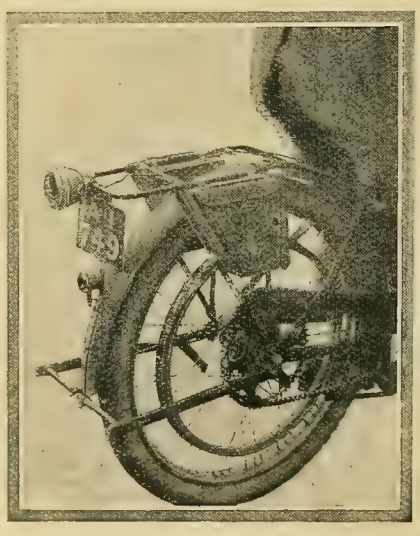
Samples of Rear Lights for Motor Cycles.

A Neat Acetylene Tail Lamp.

In view of the recent decision of the Divisional Court with regard to tail lamps for motor cycles, several new lamps are coming on the market for this purpose. A neat little acetylene lamp is being marketed by Messrs. Welté and Owens, Ltd., Colquitt Street, Liverpool, and is known as the Gemco, which we illustrate. The body is of aluminium, and very light, and fitted with a suitable burner of a small capacity. A swivel bracket enables the lamp to be fitted in various positions, such as on the carrier, number plate, mudguard, or on the sidecar. The head lamp generator is used to supply the necessary gas to this tail lamp, and the connection between the tubing from the generator is made by means of a small brass "Y" piece, distributing the gas from one branch of the "Y" piece to the head lamp, and from the other branch to the tail lamp.

Dunhill's Tail Lamp.

Messrs. Dunhill, Ltd., 359-361, Euston Road, N.W., the well-known accessory dealers, have sent us two specimens of tail lamps which they have got out in reply to the recent decision. These can be used either with acetylene or electric light, and can be attached to the carrier and connected either to the generator by a Y piece or to a battery. The lamps are strongly made, and of a shape easily cleaned, an important point to be considered when the exposed position of such a lamp is remembered. A good point about these Dunhill lamps is the insertion of a glass in the side to allow the lamp to throw a side beam, by means of which the rider can see if it is alight by slightly turning his head.



Dunhill's rear red light for attachment to the carrier of motor cycles.

A Standard Miller Lamp.

This well-known Birmingham lamp-making firm inform us that they have for some time past marketed a lamp known as the "Rearlite," but they are now re-designing this lamp, and hope to have it ready, in an improved form, for exhibition at the forthcoming Olympia Show.

A Dry Battery Tail Lamp.

Messrs. A. H. Hunt, 115-117, Cannon Street, E.C., who are sole agents for Hellesen dry batteries, send us particulars of a neat dry battery-fed tail lamp. This can be supplied from stock, and has the advantage of being perfectly clean and free from any liquid in the battery. Such a battery with ordinary use would last a year before renewal was necessary. The lamp itself is much on the lines of a dashboard inspection lamp so often used on motor cars, and can be attached to the carrier.

Brown Bros.' Acetylene Rear Lamp.

Messrs. Brown Bros., Ltd., Newman Street, Oxford Street, W., have sent us a small rear lamp for inspection. It fits on to a bracket which is attached to one of the rear stays, and the gas is supplied to it either from the head-lamp generator or an auxiliary generator. The method of attaching the burner is novel. It is screwed into the base, which is made detachable by means of a bayonet joint. The glass prism for the rear light is fastened in the door, which is hinged to the body, and fastened by means of a spring catch.

Harrogate and District M.C.C.

The cross-country run, held last week, provided some excellent sport and included the fording of two deep water-splashes with mountain tracks and stiff hills. Special prizes were given to novices, who had to cover the route at a rate of 15 m.p.h. Result of ordinary class: W. E. Grange (3½ Bradbury sc.), lost no marks; W. Fawcett (6 A.J.S.), lost one mark. Novices class: P. Hill (3½ Triumph sc.), lost seven marks; C. Falkingbridge (2¾ A.J.S.), lost eleven marks.

Lincolnshire A.C.

A hill-climb was held on Bunkass Hill, near Louth, on Saturday, the 18th inst., on *The Motor Cycle* formula. The results are as follows:

CLASS I.—Under 350 c.c.

		Fig. of Merit.
1.	J. H. Brookes (Douglas)	39.5
2.	J. Ward (Douglas)	41.6
3.	Mrs. Jennison (Douglas)	47.1

CLASS II.—Under 600 c.c.

1.	J. B. Drakes (3½ B.S.A.)	36.5
2.	A. Readhead (3½ Rudge)	40.8
3.	E. Kemp (4¼ Campion)	44

CLASS III.—Over 600 c.c.

1.	J. E. Harston (6 Campion)	34.5
2.	S. E. Sandars (9 Indian)	40.2
3.	W. Copley (6 Rex)	43.7

Fastest time of the day, S. E. Sandars (9 Indian).

Leicester and District M.C.C.

A hill-climb was held on the 18th inst. at Slawston, on a hill which appears to be in every way perfect for such an occasion, dead straight, a good surface and gradient, with the minimum of traffic. Mr. G. W. Hillyard, the president, who had given a silver cup for competition for the best sidecar performance on formula, competed in this class on his Zenith, but did not subsequently weigh in, or he would have gone very near to winning his own prize. Results:

LIGHTWEIGHT CLASS.—1, H. Leich (Douglas); 2, H. Woodgate (Douglas); 3, H. Bowerman (Connaught).

BIG TWIN TOURING CLASS.—1, S. Briggs (8 Campion-Jap); 2, E. Goodin (6 Clyde); 3, W. Lee (6 Rex).

T.T. CLASS.—1, M. H. Simpson (Rudge), time 33⅖s.; 2, Jim Simpson (Rudge), 35⅖s.; 3, C. Harrison (Ivy-Precision), 35⅘s.

OPEN CLASS.—1, S. Briggs (8 Campion-Jap), time 30⅖s.; 2, M. H. Simpson (3½ T.T. Rudge), 32⅖s.; 3, Jim Simpson (3½ free engine Rudge), 35s.

HANDICAP CLASS.—1, M. Gotch (Premier); 2, H. Bowerman (Connaught).

SIDECAR CLASS (Silver cup presented by the president, Mr. G. W. Hillyard, for best performance on formula).—1, H. Petty (Singer), time 52s., formula figure 209; 2, S. Briggs (8 h.p. Campion-Jap), 39⅕s., 224; H. Leich (2¾ Douglas), 62⅘s., 262.

Liverpool A.C.

A petrol consumption trial, with the ascent of Altybady, was held recently. The results were as follows:

		Fig. of Merit.
	CLASS I.—Solo machines to 600 c.c.	
1.	J. Green (3½ New Hudson)	337
	CLASS II.—Solo machines over 600 c.c.	
1.	N. Brown (7 Indian)	521
	CLASS III.—Any sidecar machine.	
1.	H. Coopland (7 Indian sc.)	525

Malvern and District M.C.C.

There was a large entry from the Malvern, Cheltenham, Dudley, and Kidderminster Clubs for the speed trials held on the 18th inst., and many spectators. The distance was just under the half-mile, flying start. Results:

CLASS I.—Up to 350 c.c. (on time).

1.	Corbett (2¾ A.J.S.)	19⅘s.
2.	Gibb (2¾ Douglas)	22⅕s.

CLASS II.—500 c.c., any machine (on time).

1.	Harrison (3½ Triumph)	20s.
2.	Corbett (2¾ A.J.S.)	20⅘s.

CLASS III.—500 c.c. standard touring machine (on time).

1.	Wynn (3½ Rudge)	21⅕s.
2.	Bladder (3½ Rudge Multi)	21⅖s.

CLASS IV.—Up to 1,000 c.c. (on time).

1.	J. Gibson (8 Zenith)	17⅖s.
2.	Nickson (3½ Rudge)	20s.
2.	Humphries (6 Bat)	20s.

CLASS V.—Up to 1,000 c.c. (on formula).

		Fig. of Merit.
1.	Corbett (2¾ Douglas)	349
2.	Curtle (2¾ A.J.S.)	451

CLASS VI.—Sidecars and cycle cars up to 1,000 c.c. (on time).

1.	Gibson (8 Zenith sc.)	21⅖s.
2.	Morgan (8 Morgan runabout)	22s.

CLASS VII.—Sidecars and cycle cars (on formula).

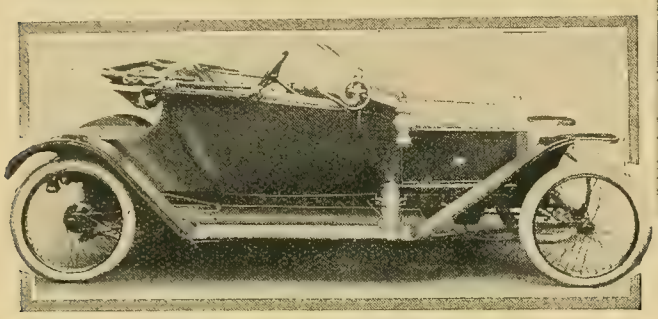
		Fig. of Merit
1.	Corbett (2¾ A.J.S. sc.)	375
2.	Morgan (8 Morgan runabout)	518

Group of competitors in the Cross-country Trial of the Harrogate and District M.C.C.

The Latest Pattern Winco.

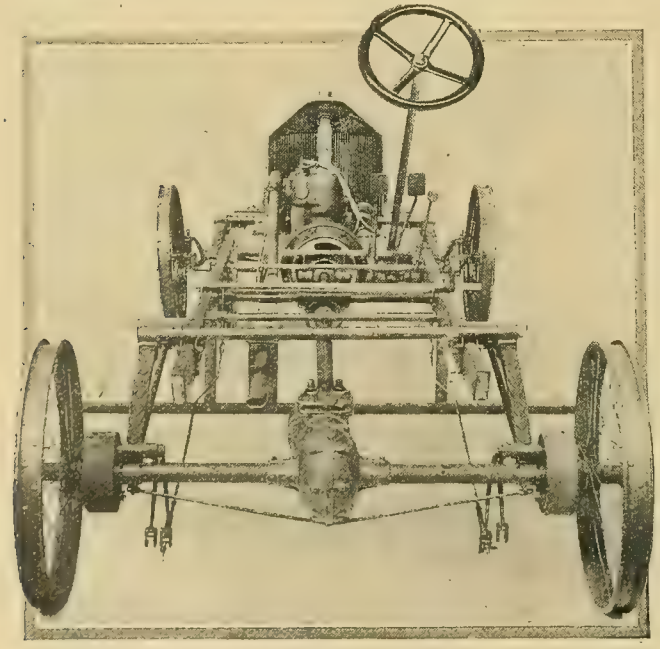
MESSRS. Stringer and Co. (Sheffield), Ltd., have slightly modified their attractive cycle car, the latest model of which we illustrate. The makers are large producers of steel parts for motor cars, such as crankshafts, etc., and the material and construction of the machine should be all that can be desired.

The engine is a twin-cylinder water-cooled 86 × 92 mm. bore and stroke, giving a capacity of 1,068 c.c. Several features of the machine stand out prominently, the most striking part of the design being the back axle, which embodies the gear box, affording three speeds and a reverse, which are situated in a casting just fore of the differential case, the propeller-shaft being carried in a long torque tube. The whole construction is exceedingly neat and well carried out. The springing is by inverted

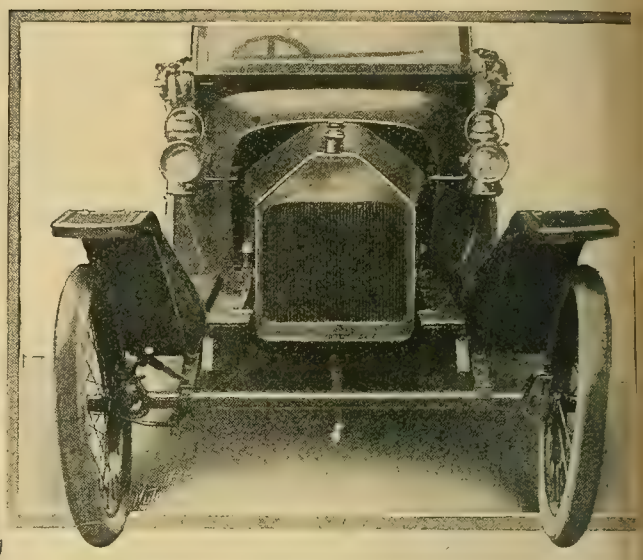


Broadside view of the new twin-cylinder Winco.

semi-elliptic springs, pivoted in the centre, and with the extremities attached to the cross members of the ash and steel plate frame and the axles. Both brakes are of the internal expanding type, and are placed side by side in the drums on the rear wheels, which are wire and are shod with 750×85 Clincher light car tyres. An exceedingly neat radiator is fitted. The coachwork and wings are very well carried out, and the lines of the *carrosserie* are exceptionally graceful for a vehicle so moderate in price, which is £137 for the chassis and tyres, and £165 complete with body, hood, screen, five lamps, generator, and horn. The whole finish is admirable



Rear view of the chassis showing ash frame, springing, gear box and back axle unit.



Front view of the new 8 h.p. Winco cycle car.

A CROSS-COUNTRY RUN.

SATURDAY'S closing run of the Coventry and Warwickshire Motor Club developed almost into a motor steeplechase. Among the competing machines were several new models—a Cumbria belt-driven cycle car, the water-cooled Humber sidecar we described last week driven by F. G. Edmond, a Lea-Francis with sidecar driven by G. I. Francis, two big single Excelsiors, several Rudges and Triumphs (including J. R. Haswell, who thoroughly enjoyed the sport), a couple of new 5-6 h.p. Rex sidettes with 1914 improvements, a Williamson, and a new Hazlewood sidecar owned by H. D. Teage.

As is usual, a paperchase speed-judging contest was embodied with the run, and Mr. S. Wright, the hare, led off on his Humberette, first along the London Road and then over by-roads, along disused roads with deep ruts, through countless gates (which the competitors who had drawn different speeds to average were always careful, one by one, to close after them), over grass-grown tracks, across fields, by farmyards, and up one or two really severe hills. In one field two bullocks jumped a hedge at the sight of the motor vehicles. Some of the two dozen or so competitors would have given up the chase but for fear of getting lost.

The trial culminated in an ascent of Newnham Hill, where Mr. Geoffrey Smith took the times, the distance covered measuring twenty-nine miles. All were agreed that the run would be an ideal test for any Colonial mount.

The results were subsequently announced by Mr. Holroyd at the Peacock Hotel, Daventry, where over fifty sat down to tea:

MOTOR BICYCLES.—S. A. Rowlandson (3½ Rudge), 2m. 34s. error.

SIDECARS.—A. N. Barrett (5-6 Rudge sidecar), 3s. error.

CARS.—D. J. Corser (12 Rover), 16m. 53s. error.

THE MOTOR CYCLE SHOW NUMBERS.

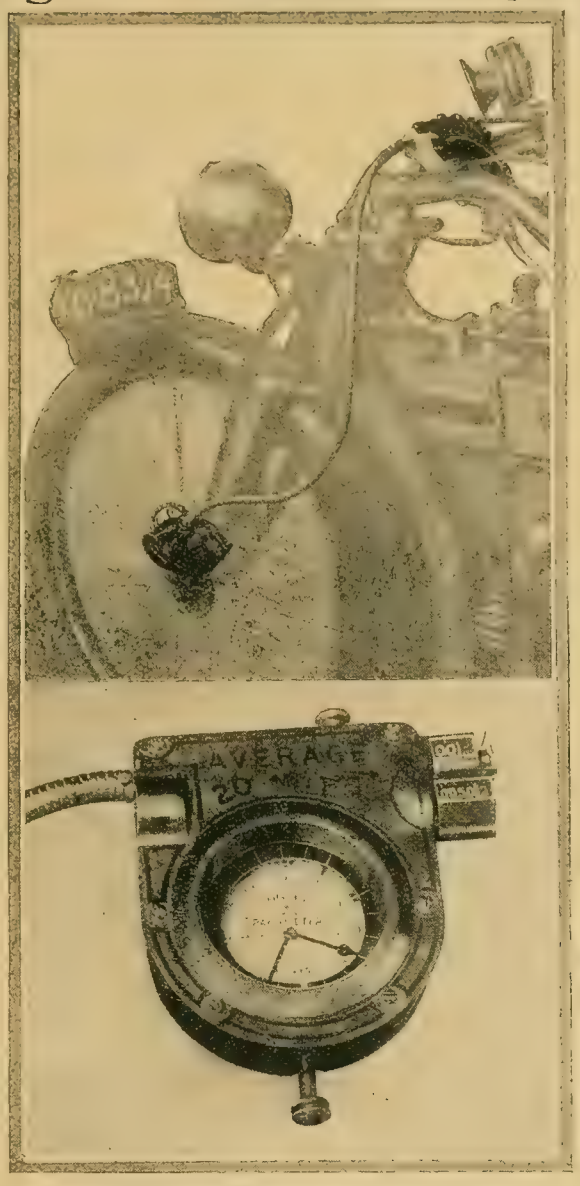
OLYMPIA, 1913.
THREE SPECIAL ISSUES
will be published as follows:
NOVEMBER 13th—
Passenger Machines of all Types
NOVEMBER 20th—
Buyers' Guide of 1914 Models.
NOVEMBER 27th—
Complete Show Report.

Riding to Schedule Simplified.

JUDGING by an examination we made a few days ago of an ingenious pacometer which has been invented by Mr. J. Ridley, of Springfield Terrace, Coventry, riding to schedule with or without a watch and speedometer has been reduced to a very simple process. Ridley's Pacometer is an instrument for indicating a pre-determined average speed, including stops, the time of day, the total mileage travelled, and it also acts as a trip recorder. Our illustration shows an experimental instrument which has been constructed for one speed only, namely, twenty miles per hour.

The instrument consists of a clock with a minute hand painted red (black in the illustration), immediately above which runs a dial driven from the machine and arranged to make one revolution every twenty miles. This dial is graduated from 0 to 220 in twenties, and in one position is a red spot which can be brought directly over the minute hand of the clock, the dial being immediately adjustable by means of the knurled thumbscrew.

To average twenty miles an hour the driver has simply to drive the machine so that the red spot on the dial keeps level with the red minute hand, and if stops are made the minute hand will advance leaving the spot behind, so that on resuming the journey it is very easily seen how much has to be made up to regain the predetermined schedule. Of course, the instrument does not appeal only to a rider who wishes to keep to an average speed of twenty miles an hour. It can be arranged for an average considerably in excess of this, and it is also possible to make it adjustable for any average speed. It would then be of great service for racing or record breaking at Brooklands. For instance, if a certain record had to be beaten, and to secure it an average of sixty miles an hour had to be kept up, the instrument would show immediately when the record breaker lagged behind, and when of necessity he stopped for replenishment or adjustment the minute hand would show exactly how much had to be made up to get within the record.



A novel instrument which enables a rider to average any pre-determined speed by recording when he is late or early.

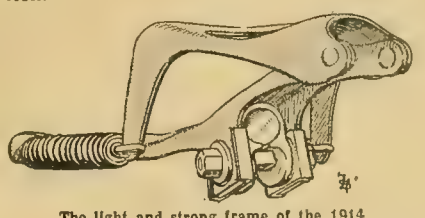
THE CUT-OUT NUISANCE.

Although motor cyclists generally realise that the recent Act with reference to the use of a cut-out is intended to be enforced, there still appear to be some who think a long tube without any expansion chamber is all that the law requires. This is not so, and recently a conviction on this very point was registered at Croydon, and although the fine inflicted was lenient, motor cyclists should see to it that their silencing arrangements comply with the law.

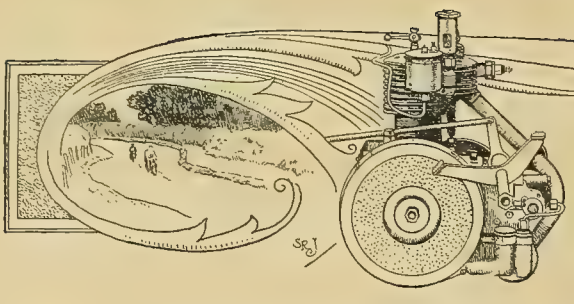
A NEW TYPE OF XL'ALL SADDLE.

Unlike the type of saddle with which the name Xl'All is so closely associated, a new model has been brought out without the parallel motion. This new saddle has the usual comfortable and well-padded seat, and is mounted on a very simple and light frame. This frame is of pressed steel, and, though light, is extremely strong. It consists of two main portions hinged together at the nose, the rear ends being held together by two tension springs similar to those in use on previous types of the same make. The saddle should be very easy in action, and it is possible to fit it so as to give an extremely low riding position.

Views of the new Xl'All anatomatical shaped saddle.



The light and strong frame of the 1914 pattern Xl'All saddle.



An Ingenious Method of Lubrication.

The Oil taken to all Bearing Surfaces by Spring-operated Pumps.

THE question of lubrication is ever before us, so that we were extremely interested in a device which was shown to us at a recent date by Mr. Rendile Lisle, of the Poplars, Anerley Park Road, Anerley. Mr. Lisle's machine is driven by a 650 c.c. single-cylinder engine, with the magneto placed high up on a platform behind the cylinder. Below this

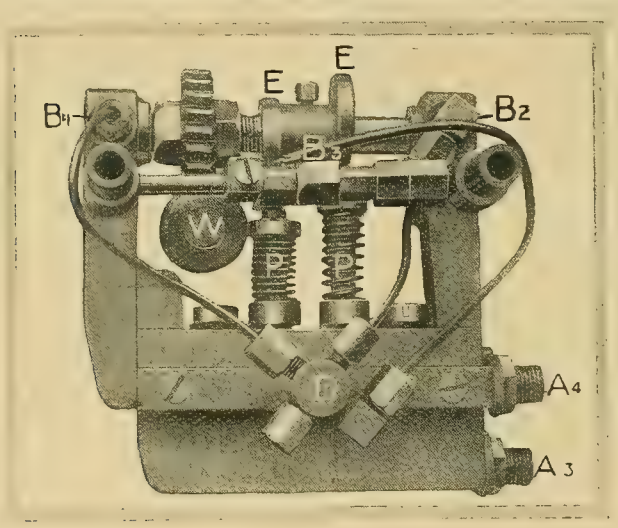


Fig. 1 — The Rendile oil pump.

platform is mounted the oil pump mechanism, which consists of two eccentric operated plunger pumps, the plunggers having a bore and stroke of ¼ × ¼in. The eccentric shaft is driven by chain and a worm reducing gear at 1 to 44 engine revolutions.

It will be realised that the oil supply is taken at low pressure to the distributing box, and thence by leads to all important bearing surfaces. As there is no return pipe the pressure is necessarily low, so that just enough oil reaches each wearing part. The inventor remarks that he does not believe in lubricating flywheels, and from the wonderful results he has achieved it is obvious that there is something in his system. For instance, we are assured that the machine has run 912 miles on 2½ pints of Vacuum B1 oil since the installation of the pump, though before this it would only do 190 per quart. The motor cycle to which the system is fitted has many unusual and interesting features, notably the spring forks, which are on the cradle principle.

In the first illustration W is the worm driven off the magneto-shaft; this rotates the gear wheel, seen on top, which revolves the eccentrics E, which in their turn depress the plungers P. The oil is taken in at port A3 and discharged at A4. The union D has three pipes, two leading to the plain pump bearings, the third to the plain bearing at the other end of the worm spindle; the driven end of that spindle runs on a ball bearing. Thus it will be seen that the pump is self-oiling and never requires touching.

Description.

Taking the second illustration, the circulation is as follows: From the tank through an adjustable sight feed regulator A1, along the copper tube A2, into pump at A3, then under pressure from A4 into union box A6 (entering the box at A5), along F1 into cylinder, gudgeon pin, and small end; also along F2 directly on to the steel axle in the main bush, on the valve side.

Also along pipe F3 into the union leading directly on to the other axle, and by by-pass up the hill again by the pipe to be seen under forward end of magneto platform in the photograph, then into the jet playing on the big end.

The amount of oil is controlled at A1, and the springs on the pump plungers are of such a strength that they will take all the oil they can get when the pump is going full speed. If their supply of oil is restricted they do not rise to the full extent allowed by the eccentric, consequently there is no internal pressure tending to jam the actuating gear.

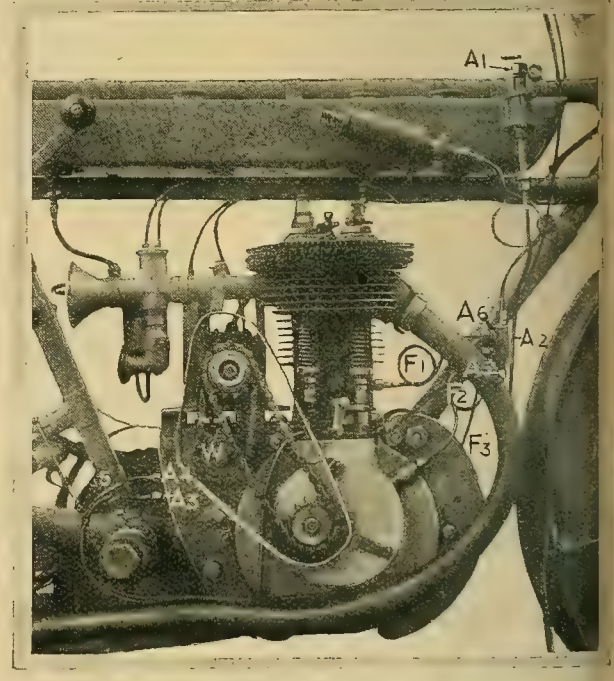


Fig. 2—Showing the driving mechanism of the Rendile mechanical oil pump.

Letters to the Editor

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Leaking Water Jackets.

Sir,—In reply to "Two Years Ahead," *re* leaking water jackets on his 1913 Scott. I had this trouble, but I took the rings off the cylinder heads and made joints of Waterite and have had no trouble since.

I am using a 1914 Binks carburetter on my Scott, and it is really splendid for slow running and acceleration Also fuel consumption is fully 25% less. JAMES ST. JOHN.

Self-lighters.

Sir,—At this time of the year, when a considerable number of motor cyclists are still enjoying Saturday afternoon jaunts, and who do not arrive home until after dark, thus finding it necessary to light-up, I am inclined to think it would be a great convenience to them if motor cycle acetylene lamps were fitted with self-lighting attachments, such as are fitted to many pedal cycle lamps, and that at only an extra cost of about 1s. 6d.

Within the past two or three weeks I have noticed several motor cyclists, standing straddle legs across the front wheel, striving to light their lamps with matches, much to the amusement of children and country yokels, who gather round.

As for myself, although I only ride a pedal cycle, whenever I find it necessary to light-up, I simply turn on the water, wait a couple of minutes, and, stretching my arm over the handle-bars, pull the "trigger" of the self-lighter attachment, and the trick is done, without so much as dismounting.

It may be the practice of some lamp makers to fit self-lighters to their motor cycle lamps, but, up to the present, I have found this fitment conspicuous by its absence on all the lamps of the motor cycle class, which I have seen.

A PEDAL CYCLIST.

The Question of Rear Lights for Motor Cycles.

Sir,—I understand that in future motor cycles will have to carry a rear light, so that now all motor vehicles, or fast-moving vehicles, are to carry rear lights, whilst the horse drawn or slow-moving vehicles are only compelled to carry one light at the front.

Now I contend that the slow-moving vehicle is being constantly overtaken and passed on the road, whilst the fast-moving vehicle is very rarely overtaken or passed, so that there is much greater need for rear lights on the horse-drawn vehicle. Also a motor cycle can be seen quite distinctly from behind as a shadow against the light from the head lamp, but can a farm waggon be seen by means of the light thrown on the road from its head lamp?

Also how many of your readers have experienced the shock of finding a flock of sheep or herd of cattle across the road on a dark night? Would it not have been better to have gone into this question of rear lights generally and made a law compelling all vehicles to carry rear lights! Also a law to compel cattle drovers to carry a green light! But then Mr. Justice Bailhache refers to motor cycles as a *terror!*

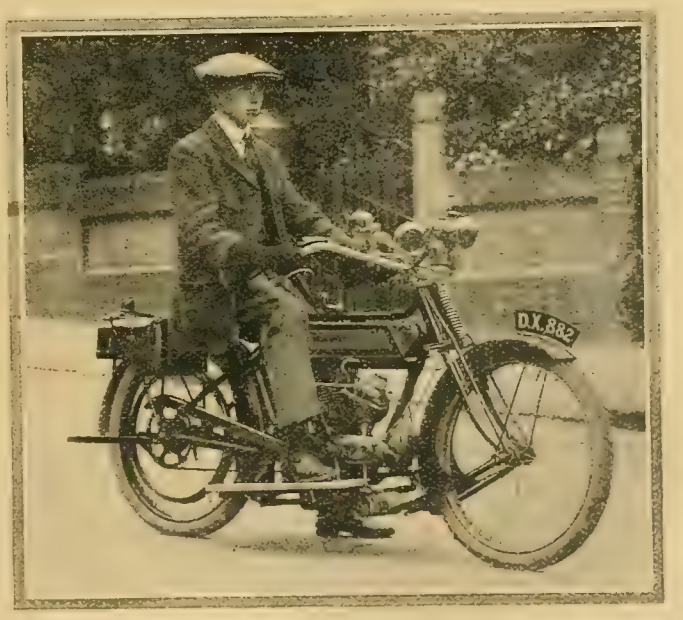
I am not protesting against the decision that motor cycles should carry rear lights, but I fail to see that if they are necessary on motor vehicles why they are unnecessary on horse-drawn vehicles.

I trust that you will bring your influence to bear upon this important matter, and most especially with regard to lights for cattle drovers. HARRY O. EYRE.

Some Advantages of a Twin.

Sir,—With respect to the relative merits of twin and single-cylinder engines, I have an idea that my experiences with an up-to-date twin might interest some of your readers My mount is a 3 h.p. two speed Enfield, and I have been about 2,500 miles, mostly on the worst roads that it is possible to find in Great Britain, namely, those of East Anglia, and have never yet had a serious involuntary stop while travelling. My only trouble has been a sparking plug, which gave out after seventy miles, and I once broke the kick starter through advancing the spark and then trying to start up.

And the forced lubrication system—what a relief it is not to have the worry of pushing the old-fashioned hand pump every few miles or so, and wondering if the engine has too much or too little oil. The bearings, too, seem to like it better. I had the engine down recently and it showed no trace of wear at all. I never have to use the low gear, save for traffic, as it goes singing up hill and down dale alike.



The 3 h.p. twin-cylinder Enfield referred to by "Twin Enthusiast."

The low humming of the twin, cheerful and contented as a child at play, contrasted with the resonant booming of the single, is in itself a great factor, for comfort on a long run.

The machine takes me up Malden Hill with plenty to spare on the high gear, and although I have ridden singles till this year, a season's riding of a twin has convinced me that I should be an apostle of Wamba were I to go back to the heavy 3½ h.p. single again.

Needless to say I have no connection with the Enfield people.

I enclose a photograph of the machine in question.

TWIN ENTHUSIAST.

A Novel Sidecar.

Sir,—I beg to contradict the statement of Mr. W. E. Manning, sidecar manufacturer, of 85, South End Road, Hampstead, contained in your issue of the 23rd inst., at the foot of page 1390, wherein he informs your readers that the sidecar—Knut's Egg—attached to my 1913 Douglas (illustrated in your issue of the 9th inst., page 1308) is of a design registered by him. This is not so. Mr. Manning's sidecar is entirely different throughout, and I challenge him to prove his statement. F. FLETCHER.

Petrol Consumption Tests.

Sir,—I was glad to see Mr. Howard Smith's and other letters in your paper, *re* the remarkable figures in the petrol consumption test of the Sutton and Mid-Warwickshire Club a short time ago.

I should be pleased to turn out again at quite a short notice on an attempt to equal or improve my result, viz., 192 m.p.g. on my 2½ h.p. Levis.

What this is over average riders' usual consumption is accounted for by a high gear, a heavy flywheel, and the careful tuning of a good engine and carburetter. H. Newey, on a similar machine, won the distance prize last year with 190 m.p.g. The nearness of these figures will be noticed.

I may add that on my machine I had fitted an auxiliary round tank which ensures filling up without air locks.

This would make a big difference in a square tank, especially if the collar is deep or a gauge filter used.

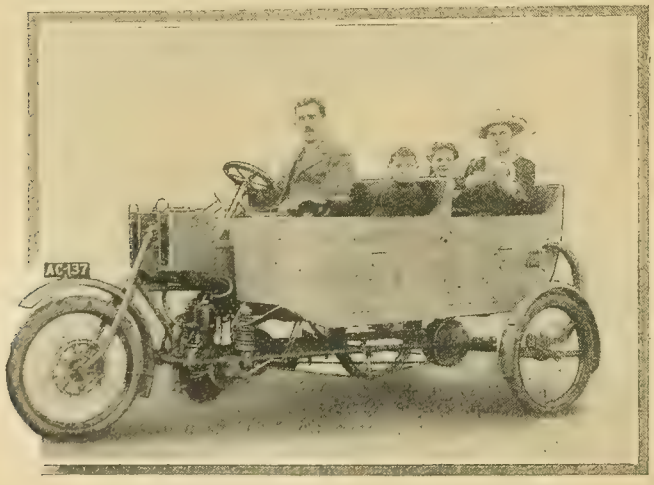
ARTHUR BUTTERFIELD.

A Home-made Three-wheeled Cycle Car.

Sir,—I enclose a photograph to show a single front wheel cycle car made by myself. In reality it is a converted Cunard tricar. The single-cylinder water-cooled engine has a bore and stroke of 80 mm., and through a cone clutch on the engine-shaft drives a chain to the two-speed gear box, and then by another chain to the back axle which has a differential. The gear ratios are 6½ to 1 and 14½ to 1. The tyres are 26in. × 2½in., and there are two band brakes—one on the front wheel and the other on the differential, both actuated by strong Bowden cables.

As will be seen, the body is sprung on coiled springs at the front and C springs at the back. The body itself is made from ash and pine framework and covered with three-ply maple and comfortably upholstered, and, it will be noted, is divided in the front part to pass over the centre frame. At the steering column there is the customary worm and sector, and at the end of the lever there is a ball joint joining on to the steering rod, as seen in the photograph, and which is connected at its other end to the fork crown.

The machine has not yet run a great distance, but it is quite capable of touching the legal limit if necessary. It, however, was specially made for short trips on half-holidays, and I do not desire to exceed 10 to 12 m.p.h. W. ELLIS.



A three-wheeled family cycle car. (See letter from W. Ellis).

Why More Air with Benzole?

Sir,—Some time ago I read in an article on benzole in a motoring paper that the reason why the extra air port of a carburetter requires to be opened wider for benzole than for petrol is mainly a matter of the relative volatility of the two fuels: that because benzole has a very low latent heat it gives a very rich mixture, and therefore requires much dilution with air. And now we are informed by "Chemist" in your issue of October 9th that the true reason is because of the higher proportion of carbon to hydrogen in benzole.

I regret, Mr. Editor, that I must record my absolute inability to believe either of these expert statements. First, with regard to volatility: if we alter a little the mixture of substances called petrol by adding a small percentage of paraffin, which has a high latent heat or low volatility, then we lessen the average volatility and increase the latent heat of the mixture, and the result—according to the first expert—would be a weaker mixture requiring less air; but it is a matter of common knowledge that a mixture of petrol and paraffin requires more air than petrol alone.

Then with regard to "Mr. Chemist's" explanation: I suppose that he will admit that enough air should be present for perfect combustion and no more, or at least that air in excess of that is useless as far as the combustion is concerned. In that case, if I may rely on the elementary chemistry I learned in my boyhood, twelve grains of carbon require thirty-two grains of oxygen for complete combustion, while two grains of hydrogen require sixteen of oxygen: that is to say, as carbon requires less oxygen for combustion than hydrogen does, the more carbonaceous the fuel the less air it will require for complete combustion—the direct opposite of "Chemist's" facile statement.

Not being an expert, it is with fear and trembling that I advance any explanation of my own, but I suppose it is "up to me" now to present a target for others to shoot at, so here goes. I understand that certain factors in the flow of a liquid along a tube (*i.e.*, fuel along a jet) are represented by the equation $\frac{P}{d} + \frac{v^2}{2} = a$ constant, k, neglecting the effect of gravity and the resistance of the walls, which would be almost the same for the two fuels, v being velocity of the liquid at a certain point, P the pressure at that point, and d being the density or specific gravity of the liquid. We have then $v^2 = 2\left(k - \frac{P}{d}\right)$ from which it is evident that the velocity of the fuel from the mouth of the jet, besides increasing as pressure, P, is lessened, *i.e.*, with opening of the throttle or increase in engine speed, also increases as d is increased, *i.e.*, by using a heavier fuel. The volume of fuel escaping from the jet on each charging stroke is proportional to the sectional area of the jet × velocity of fuel, and the weight, or amount, of fuel per charge proportional to this × specific gravity of fuel. Hence it is obvious that, other things being equal, the richness of the mixture increases very much with the density of the fuel, and therefore with heavier fuels, such as paraffin and benzole, one requires to lessen the amount escaping from the jet, either by using a smaller jet or by diminishing the suction on the jet by opening wider the extra air ports.

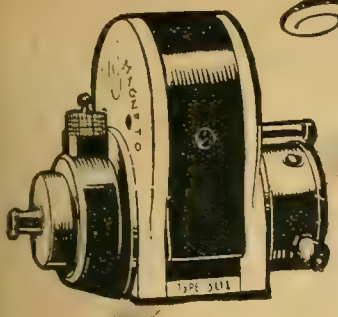
CAMERON GIBSON.

[It is probable the specific gravity has much to do with this matter, as our correspondent suggests.—ED.]

Carbon on Sparking Plugs.

Sir,—I was much interested in Mr. J. F. B. Carslake's suggestions in his letter on "Carbon on Sparking Plugs," which appeared in a recent issue, in which he mentions a shunted "capacity." Being anxious to carry out his ideas, I installed a variable air vane condenser on my carrier, suitably controlled from the handle-bar by Bowden wire. Judge of my astonishment when I found that by obtaining "resonance" my whole framework began to "brush" in a most spectacular manner, rendering my powerful headlight almost unnecessary, and completing the reformation of a belated reveller who was slowly working his way homewards. I would also suggest that rubber trousers should be worn for such experiments.

JABEZ HYDE-THOMSON.



The C.A.V. Ruthardt Magneto

Sheffield & Hallamshire Hill Climb · Oct. 11—1913.

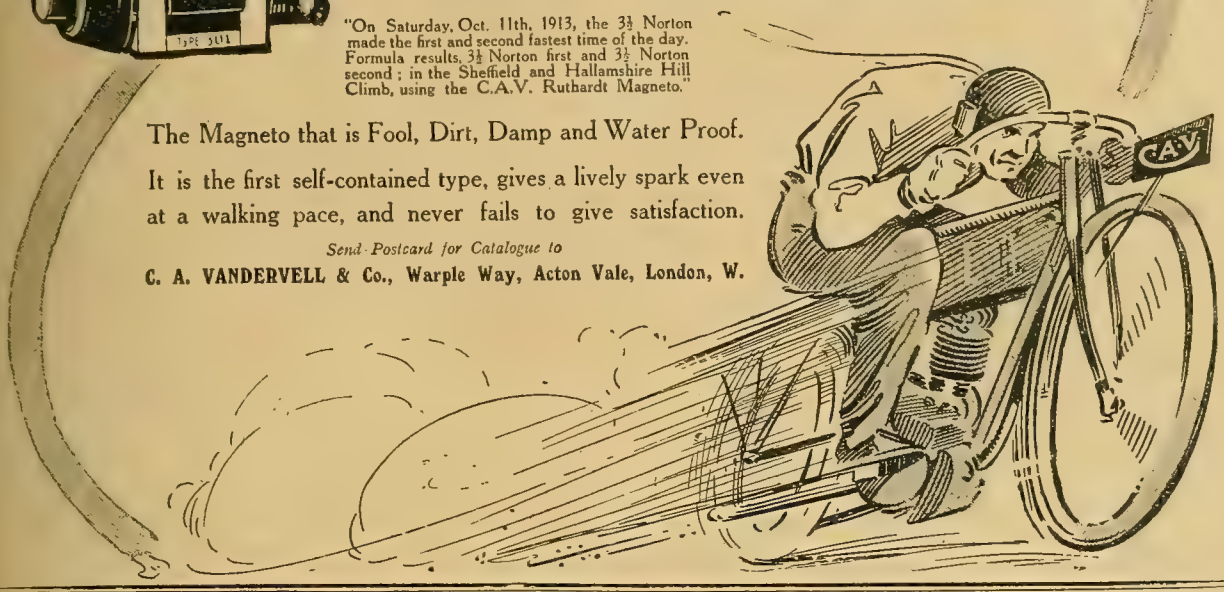
"On Saturday, Oct. 11th, 1913, the 3½ Norton made the first and second fastest time of the day. Formula results, 3½ Norton first and 3½ Norton second; in the Sheffield and Hallamshire Hill Climb, using the C.A.V. Ruthardt Magneto."

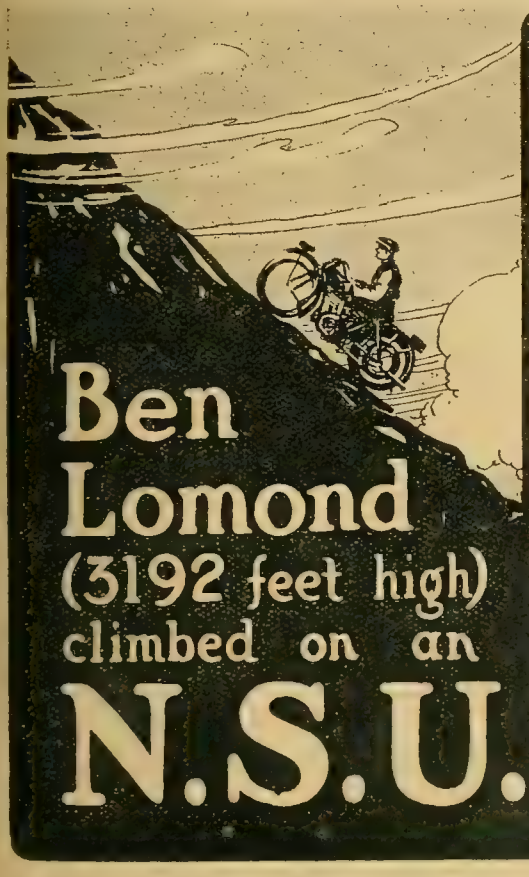
The Magneto that is Fool, Dirt, Damp and Water Proof.

It is the first self-contained type, gives a lively spark even at a walking pace, and never fails to give satisfaction.

Send Postcard for Catalogue to

C. A. VANDERVELL & Co., Warple Way, Acton Vale, London, W.





Ben Lomond (3192 feet high) climbed on an N.S.U.

Marvellous hill-climbing feat by a 3 h.p. Twin-cylinder N.S.U.

ridden by Mr. T. Walkinshaw, of 493, Dumbarton Rd., Dalmuir, who writes:

"*Dear Sirs,* "*October 17th.*

"*On Thursday, October 16th, I was successful in climbing Ben Lomond, 3,192ft., on my 3 h.p. twin N.S.U. I cycled home this morning, and my machine was working beautifully. Of course, the clutch has had to stand a fearful strain, and will need adjusting. The path, if it can be called by that name, was under water in many places, and boulders were numerous, but the engine being in a loop frame was saved many a smash.*

"*The weather was the worst I have ever experienced during my many years of motor cycling. For two days my cycle was left on the mountain side lost in the mist, and when I started again the engine purred away beautifully.*"

This performance is confirmed in a letter from our Glasgow Agents: Messrs. The North British Machine Co.

THE N.S.U. MOTOR CO., Ltd.

Offices and Showrooms—
186, Great Portland Street, London, W.

Goods and Repairs—
83-85, Bolsover St., London, W.

PALMER

CORD CYCLE CAR TYRES

On Thursday, October 23rd, at Brooklands Track, Messrs. F. Burgess, and J. Wetton, driving a 10 h.p. Calthorpe Cycle Car, fitted with 3in. PALMER CORD TYRES, succeeded in establishing the following—

SEVEN WORLD'S RECORDS.

TIME RECORDS.			
			SPEED PER HOUR.
4 hours	263 miles	878 yards	65·87
5 ,,	330 ,,	919 ,,	66·1
6 ,,	393 ,,	450 ,,	65·54
DISTANCE RECORDS.			
			SPEED PER HOUR.
250 miles	3 hours 51 minutes	8⅖ seconds	64·89
300 ,,	4 ,, 30 ,,	38⅕ ,,	66·51
350 ,,	5 ,, 18 ,,	27⅘ ,,	65·94
400 ,,	6 ,, 6 ,,	37 ,,	65·46

(Subject to confirmation.)

The above records are overwhelming proof of the durability and efficiency of the scientifically constructed Palmer Cord Cycle Car Tyre, which is an exact miniature of the famous Cord Tyre for Motor Cars. For reliable and satisfactory service this tyre cannot be equalled by any other tyre on the market.

Write for Cycle Car Price List:

THE PALMER TYRE, LTD.,

119, 121, 123, Shaftesbury Avenue, LONDON, W.C.

MOTOR CYCLE TYRE DEPT.:

103, St. John Street : : : : CLERKENWELL, E.C.

Cycle Cars.

Sir,—Allow me to thank you heartily for the strong position you have taken up with regard to the true cycle car. I have long felt that the competition of the miniature motor car is strangling the true cycle car, and unless the A.C.U. alter the definition so as to exclude the former, there is grave danger of the latter following the old and useful tricar to oblivion.

Keep pegging away and you will do the movement real service. E. A. LAMBERT.

[The above is but one of many letters we have received couched in much the same terms, but that published will suffice.—ED.]

Leather Belts.

Sir,—Reading "Ixion's" "Occasional Comments" of last week, I notice that he says one disadvantage of leather belts is their habit of wearing a shoulder on the pulley. I have always preferred leather belts to rubber ones, and get over this difficulty by riveting a piece of clutch leather about ⅛in. thick on the pulley. This was quite successful, besides giving the belt a better gripping surface, but I cannot say how long the leather would last without renewal, as I got rid of the machine after about 1,500 miles running like this, and my present machine is chain-driven, but, judging by the appearance of the leather, it would last a good many thousand miles.

I think this tip worth trying. HAROLD HOUGH.

What the Show will Reveal.

Sir,—With reference to your article on "What the Show will Reveal," I note your remarks on the "big singles." As an old rider, and one who has owned a few "big singles," I can bear out all you say in praise of this class of engine. I own a 600 c.c. engined machine that has hauled a sidecar for many thousands of miles in the hilly parts of England and Wales. I have plenty of power, and, with the exception of cleaning away the carbon, this engine has never been touched by a spanner. For a rider who has little time for tinkering, this seems the limit of no trouble, with a fairly constant power.

I—and several other riders I know—have been waiting years for the machine fitted with a "big single" and good counter-shaft variable gear. The 1914 Zenith seems to give all but the "big single" engine. When the makers fit this latter, I, for one, am a certain buyer.

In conclusion, I should like to add an appreciation of the 4¼ h.p. Precision, for, as a real power unit with some wear in it, I have yet to find one to beat it. SINGLE.

An Undesirable Practice.

Sir,—Having read the various letters on the subject of pillion riding published in *The Motor Cycle*, I should like to warn your readers of the danger of so carrying passengers on machines fitted with "live" back axles.

Miss Bertha Greaves, of Sheffield, on her 3½ h.p. Calthorpe sidecar. This lady is equally well known in local bowling and musical circles.

I ride a machine so fitted, and a short time ago was starting off for a run with my brother seated on the carrier, when suddenly the leg of his trousers was caught by the axle.

Luckily I was able to pull the engine up sharply, but even so his leg was badly torn and the trouser had to be cut away before he could be freed. This before the machine had proceeded two or three yards.

What the result would have been had we been travelling at a fair speed I do not care to imagine. I have now fitted a sidecar. STANLEY HUTCHINS.

Sir,—Allow me fully to endorse the letter of Harry Spencer on carrying a passenger on the carrier. The law should most certainly prohibit carrying the fair sex in this manner, but the sidecar is not in it with the pleasure of riding on the carrier *straddle legs* and with your feet comfortably resting on the back footrests. Corners are negotiated and vehicles are passed more easily; wind resistance is lessened, and the passenger has (like the driver) that exhilarating feeling of being part and parcel of the steed. R.W.G.

Sir,—I have read with much interest the controversy on carrier riding, and it is a letter from "Maxime" in *The Motor Cycle* of October 9th, which makes me somewhat indignant. It distinctly hints that motor cyclists who indulge in this "undesirable practice" are incapable of controlling their machines, and should not be allowed at large. Now I also speak as one who has had experience, for I have ridden hundreds of miles with a passenger, and to say "it is hopeless to argue that a machine steers well with a passenger on the back" is to my mind a hopeless proposition to make. We are given an unfair example, for I should certainly say the rider who startled "Maxime" with his "death yell" was incompetent under any conditions. For who—I ask all motor cyclists—finds cause for anxiety when negotiating a "slight bend," or even a bend, with a passenger on the back? I have found that if your passenger sits close up to you the steering is not affected in any way, and I can take any corner without the aid of "spasmodic efforts." When taking the fair sex on the carrier the balance is somewhat affected, and calls for more careful driving, but to say that you are a danger to the public under such conditions is going from one extreme to another. AN UNDESIRABLE.

Sir,—I notice your correspondent L. J. Mann in his letter of October 9th refers readers to the B.S.A. Co.'s booklet, with the intention no doubt of persuading readers that motor cycle manufacturers as a body regard the practice of carrier riding as quite a natural and proper method of using one's machine.

Following are a few *facts* which I believe will prove to a person of average commonsense that even a machine designed and built to stand the strain of sidecar work is not intended by the makers to drag an average weight of about ten stone about on a carrier intended for light luggage, etc., even when driven with sidecar detached. The Singer Co. in their booklet write, "We do not recommend the carrying of a passenger on the carrier of a motor cycle." The Scott and N.S.U. Co.'s class the taking of passengers on their machines (without sidecar) under the term "misuse" in the guarantee given with their machines. Yet all three companies make and recommend models for sidecar work.

With regard to "L.J.M.'s" remark, that a man may take risks with his life if he chooses. A man's life *is not* his own that he may *wilfully* flirt with death, so to speak. In the case in question your correspondent declares his right to "ride as I please," as long as he does not endanger the public.

Can any person drive a motor cycle in the manner in question (in which there is, beyond doubt, a risk), and yet not put the lives of other users of the road in danger? I think most readers will admit that there is overwhelming evidence available to prove the utter failure of the defence of the "ride as you please" policy.

One thing more (perhaps a little personal). If I were to read a leading article, in a first class journal of course, which did not quite meet with my whole-hearted approval, it would not necessarily follow that the author was incompetent or a lay contributor. No, unfortunately, even journalists have not yet reached that state of perfection, when one person can satisfy everyone in matters of opinion. H. DIXON.

The Lubrication of Timing Gears.

Sir,—As a rider of a 1913 two-speed Douglas I have been trying to improve the lubrication of the timing gear on my machine.

This gear is, of course, more or less lubricated by oil from the crank case, but as I am of opinion that more efficient lubrication would be obtained by running it in grease, I have been trying various greases with a view to obtaining a lubricant which will stand a high temperature.

I find the most suitable grease is that known as Ambroleum 3011, as made by the Stern Sonneborn Oil Co., as it is not affected by the heat and retains its lubricating properties.

I also use another brand of Ambroleum for my two-speed gear, and find it gives better results than ordinary grease, as it clings to the wheels.

The usual disclaimer applies. AC 3519.

Petrol Gauges.

Sir,—As the inventor and introducer of the sunk in pattern of petrol gauge for motor bicycles to which "Ixion" submitted meekly for years, I would like to reply to his remarks, as they are calculated to give a casual reader the impression that this is one of the tried and found wanting devices, an idea which tens of thousands of satisfied users disprove.

This statement that it registers fairly accurately is misleading. In point of fact it simply depends upon the law that fluid finds its own level, and if there is any more dependable or accurate action in nature than this, I do not know it. I would therefore amend the statement and say it registers perfectly accurately.

His second objection that one has to dismount to see the gauge is only partially correct. If the glass is fixed at an angle towards the rider, the level, owing to a rather peculiar refraction by the glass, can be seen by moving the head about 8in. to one side, and even if fixed vertically it can be seen with a little more exertion. As regards the dial with float and spiral I am in agreement with "Ixion," having seen this type revived and dropped several times.

With respect to the partition in the bottom of the tank, "Ixion" could have had a "warning tap" substituted for the ordinary one, and this would stop the engine temporarily when the petrol had got down to about two pints, a quantity ample to take the machine to another source of supply.

A. C. DAVISON.

The Testing of Lubricants.

Sir,—A great deal of attention is just now being bestowed on the subject of testing lubricating oils with a view to ascertaining their degree of suitability for their respective purposes. The subject is one which seems to elicit opinions from a wide variety of contributors to, and readers of, the recognised trade journals.

In view of the interest which is undoubtedly being shown at the present time, we ask the courtesy of your columns in order to point out the futility of the rough and ready methods of oil testing which are so frequently recommended. But small benefit is likely to result from the use of such methods, which are misleading, and, in any case, of small practical value in the absence of any standard to which to work.

A good many years ago we recognised the necessity of being able to test the values of lubricating materials under actual working conditions, and the importance of standardising the results obtained. The Sternol oil testing machine is the outcome of our efforts to produce a comparatively simple, practical, and reliable apparatus.

This machine is capable of reproducing the exact working conditions of any machinery, steam, gas, and oil engines, including load, speed, cylinder pressure, temperature, etc. By its means we are able to pronounce with certainty as to the suitability of an oil or grease for any given purpose, and also to prepare charts showing the comparative efficiency of various qualities.

The machine is installed on the premises of the Stern Sonneborn Oil Co., Ltd., Royal London House, Finsbury Square, London, E.C., where tests are carried out daily. Any samples submitted are tested free of charge, and, if desired, an appointment will be made so that the tests can be done in the presence of any person representing the firm by whom the samples are submitted.

THE STERN SONNEBORN OIL CO., LTD.

A Problem.

Sir,—With reference to the above, I beg to thank Mr. Philip Bailey for his suggestion. I am glad "Ixion" was interested in my letter, and regret that it did not contain sufficient information for him. I should, of course, have mentioned that the gear ratio was 5⅛ to 1, but perhaps I ought to be given credit for some commonsense. Surely the expressions "climb" and "pick up" are self-explanatory, and if "Ixion" will read his own notes he will find that he unconsciously describes both terms to a nicety.

The machine in question has done just over 1,000 miles, measured by speedometer, driven from the front wheel and not from the magneto chain sprocket. Also I have wasted no money on carburetters (two having been borrowed), and I suppose even "Ixion" will allow that some carburetters will suit a particular engine better than others, the best results in my case being obtained with a Senspray fitted with a 44 jet.

As the engine will start easily with the air lever slightly opened, it does not appear that there are any air leakages to speak of, and, as to the moving parts being tight, I might mention, just to show how great minds think alike, that the pistons, which were rather tight, have been eased.

Now that "Ixion" has all the particulars before him, any suggestions from either him or any of your readers will be much appreciated by TWIN JAP.

Hub and Counter-shaft Gears.

Sir,—Anent the interesting letters on gears appearing in your valuable journal, I notice that some of your correspondents who have used hub gears seem to have been so singularly unfortunate that I dare venture to suggest that their care, or rather lack of it, has had some considerable say in the matter. They, however, have immediately taken up their pens and added insult to injury by belabouring the poor unfortunate hub gear and all its ways, and one feels almost inclined to apologise for being such a "fool" as to use such a piece of mechanism. Nevertheless I boldly stand forth as one of the "fools" who, strange to relate, has actually used one of these gears fitted to a heavy 557 c.c. single-cylinder machine, over 5,000 miles of road and, I might add, track. Neither the West Coast roads of Scotland nor the hills of the Lake District and Surrey have been able to lay it low, even though for over 2,000 miles on one trip along some of the worst roads and hills in the United Kingdom the load was about a quarter of a ton all on. True, on one occasion only, the clutch slipped a bit when not asked to do so, but the cause was immediately traceable to my own fault in over-oiling. A bath of paraffin, a few drops of thin lubricating oil to follow, and the clutch said good-bye to unasked slipping.

Difficulty in removing the back wheel is urged against it, but personally I quite fail to see this. As a newcomer to the ranks of motor cyclists, I have changed covers, mended two punctures, put on a large canvas patch, and been ready for the road again in one hour and forty minutes. Considering it was the first time I had undertaken the operation, I think it is good testimony to its simplicity and ease. I do not think a "counter-shaftite" would do much better on an ordinary touring machine with impedimenta. The counter-shaft gear will find me no enemy, and in my humble opinion it is a good gear in the right position. It lacks, however, one very great advantage possessed by its rival, the hub gear, in that this latter can be changed instantly, while one has to declutch before changing on the counter-shaft; this is not always easy to do in a sharp emergency.

So much confidence have I in my gear that I am casting wishful eyes upon Norway as the scene of a future jaunt, where I surmise the roads and hills should be of a really sporting character. Perhaps some of your readers know them and could give me a tip or two.

I add the usual disclaimer. A HUB GEAR USER.

SUMMARY OF CORRESPONDENCE.

THE LIVERPOOL A.C.C. TRIAL.—We have received three letters, which we should print, but for the fact that they are signed with *noms de plume* only, pointing out that W. Heaton made clean ascents of every hill in the recent trial in North Wales held by the Liverpool A.C.C., while J. B. Sproston failed on Altybady, yet the latter rider won the Reliance Cup, in consequence of the rule which allowed one failure on a hill without any penalty. They think Heaton's performance the better one and should have won him the cup.

The New Model 1914

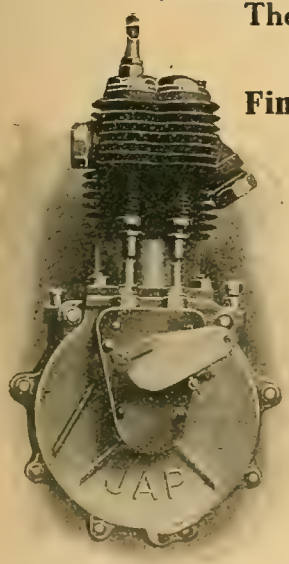
Bowden

Two-Speed Countershaft Gear will be shown at Olympia, Stand No. 211.

Two-step drive - 8 inch pulley.
Guaranteed up to 6 h.p.

Bowden Wire, Ltd., Pratt Street, Camden Town, London.

"J.A.P." MOTORS.



The All-British J.A.P. Engines carry their successes right through the season.

Final B.M.C.R.C. Meeting at Brooklands on Saturday, Oct. 18th.

Time Trials.

CLASS "D." J.A.P. 1st. C. R. Collier, on Matchless-J.A.P.
CLASS "E." J.A.P. 1st. E. Remington, on Matchless-J.A.P.
CLASS "H." J.A.P. 1st. E. B. Ware, on Zenith-J.A.P.
CLASS "I." J.A.P. 1st. A. J. Luie, on Zenith-J.A.P.

One Hour Sidecar Race.

CLASS "D." J.A.P. 1st. E. B. Ware, on Zenith-J.A.P., breaking also several records.
CLASS "E." J.A.P. 1st. C. R. Collier, on Matchless-J.A.P.

Junior One Hour A.C.V. Championship.

J.A.P. 2nd. H. Mason, on N.U.T.-J.A.P.

5 Lap A.C.V. Championship.

J.A.P. 1st. E. Remington, on Matchless-J.A.P.

J. A. PRESTWICH & CO.,
Northumberland Park, Lower Tottenham, LONDON, N.

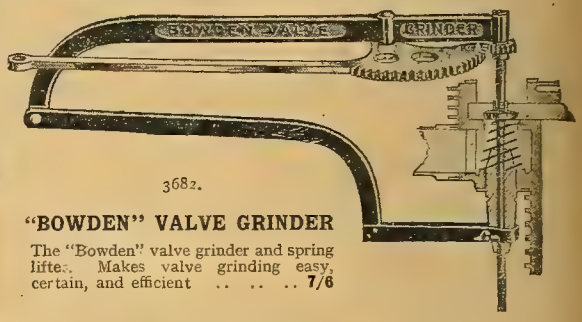
Telephone: Tottenham 1612 (3 lines). Telegrams: Prestwich Tottiane, London

ACCESSORIES INDISPENSABLE

Our stock of accessories represents the pick of the market. Everything that the motor cyclist requires for his equipment is to be seen at its best in our Showrooms, and purchasers have the Dunhill guarantee of satisfaction.
We illustrate only a few of the many interesting accessories shown in our M.C. catalogue, a copy of which should be in the hands of every well-informed motor cyclist.

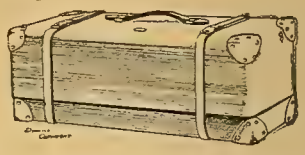
2526C.
"KING DICK" SPANNERS
Strongly made in leather of best quality. Wallet contains No.'s 0, 1, 2, "King Dick" Spanners in a compact form **12/-**

Dunhill's Sole Agents.
"Lukin" Carburetter
Absolutely Automatic. No delicate mechanism. The last word in economy & efficiency, **55/-** Write for particulars.



3682.
"BOWDEN" VALVE GRINDER
The "Bowden" valve grinder and spring lifter. Makes valve grinding easy, certain, and efficient **7/6**

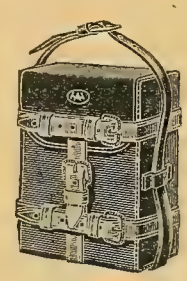
TYRE LINER
Renders tyre completely puncture-proof and lengthens its life .. **1/3**



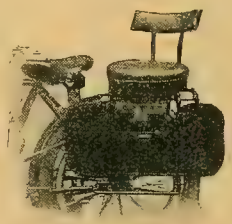
"KENNARD" VALISE
Expansive, smart, and indestructible **22/6** Absolutely dustproof.

2187.
"Demon" Wrist Siren
Always ready for use, and gives piercing sound.. **3/3**
Without Strap **2/3**

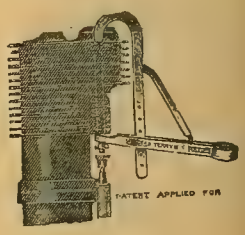
3765A.
FLASH BATTERY
6/6



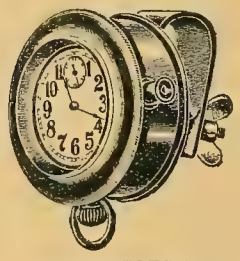
3740.
CASE for BATTERY
3/6 and **6/6**



5448.
V.M. PILLON SEAT and BACK REST
By this fitment safety is assured from spokes; specially suitable for ladies .. **£1 9 6**



5499.
M.C. VALVE SPRING LIFTER
Fits any engine. Price **1/6**



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3320.
First-class Motor Cycle, splendid movement **10/-**
Cheaper qualities from **4/9**

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TELESCOPIC LUGGAGE GRID
Will fit almost any sidecar chassis on the market **21/-**

4128.
SAFETY COUPLING BAR
Invaluable for Sidecar **9/6**

WRITE FOR M.C. CATALOGUE—TO-DAY!

Dunhill's

359-361, EUSTON ROAD, LONDON, N.W.

City Branch: 42-43, Lombard Street, E.C.

MANCHESTER: 88, Cross Street. **GLASGOW: 72, St. Vincent Street.**

AMONG THE ACCESSORIES.

Tormo Specialities.

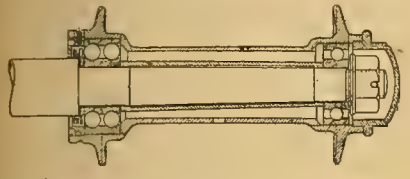
Next year the Tormo Manufacturing Company, 67-68, Bunhill Row, E.C., will be marketing three types of Sarolea engines, the 3½ h.p. 85 × 88, a 2½ h.p. and a new 6 h.p., of which we hope shortly to give details. One of the most

Tormo F. and S. ball bearing cycle car hub.

noticeable features of these engines is the excellent exterior finish and the beautiful casting of the radiator fins.

The Tormo Manufacturing Company are also agents for the well-known F. and S. Ball bearings.

The accompanying illustration shows the latest type of cycle car hub, which is a particularly fine piece of work. The



Section of F. and S. ball bearing cycle car hub.

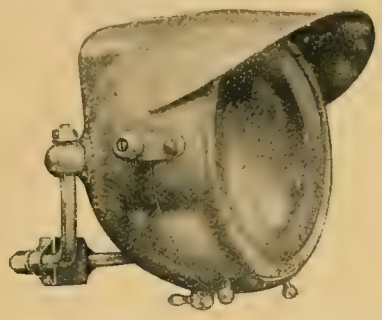
sketch shows this in section. On the end nearest the chassis it has a double row of ball bearings and a single row on the outside end. Particular care has been taken to render it dust and waterproof.

Useful Lamps at Brown Bros. Ltd.

A firm which is always to the fore with motor cycle accessories is Messrs. Street, E.C. Dealing primarily with Brown Bros., Limited, Great Eastern lamps, we would call our readers' attention to the new form of Autoclipse, which type of head light is an old favourite with

Autoclipse lamp showing accessibility of burner.

motor cyclists. The latest pattern, it will be noticed, is a great improvement upon former models, its chief feature being the wonderfully smooth exterior, which is a real departure and enables it to be cleaned easily and quickly, as there are few crevices in which the metal polish can collect and which a rag can catch. This is of the lens mirror type, while the front glass is an additional lens.



The latest pattern Autoclipse lamp. The clean exterior design is a striking point.

The Eisemann Waterproof Magneto.

The 1914 Eisemann magneto has not undergone any startling alteration since last year. We illustrate, however, one of the latest type machines, showing how the waterproofing arrangements have been carried out. It will be noticed that the end plates abut on an inner dome of aluminium, which fits inside the magnets, and these end plates are a dead accurate fit, no packing being employed, as it has been found that the packing harbours moisture. It will also be noticed that the special spanner supplied with each magneto machine has attached to it a gauge for testing the opening of the contact breaker points and a screw-driver for adjustment purposes.

Component parts of the 1914 Eisemann waterproof magneto.

The Optalyte Lamp.

On the occasion of a visit to the showrooms of Messrs. Optalyte, Ltd., 129, Oxford Street, W., we had an interesting demonstration of the light given by the company's latest pattern motor cycle lamp.

The Optalyte lamp. The model shown is for use with cycle cars, but a similar model is supplied with lugs for fitting to motor cycles.

All the lights were turned out, and an ordinary type of acetylene motor cycle lamp was lighted and placed on one side of the room; while on the other the Optalyte lamps were lighted in succession. The five inch lamp (shown in the photograph) easily outshone the acetylene. The seven inch lamp, for cycle car or motor cycle use, gave an excellent light also.

A neat focussing device is fitted to these lamps. A winged nut when undone enables the focussing tube to slide backwards or forwards to any desired position.

Also the lens is a special feature. It is constructed of glass of great thickness and is silvered on the inside

The lamps are easily cleaned both inside and outside. Other advantages claimed by the makers are (1) No dust on the inside, and (2) no condensation.

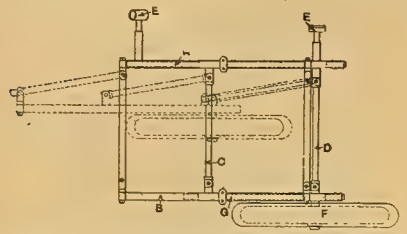
Special bulbs are fitted and are constructed so that the filament is as near the centre of the bulb as possible. This prevents blackening. The weight of these lamps is very moderate.

Everything for the Motor Cyclist.

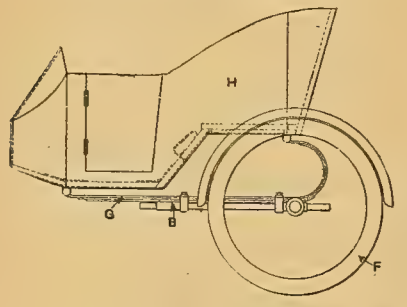
Passing Gamages' recently, we entered and inspected a very attractive collection of accessories. We also noticed a Singer light car, a B.S.A. motor bicycle, and several sidecars, pillion seats, etc. Altogether, it was a very fine show.

A Folding Sidecar.

The frame comprises four main tubes A B C D, which are connected together by the knuckle joints illustrated, so that



when in the extended position the members cannot move beyond the correct location. The member A carries joints E for attachment to the motor cycle, whilst the sidecar wheel F is mounted on an axle carried by the tube B. Upon

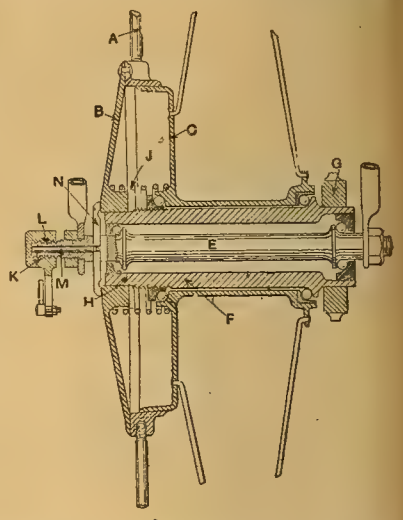


the tubes A and B are bolted the leaf springs G supporting the body H, which comprises side and rear members connected by hinges. The base of the body also is hinged to the sides, and serves to keep the whole secure when in use. By removing the base of the body the complete sidecar can be collapsed from the position shown in full lines to that shown dotted.—G. and T. F. Watson, No. 16,875, 1912.

PATENTS by Eric W. Walford A.C.I.P.A.

A Free Engine Clutch.

This clutch is of the cone type, and is arranged at the hub. The belt pulley is carried by spokes A connected to the female cone member B, with which co-operates a male cone C carried by the wheel hub. Around the fixed spindle E is mounted on ball bearings a sleeve F, which at one end carries the pedalling free wheel G, and at the other end is formed with a square at H for the reception of the clutch member B, which is a sliding fit thereon. A spring J normally moves the member B away from that C, bringing the conical surfaces into engagement. Withdrawal of the clutch is effected by the operation of the lever K, working on a thread L on the spindle, which presses



upon a push rod M, which in turn actuates a cross bar N, forcing the clutch member B inwards, and so disengaging the surfaces.—G. E. Rigby, No. 12,094, 1912.

F.R.S. Lamps.

Mr. G. T. Collis, 57, Hatton Garden, E.C., has been appointed London representative for the manufacturers of these well-known motor cycle lamps.

Good Value in Tyres.

The low price of Michelin tyres enables voiturette covers, 650 × 65, to be sold at as low a price as 29s. 9d. This should appeal to those of our readers who have voiturette rims on their motor cycles, or who use cycle cars. The patterns of Michelin motor cycle tyres will not be altered for 1914.

Advertising Matter Wanted.

Messrs. A. P. Rey, the well-known motor cycle dealers of Heath Street Motor Works, Hampstead, and 173, Great Portland Street, W., inform us that they have now taken extensive premises at 378-384, Euston Road, N.W., and would be glad if manufacturers would supply them with posters, etc., relating to the motor cycle and cycle car trade, as they have very considerable wall space available at their new premises.

A Double Purpose Cap.

A fortnight ago we illustrated the Anti-glare Visor cap produced by Bramco, Ltd., Coventry, to safeguard motor cyclists and cyclists against the dazzling rays of the powerful motor car head lights at night. The photograph showed the screen quite dark, but, to remove any possible misapprehension, we should explain that the dark effect is due to the non-actinic colour used. The screen is, of course, transparent, and not opaque as might be supposed from the illustration.

Jackson Cycle Car Ignition.

In our description of the clever two-stroke Jackson cycle car which we published last week, we should have stated that the magneto fitted was a U.H.

Brooklands Achievements.

G. E. Stanley, on the 18th inst., made the best performance in four events in the time trials, broke the existing hour record, and made a wonderful exhibition in the five-lap championship race up to 1,000 c.c., while H. V. Colver set up the hour record in the sidecar combination event. Both these riders were using C.A.V. Ruthardt magnetos.

Continental Tyres in 1914.

The chief feature of next season's Continental tyres is a reduction in price and no alteration either in pattern or quality. The new tyres will be constructed in exactly the same manner as those fitted to Godfrey's Indian, which won the T.T. in 1911, and Applebee's Scott, which won this classic event in 1912, and on which Green won the Grand Prix this year. A novelty will be an Autobi 650 × 65 cover (to fit voiturette rims) for the rear wheels of heavy sidecar machines, and a similar 75 mm. tyre to fit 65 mm. rims.

A Durable Tyre.

Palmer tyres were used on the Calthorpe cycle car which annexed seven long distance records at Brooklands last week.

Tyres at Brooklands.

We are informed that E. B. Ware, who was the winner in Class D in the Sidecar Hour Race at Brooklands on the 18th inst., and who performed remarkably well throughout the meeting, was using Clincher tyres.

Steel Pistons.

Messrs. Brown Bros., Ltd., advise us that they have been appointed sole agents for London and district and selling agents for the Colonies for Simplex steel pistons and the Duplex patent piston rings.

The "Reliable" Belt.

Messrs. Lycetts, Bromley Street, Birmingham, makers of the combined leather and rubber "Reliable" belts which performed so successfully in the A.C.U. Six Days' Trial, inform us that they are now in a position to supply this type of belt in 1¾in. size.

A Satisfactory Lubricator.

We are informed by Messrs. Best and Lloyd, Ltd., Birmingham, makers of the well-known drip lubricator, that already over 25,000 of these fittings are on order for various makes next year, and that, among others, these useful fitments will be found on Lea-Francis, B.S.A., Bradbury, Scott, Hazlewood, Humber, Norton, and A.J.S. machines next year. Messrs. Best and Lloyd state that these lubricators are so successful that there is no single instance of a firm once having adopted them giving them up.

FOR EVER—

will the **MOTOSACOCHE,** with M.A.G. engine, give you service.

FOR EVER—

will it run just as sweetly and just as swiftly—whether it is a

2½ h.p. MOTOCYCLETTE or a

(The Gentleman's Machine)

3½ h.p. MOTOR CYCLE.

They are FULL of refinements. They are made in a factory which turns out 5,000 engines annually, and they are designed by engineers of the highest qualifications. Send us your name on a ½d. postcard, and we'll send you a catalogue free of all charge.

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AGAIN AMONGST THE RECORDS

EQUIPPED WITH THE **ZENITH** GEAR THAT NEVER FAILS

"The Summit of Ambition"

At the A.C.U. Championship Meeting held by the B.M.C.R.C. at Brooklands on Saturday, Oct. 18th, the ZENITH and sidecar made (subject to confirmation) 5 new RECORDS.

Class H. E. B. Ware } 6 h.p. ZENITH { Flying Kilo. 59·18 miles per hour. Flying Mile 58·82 „ „ „

This ZENITH also won the ONE HOUR SIDECAR RACE with a RECORD distance of 56 miles 542 yards, setting up two new RECORDS for 50 miles (classes H. and I.) en route.

(Note that this machine was only of 6 h.p. yet it made RECORD in the 1000 c.c. Class and covered nearly two miles more than a machine of another make in the bigger class.)

ZENITH MOTORS, LTD., WEYBRIDGE, - SURREY. — *Illustrated catalogue sent on request.*

Stand 93 Olympia—REX Stand

Next year is universally acknowledged will be a Sidecar Year.

Before making your decision, see STAND 93 at Olympia, between November 24th and 29th.

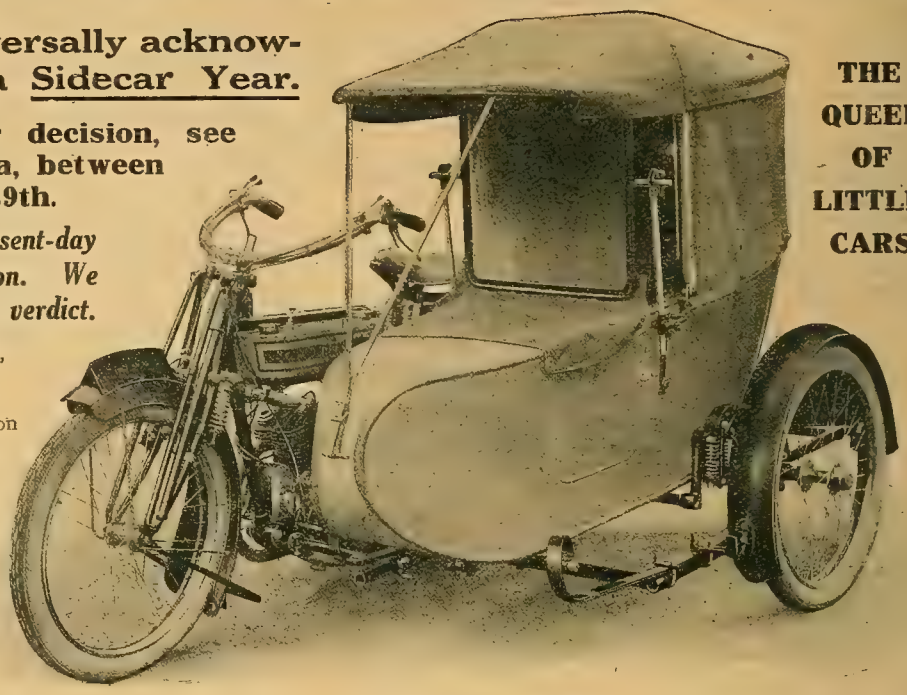
Ask any rider of a present-day Rex Sidette his opinion. We have no fear as to the verdict.

Features—6 h.p. engine, flexible, silent, power unsurpassed.
Gear—Absolutely foolproof.
Frame—Detail and riding position second to none.

Write us for Catalogue giving full particulars, and 1912 Booklet of 'Tales of the Road.'

REX MOTOR MFG. CO. LTD., COVENTRY.

Stand 93, OLYMPIA.



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The 'Clincher' B Motor Cycle Tyre with beaded edge. Cover only. 26 x 2 **21/-** 3/6 Monthly. 26 x 2½ **27/6** 4/7 Monthly.

The 'Clincher' A Won Motor Cycle Tyre. Beaded. Cover only. 26 x 2 **28/3** 4/9 Monthly. 26 x 2½ **31/7** 5/3 Monthly. 26 x 2½ **36/2** 6/- Monthly

The 'Clincher' De Luxe Rubber Studded Non-Skid Motor Cycle Tyre Beaded edge. Cover only. 26 x 2½ **39/-** 6/6 Monthly. 26 x 2½ (to fit 2½ rim) **45/6** 7/7 Monthly. 26 x 2½ **47/6** 7/11 Monthly.

Write for Catalogue. Send a post card to-day for our Illustrated Catalogue of all 'Clincher' Cycle and Motor Cycle Tyres all on easy terms at cash prices from **7/6**

J. G. GRAVES LTD. SHEFFIELD.

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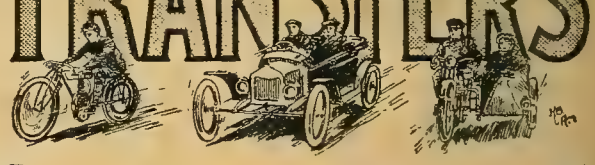

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AGENTS, residing in Italy, many years in close connection with the Italian Motor Car industry and trade, want to represent important manufacturers of accessories and material of construction. High recommendations and first-rate references. Personal introduction could be arranged at OLYMPIA SHOW in LONDON.

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Another Delighted User of the

"An Engine with Excellent Features and Splendid Workmanship." —*The Cyclecar.*

"Preston to Carlisle over Shap Fell on Top Gear."

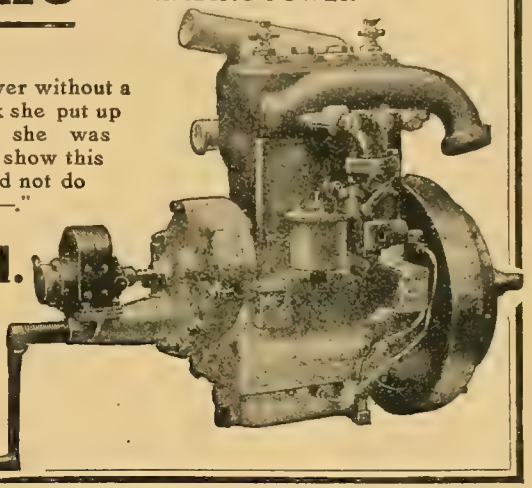
Dorman Twin-Cylinder Water-cooled Engine

GREAT SPEED ON THE LEVEL.

GREAT HILL-CLIMBING POWER

writes:—

"The Engine ran in a magnificent way. She turned over without a tremor, and accelerated very nicely indeed. I think she put up a very marvellous performance, considering she was practically straight from the shop. You need not show this to the authorities, but between ourselves she did not do anything less than m.p.h. between — and —."



W. H. Dorman & Co., Ltd.

INTERNAL COMBUSTION ENGINE SPECIALISTS

STAFFORD.

Contractors to the WAR OFFICE and ADMIRALTY.

F.S.L. SIDECARS,
42, Hunslet Road, **LEEDS.**
BIG BARGAINS IN SIDECARS!
Stock must be cleared.
Also Several SIDECAR COMBINATIONS.

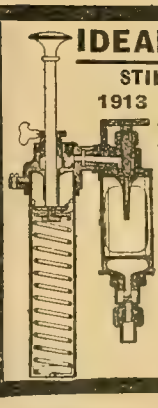
EYSINK
Cycle Car, scientifically constructed and built on car lines. We have 11 years' experience in car building. Gained highest award 3 Days Royal Dutch Auto Club Reliability Trial.
Agents wanted.
EYSINK WORKS, LTD., Amersfoort (Holland).

CYLINDER GRINDING
with guaranteed accuracy.
J. C. DALMAN & SONS, BIRMINGHAM.

Photography and FOCUS
EVERY TUESDAY.
ONE PENNY.

N.S.U.'s
AT
BARGAIN : PRICES :
We Have a Few Shop-soiled and other Machines which have been used for competition purposes, to be sold at bargain prices. Write for particulars, or call and inspect.
N.S.U. Motor Co., Ltd.,
186, Gt. Portland St., London, W.

IDEAL LUBRICATION!
STILL MORE SUCCESSES!
1913 SIX DAYS' TRIALS.



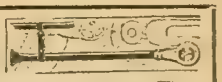
The ARIEL & DOUGLAS Teams FIRST and THIRD, and The SUNBEAM, which gained prize for best performance and many other machines, were fitted with The BEST Lubricator.
11/- each. Post 4d. extra.
Suitable for, and easily fitted to, all machines.
ADAMS MOTOR ACCESSORY Co., 10, Northumberland Road, NEWCASTLE-ON-TYNE.

. . THE . .
ISOCHRONOUS SPEEDOMETER
Under Escapement Control like a Watch.

The most perfect form of governor known. (No centrifugal or magneto governor). Gives True reading at all speeds to 50 miles per hour and beyond UNLIMITED.
For motor cars, £5 12s., including driving gear; for cycle cars, £4 16s.; for motor cycles, £4 4s.
Liberal Trade Discount.
See "The Motor Cycle," September 26th, 1912.

Recommended and stocked by—
Messrs. Rotherham and Sons, Limited,
" Rudge-Whitworth, Limited,
" The Triumph Cycle Co., Limited,
and Branches, and by other high-class Firms.
Manufactured by the inventor of the Karrusel Watch,
B. BONNIKSEN, 16, Norfolk Street, COVENTRY.
Apply for copy of National Physical Laboratory's Report.

THE "WILLBRO" EXTENSION (Regd.)



Most efficient Silencer made, used the world over. Thousands of unsolicited testimonials, trade, press, and public.
12/6 Fits Rudges, Bradbury, Premier, New Hudson, Triumphs, B.S.A., Douglas, N.S.U., nearly every make. **12/6**
Trade supplied.
WILLMOTT'S MOTORIES, Manufacturers, NORWICH

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To insure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmorland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

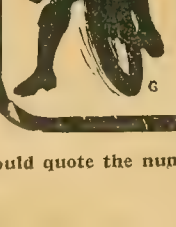
THE BIG CLEARANCE CONTINUES AT

Every make famous for speed, reliability, and all-round satisfaction, will be found on offer at greatly reduced prices at

WAUCHOPE'S

Ask for a copy of our to-day's List, it is sure to contain just what you want at just the price to suit you.

7586.	2¾ h.p. 1913 Model R **DOUGLAS** .	£42	0
7589.	3½ h.p. 1910 **N.S.U.**	£20	0
7590.	8 h.p. 1912 **G.W.K.**	£99	0
7591.	2¾ h.p. 1912 2-sp. **DOUGLAS** H ..	£35	0
7592.	3½ h.p. 1907 Variably-geared **TRIUMPH** and Sidecar	£25	0
7593.	2¾ h.p. 1913 Model R **DOUGLAS** .	£42	0
7595.	6 h.p. 1913 2-speed **MATCHLESS** and Sidecar	£65	0
7597.	5 h.p. 1907 2-sp. **V.S.** and S'car ..	£27	10
7598.	3½ h.p. 1911 2-speed **HUMBER** ...	£29	10
7575.	3½ h.p. 1909 **TRIUMPH**	£25	0
7576.	3½ h.p. 1913 **IVY PRECISION**	£32	10
7580.	2¾ h.p. 1913 **T.T. DOUGLAS** M'l P	£41	0
7581.	2¾ h.p. 1913 **T.T. DOUGLAS** M'l P	£40	0
7584.	4 h.p. **MATCHLESS** 2-speed	£20	0
7585.	2¾ h.p. 1910 **DOUGLAS**.....	£22	10
7080.	6 h.p. 1912 **CLYNO** and Sidecar	£49	0
7568.	3½ h.p. 1912 2-sp. **P. & M.** and Sc.	£50	0
7573.	3½ h.p. 1913 Standard **TRIUMPH**	£42	10
7574.	8 h.p. 1912 3-speed **CHATER LEA** and Sidecar	£60	0
7537.	7 h.p. 1912 2-sp. **INDIAN** and Sc.	£52	10
7538.	6 h.p. 1913 3-speed **CLYNO** and Clyno Sidecar	£75	0
7549.	1913 **GLORIA** Projectile Sidecar, 30 Gns. Model	£17	10
7550.	3½ h.p. 1913 F.E. **ROVER**	£40	0
7551.	3½ h.p. **REX**	£12	10
7470.	3½ h.p. **V.S.** and Sidecar	£20	0
7480.	4 h.p. 1912 Tourist **REX**	£35	0
7507.	6 h.p. 1912 **REX-JAP** and S'car .	£60	0
7521.	5-6 h.p. 1911 4-cyl. **F.N** and S'car .	£25	0
7525.	6 h.p. 1913 3-speed No. 2 **BAT** ..	£55	0
7535.	3½ h.p. 2-speed **ROC** and Sidecar ..	£17	10
3248.	1¾ h.p. 1909 **MOTOSACOCHE**	£12	10
4230.	4½ h.p. twin **MINERVA**	£15	0
4813.	5-6 h.p. 1911 4-cylinder **F.N.**	£26	0
4833.	5-6 h.p. 1911 4-cylinder **F.N.**	£28	0
6170.	3½ h.p 1911 tourist **REX**	£28	0
6179.	3 h.p. 1912 2-speed **N.S.U.**	£30	0
6343.	8 h.p. 1911 3-speed **CHATER-LEA** and Sidecar	£58	0
6378.	6 h.p. 1911 **ZENITH** and Sidecar	£48	0
6421.	3½ h.p. 1908 **MINERVA**	£18	0
6516.	8 h.p. 1911 3-sp. **CHATER-LEA**	£47	10
6543.	3½ h.p. 1911 2-sp. **ALLDAYS** & S'c.	£35	0
6799.	7 h.p. 1911 2-speed **INDIAN**	£40	0
6863.	3½ h.p. 1910 **BAT**	£27	0
6900.	3½ h.p. 1912 F.E. **ROVER**	£38	0
6976.	2 h.p. 1910 **MOTO-REVE**	£12	10
7008.	3½ h.p. 1911 **ZENITH** and Sidecar	£37	10
7108.	3 h.p. **GIVAUDAN**	£20	0
7116.	3½ h.p. 1912 2-speed **BRADBURY**	£39	0
	6 h.p. 1910 2-speed **MATCHLESS** and Sidecar	£45	0
	6 h.p. 1912 2-sp. **KERRY** & S'car	£50	0
7216.	2¾ h.p. 1912 2-sp. **ROYAL ENFIELD**	£36	10
7283.	8 h.p. 1913 2-sp. chain-drive **BAT**	£55	0
7281.	3½ h.p. 1910 2-speed **P. & M.**	£32	10
7318.	6 h.p. **ANTOINE**	£15	0
7343.	5-6 h.p. 1908 2-sp. **N.S.U.** & S'car	£30	0
7356.	6 h.p. 1912 2-speed **REX** Sidette	£50	0
7383.	2¾ h.p. 1912 3-speed **HUMBER** ...	30 Gns	
7395.	2¼ h.p. 1910 2-speed **F.N.**	£28	0



PRICES RIGHT TERMS TO SUIT ALL. CASH EXCHANGE OR EASY PAYMENT.

Every Bargain fully guaranteed. Sure to satisfy.

WAUCHOPE'S,
9, SHOE LANE, FLEET, ST., LONDON, E.C.
Wires—"Opificer, London."
'Phone—Holborn 5777.

G

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry," or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmorland.

ZENITH, 3½h.p., 70×77½, overhead valve J.A.P., 1913, racing model, equal to new; £45.—Below.

BAT, 6h.p. twin J.A.P., in first-class condition, guaranteed perfect; £35.—Below.

RUDGE, lady's, free engine model, 3½h.p. first-class condition, equal to new; £35.—G. W. Braithwaite, 94, Highgate, Kendal. [X4890

MINERVA, 2¾h.p., perfect running order; seen and tried any time; £7.—Waddell, Heads Nook. [X4290

1913 2¾h.p. Arno, run only 200 miles; £24, cost £38; any trial.—Nixon, Brampton, Cumberland. [X4862

3½h.p. Rudge, just overhauled, lamp, horn, accessories; £24, offers.—Martindale, architect, Carlisle. [X4845

MOTOSACOCHE, 1912-13, 2½h.p., variable gear, like new; £24.—Brunet, 37, Windsor Terrace, Hexham. [X4578

DOUGLAS, 1913½, July, model R, lamp, horn, 1,200 miles, as new; £45.—Coulson, Eastview, South Shields. [X4748

1913 3½h.p. Grandex Precision, as new, 2,000; accept £34/10; any trial; spares.—Minto, Tow Law, Co. Durham. [3249

1913 Rudge, 5-6h.p., N.S.U. 2-speed and accessories; cost £70 in June, accept highest offer.—Edger, Elvaston Rd., Hexham. [3387

1912 Triumph, free engine model, splendid condition, not done 1,000 miles; £38.—Young, Brampton Cottage, Beresford Rd., Bowness-on-Windermere. [X4861

3½h.p. Kerry, Bosch, Amac, footboards, Dunlop belt, Palmers, good running order; £14, or near offer, or exchange cash either way.—Taylor, Blackford, Carlisle. [3197

2¾h.p. Twin Humber, 1913, 3-speed T.T. engine, footboards, drip feed, speedometer, lamp, horn, etc., perfect condition, 55 m.p.h.; £35.—Rigbye, Fowler St., South Shields. [X4901

RUDGE Multi, 1913, little used, everything perfect condition; owner buying cycle car; many extras and lamp, horn, watch, and back-rest; £46.—Box L3,059, *The Motor Cycle* Offices, 20, Tudor St., E.C. [3435

B.S.A. 1913 Motor Cycle, 2-speed, chain drive, 26×2½ rubber studded tyres, Lucas horn, lamp, and generator; cost £64; only used a few times, practically new; owner going abroad, must sell; nearest offer £50 secures.—Apply, T., c/o Turvey and Co., The Motor House, Sunderland. [X3915

SECTION II.

York and Lancashire.

1910 6h.p. J.A.P. for Douglas, Triumph, sell £27.—40, Andover St., Sheffield. [X4883

1913 Scott, just arrived, brand new; clear for £60.—Cordingley, Haslingden. Tel.: 2Y. [3241

SUFFER NO LONGER

There is not the slightest reason why you should suffer from lack of power.

We offer a discount of 15% from New 1912 6 h.p. 2-speed Twin Rexes, and an allowance of 30 to 40 Guineas for your 1912 machine.

Send particulars now, as this model will soon be cleared.

1913 **REX** and **WILLIAMSON** Machines to clear. Get our exchange quotation.

£5 deposit and **7/6** week secures any of these magneto machines. All are guaranteed in running order:

5½ twin **Rex** ... **£19 10** . 3½ 2-sp. **Peugeot** **£16 10**
5-6 **Peugeot** ... **£16 10** 5-6 twin **V.S.**.. **£16 10**
3½ **Simms** ..... **£22 10** . 1910 3½ **James** **£16 10**
3½ **N.S.U.** ..... **£17 10** . 3½ **Quadrant** .. **£17 10**
5½ **N.S.U.** ..... **£22 10** . 3½ **Rex** **£19 10**

Despatch on receipt of deposit and signed agreement.

REX BARGAINS.

REX, 1912, 6 h.p., 2-speed, chain drive **£46 10**
REX 1912, 4 h.p., tourist, brand new ... **£34 0**
REX, 1913, 2-speed, twin, little used **£45 10**
REX, 1913, 4 h.p., 2-speed, de luxe, chain drive, done about 100 miles **£49 10**
REX, 1911, 2-speed Twin de Luxe **£36 10**
REX, 1911, 2-speed, twin, Sidette, M.O.V. engine, chain drive **£45 0**
REX, 5½ h.p. Twin, spring forks **£15 10**
REX, 3½ h.p., mag., spring forks, 1909 . **£19 10**
REX, 3½ h.p., 1909 model, magneto **£22 10**
REX, 3½ h.p., 1910 ..... **£24 10**
REX, 1911, 3½ h.p. **£26 10**
REX, 1912, 4 h.p., Tourist, 84½ x 95 ... **£29 15**
REX, 1912, 4 h.p., 84½ x 95, 200 miles ... **£31 0**
REX, 1909-10, 2-speed, twin, de luxe **£29 10**
REX, 1909, 2-speed, twin, de luxe **£27 10**
REX, 1908, 2-speed, twin, and Sidecar; wants slight attention **£19 10**
REX, 2-speed Twin de Luxe **£19 10**
REX, 3½ h.p., spring forks **£12 10**
REX, 3½ h.p., light and low..... **£10 10**

LIGHTWEIGHTS.

Premier, 1912 . **£26 10** . **Motosacoche,** '11 **£19 10**
Grandex, 1912 **£25 10** . **Moto-Reve** **£15 10**
Rex ..... **£15 10** . **Singer,** 1911 ... **£19 19**
Motosacoche .. **£15 10** . **Humber** **£25 10**
Centaur, 3-sp. . **£34 10** . **New Hudson** ... **£31 10**

MISCELLANEOUS MACHINES.

B.S.A., 1912, 3½ h.p , F.E., almost new .. **£36 10**
ARIEL, 1912, 3½ h.p. 3-speed **£39 10**
P. & M., 3½ h.p., 1911, specially good.... **£38 10**
CLYNO, 1912, and special cane Sidecar .. **£49 10**
J.A.P., 6 h.p., M.O.V., free engine, spring forks **£34 10**
ARIEL, 1911, 3½ h.p., magneto, Druids .. **£25 0**
BRADBURY, 1912, 3-speed, £10 10s. S'car **£47 10**
N.S.U., 3½ h.p., magneto **£17 10**
N.S.U., 1911, 3 h.p., 2-speed, as new **£29 10**
N.S.U., 5½ h.p., 2-speed, and Sidecar **£31 0**
QUADRANT, 1908, 3½ h.p., magneto **£17 10**
V.S., twin, h.b. control **£16 10**
TRIUMPH, 1907, 3½ h.p., specially good .. **£22 10**
TRIUMPH, 1908, 3½ h.p. **£26 0**
SIMMS, 3½ h.p., magneto, grand condition **£22 10**
WOLSELEY 4-cylinder 2-seater Car **£19 19**
F.N., lightweight, battery ignition **£9 10**
G.W.K. Light Car **£150 0**
PERRY Light Car **£136 10**
OFFERS WANTED. Trade supplied.

The Halifax Motor Exchange

Largest Rex Dealers,

16, WESTGATE, HALIFAX.

'Phone, 766. Telegrams, "Perfection."

MOTOR BICYCLES FOR SALE.

1911 Clutch Triumph, X'Pull bucket seat, all accessories, £26; with Montgomery castor wheel sidecar, £28; both perfect.—Hind, Buckingham Av., Birkenhead. [X4843

1912 3½h.p. Zenith-Gradua, excellent order, Rom combination back, spare Palmer, head light, horn, belt case, Garner: £37.—Phillips, Royal Oak Cafe, Ludlow. [X3501

BRADBURY, new Oct., 1912, fitted 1913 engine, special hill-climber, winner numerous competitions, 2-speed gear; £50, or with coachbuilt sidecar £34.—Elger House, Sheffield Rd., Chesterfield. [X4808

TRIUMPH, 1913, 3½h.p., free engine, 3-speed Sturmey-Archer, all accessories, lamp, Klaxon horn, cyclometer, machine unscratched, not run 100 miles; gentleman going abroad, only asking £55.—Wright, The Grange, Butterley, Derby. [X4750

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

B

COLMORE Depots, 31, Colmore Row, Birmingham; 49 John Bright St., Birmingham; and 62, High St., Leicester.

NEW and Second-hand at the leading depots for the Midlands; agents for Douglas, Scott, Levis, Matchless, Enfield, Triumph, Premier, Bat, Zenith, Clyno, Chater, etc., etc.; also A.C., Morgan, A.C. Enfield Autolette, Singer, and Morris-Oxford cycle cars.—Colmore Depots, Birmingham and Leicester. [X6047

COLMORE.—Douglas, 1912, 2-speed, model H; £34.—Colmore Depot, 31, Colmore Row, Birmingham. [X4695

COLMORE.—New Hudson, 1913, 3½h.p., 3-speed, free engine, scarcely scratched; £39.—Colmore Depot, 31, Colmore Row, Birmingham. [X4698

COLMORE.—Ford 4-seat., in perfect running order and condition, tyres sound; £70.—Colmore Depot, 31, Colmore Row, Birmingham. [X4704

COLMORE.—A.J.S., 1912, 2-speed, 2½h.p., in perfect order and condition; absolute bargain, £30.—Colmore Depot, 31, Colmore Row, Birmingham. [X4703

COLMORE.—Bradbury, 1911 a powerful machine, in rattling fine order, 3½h.p.; a bargain, £22.—Colmore Depot, 31, Colmore Row, Birmingham. [X4697

COLMORE.—Douglas, 1910, 2¾h.p. twin, single-cyl., belt and tyres good, overhauled, guaranteed in running order; £22.—Colmore Depot, 31, Colmore Row, Birmingham. [X4694

COLMORE.—Scott, 1913 with coachbuilt sidecar, in splendid running order and condition, every refinement; £65.—Colmore Depot, 31, Colmore Row, Birmingham. [X4702

COLMORE.—Ariel, 1912, 3¼h.p., 3-speed, and sidecar new Dunlop tyres and belt, in perfect order and condition; £41.—Colmore Depot, 31, Colmore Row, Birmingham. [X4700

COLMORE.—Matchless, 1912, 2-speed, free engine, been used 3 weeks, with Bramble sidecar; cost £86, going for £70.—Colmore Depot, 31, Colmore Row, Birmingham. [X4701

COLMORE.—Douglas, 1913, 2-speed, model R, kick starter, been used about 3 weeks, belt and tyres practically unworn; £45.—Colmore Depot, 31, Colmore Row, Birmingham. [X4696

COLMORE.—Morgan, 1913, in perfect running order and condition, been about 800 miles, and carefully overhauled, very heavy tyre on rear wheel; £75.—Colmore Depot, 31, Colmore Row, Birmingham. [X4705

ZENITH, 1913, 3½h.p., variable gear, as new; £42.—P. J. Evans, John Bright St., Birmingham.

HUMBERETTE, 1913, 8h.p., brand new, latest chocolate finish; £105.—P. J. Evans, John Bright St., Birmingham.

HUMBERETTE, 1913, 8h.p., standard finish, complete, spare wheel, etc.; £95.—P. J. Evans, John Bright St., Birmingham.

CALTHORPE, 1913, special demonstration model, complete, as new; £148.—P. J. Evans, John Bright St., Birmingham.

ROLLO, 1912, 8h.p. J.A.P., tandem seats, complete, all spares, excellent condition; £48.—P. J. Evans, John Bright St., Birmingham.

HUMBER, 1913, 3½h.p., 3 speeds, brand new; £47/10. with Connaught sidecar £57/10.—P. J. Evans, John Bright St., Birmingham.

LEA-FRANCIS, 1913, 3½h.p., 2 speeds, kick starter, nearly new; £52.—P. J. Evans, John Bright St., Birmingham.

N.S.U., 1913, 3h.p. twin, 2 speeds, brand new; list £52/10, accept £36.—P. J. Evans, John Bright St., Birmingham.

ENFIELD, 1913, 2¾h.p., 2 speeds, excellent condition; £36.—P. J. Evans, John Bright St., Birmingham.

MATCHLESS, 1913, 8h.p., 2 speeds, kick starter, chain drive, and sidecar; £68.—P. J. Evans, John Bright St., Birmingham.

SUNBEAM, 1913, 2¾h.p., 2 speeds, slightly used; £48.—P. J. Evans, John Bright St., Birmingham.

BRADBURY, 1913, 3½h.p., 3 speeds, lamp, horn, and coach sidecar £48.—P. J. Evans, John Bright St., Birmingham. [X4870

REY

Established in Motor Trade since 1900.

TO INTENDING PURCHASERS.

Before deciding on a machine, compare my prices for New or Second-hand, and save yourselves pounds.

SPECIAL SHOP-SOILED BARGAINS.

£53 0. BAT No. 2, 3-speed 1913
£59 0. A.J.S., 6 h.p. 1913
£63 0. WILLIAMSON, air-cooled 1913
£53 0. ZENITH, 3½ h.p., kick starter, and clutch 1913
£29 0. LINCOLN-ELK, 3½ h.p. 1913
£49 0. SINGER, 4 h.p., 2-speed.
£48 10. SINGER, 3½ h.p., 3-speed 1913
£47 10. BRADBURY, 2-speed, chain and belt ... 1913
£63 7. JAMES, 3-speed, and Sidecar.
£47 10. ROVER, 3-speed.
£62 6. CLYNO, 6 h.p. 1913
£63 10. MATCHLESS, 8 h.p., 2-speed, double belt drive 1913
£6. 5. SCOTT, 2-speed, water-cooled.
£34 0. DOUGLAS, Model N 1913
£41 0. DOUGLAS, Model O, 2-speed, run a few miles 1913
£53 8. NEW IMPERIAL, 6 h.p., 3-speed 1913
£65 0. MATCHLESS, 2-speed. 6 h.p., chain drive.
£65 0. MATCHLESS, 2-speed, 8 h.p., chain drive.
£46 0. RUDGE, 750 c.c., 6 h.p. 1913
£45 0. RUDGE, free engine 1913
£52 0. F.N., 4-cylinder, 2-speed.
£81 0. MORGAN Sporting Model, 3in. tyres 1913
£135 0. G.W.K., as new, complete.
£170 0. SINGER 10 h.p. Car, 4-cylinder, green.

Easy Payments Arranged.

FOR HIRE.

Motor Cycles and Sidecars of the best makes.

Terms very moderate.

SECOND-HAND.

£16. F.N., 4-cylinder 1910
£18. F.N., 4-cylinder 1911
£25 Std. **Triumph**.. 1909
£18. Twin **Moto-Reve** (lady's) 1910
£38. 6 h.p. **Zenith** and Sidecar 1911
£26 Std. **Triumph** .. 1910
£22. Rex 1910
£22 F.E. **Singer** .. 1911
£26. 3½ h.p. **Bradbury** 1912
£23. T.T. Triumph 1911
£15. Standard **Triumph.**
£45. Zenith-Green.. 1913
£20. 3½ **Matchless** .. 1910
£18. 5 h.p. **V.S.**.... 1910
£26. Rex-J.A.P. .. 1912
£29. 3½ h.p. **Trump-Jap** 1912
£40. 6 h.p. **Zenith** .. 1911
£29. T.T. Corah .. 1912
£62. 8 h.p. **Zenith** and Millford coach-built Sidecar..... 1913
£50. 4h.p. **Singer,** new 1912
£27. 6 h.p. **Bat** .. 1910
£30. 3½ h.p. F.E. **Triumph** 1911
£28. Triumph 1911
£50. 7 h.p. **Indian** and Millford Sidecar 1912

Notice of Removal.

From 5, Heath St., Hampstead, N.W., to

378-384, EUSTON ROAD, N.W.

(TELEPHONE 4219 REGENT),

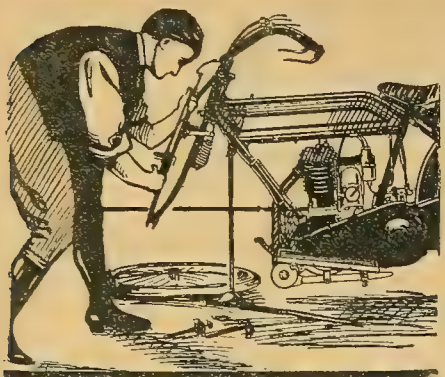
and

173, GT. PORTLAND ST., W.

(TELEPHONE 1970 REGENT),

where communications should now be addressed.

All letters relating to advertisements should quote the number at the end of each advertisement, and the date of the issue



Get the "DRUID" fitted to your mount NOW!

—it can easily, quickly, and economically be effected by any experienced Motor cycle Agent.

—The "DRUID" will enable you to ride in perfect comfort—at highest speeds—with less wear on your tyres—and in absolute safety.

—The "DRUID" *completely* eliminates vibration, bouncing and road shocks—ensures perfectly true steering—admits of no side-play whatever—and ensures luxurious riding, always.

—The "DRUID" is the *only* Spring Fork that alone makes possible these *ideal* riding conditions—hence its supremacy, and adoption on the leading machines of the day.

—If you would know more about the "DRUID" write for our "Booklet," which gives full particulars, TO-DAY.

A. DREW & Co., Leopold St., Birmingham.

COMFORT AWHEEL

Fitted on the WINNING machine in the 1913 JUNIOR T.T. RACE—and on the majority of WINNING machines in the A.C.U. 6 Days' Trials.

R.H.S.

MOTOR BICYCLES FOR SALE.

NEW Machines at second-hand prices.

THE Premier Motor Co., Ltd., are offering the following machines, only slightly shop-soiled, at great reductions; only a few left.

SCOTT, latest 1913 model, list price £68/5, for £58.

TRIUMPH, latest 1913, 3½h.p., 3-speed model; list price £59/15, for £52.

TRIUMPH, latest 1913, 3½h.p., T.T. roadster; list price £49/5, for £42.

M.V. Lightweight 2h.p., single-cyl.; list price £35, for £24.

REX-J.A.P., 1912, 8h.p., 2-speed, chain drive; list price £78/10, for £58.

ALL the above carry makers' full guarantee; catalogues free upon request.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

P.M.C., 1910, 3½h.p., 2-stroke, Bosch mag., B. and B., handle-bar controlled, perfect condition; £17.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

REX, 1911, 5h.p. twin, free engine, handle starting; £28.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

REX-J.A.P., 1912, 6h.p., 2-speed, handle starting; £45.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

REX De Luxe, 1912, 4h.p., 2 speeds, condition equal to new; £33.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

TRIUMPH, 1911, 3½h.p., free engine; £28. — The Premier Motor Co., Ltd., Aston Rd., Birmingham.

MATCHLESS, 8h.p., 2-speed, double belt drive, perfect condition, £45; or with new P.M.C. No. 20 sidecar, £55.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

F.N., 1910, 5h.p., 4-cyl., very good condition; £18.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0316

1912 Free Engine Triumph, with lamp, horn, special; £35.—Stamford Garage, Stamford. [X4658

HUMBER, late 1912, 3½h.p., 2-speed, new tyre and belt; £37.—Miles, 66, Milton St., Coventry. [X4280

CLEARANCE.—1912 Lightweight F.N., 2-speed gear, perfect; £23.—Stamford Garage, Stamford. [X4657

3½h.p. Rex, mag., B. and B., takes two; £8/10; sound.—Toms, Catherine St., Leicester. [X4872

1912 2½h.p. Calcott, guaranteed perfect, nearly equal to new; £19/10.—15, Hales St., Coventry. [X4832

3½h.p. Bradbury, 1909, Bosch Whittle, tyres good; bargain, £16.—Collett, outfitter, Daventry. [X4892

REX Machine, N.S.U. 4h.p. twin engine (2,000 miles), perfect; any trial; £20.—Hartopp, Burgess St., Wigston. [X4647

AUTO-WHEELS.—Immediate delivery of Wall Auto-Wheels from A. W. Wall, Ltd., Hay Mills, Birmingham. [0359

1911-13 T.T. Scale-Jap, good belt, tyres; £22.—Stevenson, Rempstone Hall, Loughborough, Leicestershire. [X4683

6h.p. 2-speed Rex and Sidecar, nearly new; £35; exchange Douglas, or good 3½h.p.—R. Bulford, Brinkley, Southwell. [X4867

3½h.p. Lincoln Elk, 1912, F.E., perfect condition, Cowey, accessories; £20, no offers.—143, Blundell Av., Grimsby. [X4899

CENTAUR, 3½h.p., powerful, first-class order, done 8,000 miles; owner bought car; genuine bargain, £30.—Forwell, Towcester. [X4732

1913 2¾h.p. Twin Forward, run 900 miles, guaranteed perfect condition; cost £41, accept £25.—Allott, 49, Gopsall St., Leicester [X4874

AUTO-WHEELING Revolutionises Cycling.—Opportunity of quick delivery of Auto-Wheels.—A. W. Wall, Ltd., Hay Mills, Birmingham. [0360

COLMORE.—Premier, 1912, 3-speed gear, 3½h.p. single, in almost new condition; £35.—Colmore Depot, 31, Colmore Row, Birmingham. [X4699

7h.p. Red Indian, 1913, 2-speed, condition exceptional, everything perfect, speedometer, numerous spares; any trial; £60.—59, High St., Daventry. [X4585

ZENITH, 3½h.p., Gradua gear, new August, 1913, guaranteed perfect, lamp, tools, horn, watch; £47, or offer.—60, Bridgford Rd., Nottingham. [X4795

TRIUMPH, 1912, F.E., excellent condition, Lucas lamp and horn, Kempshall tyres, 2¼ front, 2⅜ back; £35, lowest.—33, Gordon St., Coventry. [X4292

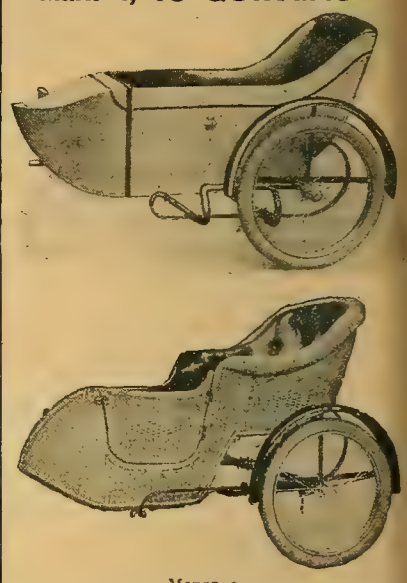
ENFIELD, late 1911, 2¾h.p., 2-speed, kick start, lamp, tools, faultless condition; £29; gent's cycle, 22in. frame, part exchange.—Bates, tailor, Gosford St., Coventry. [X4935

2¾h.p. Fafnir, new studded tyre on back, good front, and new belt, low built, perfect running order; first P.O.O. £5 has it.—Wallis, Homestead, Saffron Walden, Essex. [X4903

ALLDAYS, 3½h.p., 1912, free engine, 2-speed, just overhauled by makers, Cowey, Lucas lamp, generator; £28; seen by appointment.—Passmore, 39, Pargeter Rd., Bearwood. [X4829

2 of THE BEST

Mark 4, 10 GUINEAS.



MODEL 3.
Reed cane body with roll top, thickly upholstered and lined right down to the toe.
£8 10s. 0d.

All Carriage Paid, and complete with mat, stand, quick detachable joints, and Michelin Motor Cycle Tyres. Trade supplied.

The following are complete with **sidecars:—**

1911 **BRADBURY,** Bowden 2-speed	£35	0
1913 6 h.p. **REX** Sidette, done 300	£55	0
1912 3½ h.p. **BROWN,** Bowden Gear	£33	0
1912 6 h.p. **CLYNO** and Sidecar	£45	0
1912 6 h.p. **REX** and Sidette Sidecar	£45	0
7 h.p. **ROC,** 2 speeds, and Sidecar	£29	0
1911 4 h.p. 2-sp. **QUADRANT** and Sidecar	£33	0
1908 5 h.p. **REX** de Luxe and Sidecar	£28	0
1910 5 h.p. 2-speed **VINDEC** and Sidecar ..	£30	0
1911 5 h.p **REX** de Luxe and Sidecar	£38	0

All have variable gears.
We will sell any machine without sidecar.

THIS WEEK'S BARGAINS.

1913 6 h.p. **A.J.S.,** 3 speeds, new.....	69 guineas	
1913 3½ h.p. **P. & M.,** 2 speeds, new	£65	0
1913 2¾ **SUNBEAM,** 2 speeds, new	£63	0
1912 3½ h.p. **RUDGE MULTI,** good	£39	0
1912 6 h.p. **REX** de Luxe, 2 speeds, free engine	£37	0
1912 Cycle Car, 7-9 Blumfield engine, 2 speeds	£35	0
1912 3½ **ARIEL,** variable gear	£29	0
3½ h.p. **ENFIELD REX,** M.O.V.	£10	0
1912 6 h.p. **CLYNO,** 2 speeds, kick starter .	£42	0
1910 5-6 h.p. **VINDEC,** 2 speeds	£27	0
5-6 h.p. **REX** de Luxe, 2 speeds, etc.	£27	0
3½ h.p. 1907 **TRIUMPH,** magneto, spring fks.	£23	0
One Ditto, very good.....	£24	0
4 h.p. 1911 **QUADRANT,** Roc 2 speeds....	£30	0
3½ h.p. 1908 **REX** Tourist, 1909 engine	£19	0
5-6 h.p. **REX** de Luxe, 1908, 2-speed model	£25	0
5 h.p. Magneto **REX,** clutch model	£18	0

EASY PAYMENTS.

Any of the following can be had on Easy Terms. Let us know which you would like and we will quote.

3½ h.p. **N.S.U.** mag. **£15**	3½ **TRIUMPH,** mag. **£23**
3½ **ENFIELD REX £10**	3½ h.p. mag. **REX, £19**
5 h.p. mag. **REX, £19**	2 h.p. **MOTO-REVE £14**
3½ h.p. 1910 **REX £23**	1912 3½ n.p. **ARIEL £29**

MISCELLANEOUS BARGAINS.

Cycle Car 2-speed gear, chain drive	£2 0
Cycle Car, back axle with differential	£1 10
New Best and Lloyds drip feeds, complete	6/-
New twin Bosch Magnetos, D.A.V. models	£2 19 6
Ditto D.A.I.V. models	50/- each
New Bosch Magneto, suit single-cyl. engine	£3 0

Farrar's Motors Telephone 919.
Hopwood Lane, HALIFAX

£10-10-0

Ten guineas is all it costs to bring your mount up-to-date by the addition of the

1913½ ROC Reverzer SIDECAR PATTERN

Two-speed Gear.

(6 Days' World's Sidecar Record type)

The 1913½ big clutch type has been designed expressly for passenger work.

It solves all gear worries and guarantees you satisfaction.

The 1913 Roc gear was already recognised the last word in motor cycle gears for solo use.

The 1913½ big clutch type is just what thousands of "sidecarists" have awaited and expected.

The Roc gear was the first of all motor cycle gears—it is the first to-day. Nothing could be smoother, easier to operate, or be more reliable.

No better investment for the money is possible than in this 1913½ Roc dependable gear, fitted complete for ten guineas.

Write for particulars, stating make and h.p. of your machine.

No delay in delivery.

ROC GEAR Co.,

HAYMILLS, BIRMINGHAM.

London : Robertson's, 157, Gt. Portland St., W

MOTOR BICYCLES FOR SALE.

1912 6h.p. Brough, £35; 8h.p. Bat, 2-speed, Clyno sidecar, £45; 8h.p. Bat, Phelon and Moore 2-speed, cane sidecar, £52; 1910 3½h.p. twin Premier, £20.—Ling, Rempstone, Notts. [X4724

TRIUMPHS, latest 1913 3-speed, free engine, and T.T. roadster models in stock for immediate delivery; cash, exchanges, or easy payments. — Premier Motor Co., Ltd., Aston Rd., Birmingham. [0340

1913 2¼h.p. T.T. Premier, run 600 miles, £27/10. 1911 Indian, 7h.p., new 1913 clutch, new tyres, £38/10; 1911 Humber, 2-speed, in very good order, £22/10.—Jas. Plastow, Osborne St., Grimsby. [X4891

RUDGE, 1913, 3½h.p., engine untouched, original tyre unpunctured, absolutely perfect, accessories; £40 or near offer; owner going abroad for the winter. —Box L3,050, *The Motor Cycle* Offices, 20, Tudor St., E.C. [329.

2¾h.p. Werner, complete, guaranteed splendid condition, new piston, stand, carrier, very fast, £8/10; coachbuilt sidecar body, luxuriously upholstered, apron, side entrance, suit wicker chassis, £2/10; cane body, £1.—Oswell, 39, Church Gate, Leicester. [X4787

TRIUMPH, 3½h.p., 1912, free engine, N.S.U. 2-speed, Bowden magneto control, new non-skid back tyre, spare tubes and belt, speedometer, lamp, not done 1,400 miles, just overhauled; trial; £42, or near offer; owner going abroad.—H. Brooks, Whatton, Loughborough. [X4734

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

3h.p. Farnir, Sunspray, Hellesen, nice condition, runs well; £9.—Turner, Letheringsett, Holt. [X4279

SINGER 1911 Lightweight, splendid condition, B. and B.; £20.—79, Norwich Rd., Ipswich. [X4931

ZENITH-GRADUA, 1911, 3½h.p., new tyres, belt, etc., complete; £30.—Stroud, 18, Havelock Rd., Yarmouth. [X4782

TRIUMPH, 1912, free engine, complete speedometer, lamp, and horn; £42.—Robinson's, Green St., Cambridge. [3389

TRIUMPH, 1911, free engine, Kempshall tyres, lamp, and horn, 2 pairs bars; £30.—Robinson's, Green St., Cambridge. [3390

PREMIER, 1913, counter-shaft, 2-speed, Dunlops, not ridden 100 miles; £39.—Robinson's, Green St., Cambridge. [3392

REX, 3½h.p., mag., tyres, engine excellent, lamp and horn; £15.—Robinson's, Green St., Cambridge. [3393

DOUGLAS, 1913, Model O, 2-speed, footboards, not ridden 100 miles; £39.—Robinson's, Green St., Cambridge. [3394

PREMIER, 3½h.p., 1911 model, free engine, splendid condition; £27; with Montgomery sidecar; £32.—Lane, Halesworth. [3186

1912 and 13 Scotts, in almost new condition, cash offers or exchange; also several lightweights.—Young, Newmarket. [3251

2¾h.p. Enfield, 1912, done 800 miles, unscratched and untarnished, 2 speeds, free engine, accessories; £38, bargain.—Carpenter, Hickling, Norfolk. [3355

B.S.A., 1912, 2-speed, drip feed, 2½ tyres, nearly new Kempshall on back, well looked after, and in excellent condition, with accessories; £43.—Twelvetress, 97, Tenison Rd., Cambridge. [3415

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

5-6h.p. F.N., 4-cyl., 2 speeds, Rom tyre; £20.—Birke, Hempstead, Sketty Rd., Swansea. [2706

2½h.p. Motosacoche Lightweight, mag., splendid condition throughout, fast; £15/10.—Matthews, Bridge, Blaina. [X4587

ZENITH, 3½h.p., 1913, Lucas horn, spare tube, accessories; £43.—Knaston and Cox, Green St., Cambridge. [3244

ENFIELD Lightweight, £17; exchange Douglas, cash adjustment.—Wall, Franche Villa, Franche, Kidderminster. [3388

PREMIER 3½h.p. Twin Lightweight, scarcely used; must realise; best offer over £18.—Jeavons, draper, Lye, Stourbridge. [X4723

TRIUMPH, 1910, 2-speed, £30; 1911 clutch, £30; 1912, clutch, £40; Rudge, 1912, £32/10; or near offers; any trial by appointment.—Hitchings and Son, Evesham. [X4737

TRIUMPH, 3½h.p., Sturmey-Archer 3-speed and free engine, T.T. model, with semi T.T. bars, complete with lamp, horn, and full kit of tools, in excellent order; £45.—James Fryer, Ltd., Hereford. [X3197

PREMIER, 3½h.p., F.E., Armstrong 3-speed, new January, 1913, ridden about 2,500 miles, recently overhauled by makers, first-class condition, tools, horn, new spare belt, etc., also light coachbuilt sidecar (total weight 60 lbs.), by Steane, run about 300 miles only, with upholstered toolbox in seat, listed £11-11; lowest for combination £42.—Pearson, Thornhill, Stourbridge. [X4650

COLLIER'S

WESTGATE,

HALIFAX, England.

New Machines with Makers' Guarantee.

1913 W.C. **WILLIAMSON** and Sidecar ..	£98 10
1913 W.C. **WILLIAMSON**	£82 10
1913 4 h.p. **REX** de Luxe, chain drive ...	£61 5
1913 6 h.p. **REX** de Luxe, chain drive	£67 15
1913 6 h.p. **REX** Sidette, coach-built	£77 2
1912 6 h.p. Twin **REX**, 77½ × 95, reduced to	£39 10
1912 6 h.p. **REX** de Luxe, reduced to	£53 0

SECOND-HAND MACHINES.

HUMBER Lightweight, little used	£25 0
3½ h.p. **P. & M.**, 1911, grand condition ..	£38 10
1912 4 h.p. Tourist **REX**, little used	£31 10
1911 2¾ h.p 3-speed **NEW HUDSON** ..	£31 10
1912 2-speed Twin **CLYNO**	£42 10
REX, 1913, 6 h.p., 2-speed, done 200 miles	£43 10
REX, 5 h.p., 1909, 2-speed, de luxe	£26 10
ARIEL, 1912, 3½ h.p., 3-speed	£39 10
CLYNO, 1912, and special cane Sidecar ..	£49 10
SINGER, 1911, magneto, lightweight	£19 19
REX, 1913, 4 h.p., 2-speed, de luxe, chain drive, equal to new.....	£49 10
REX, 1911, 2-speed, twin de luxe	£36 10
MOTOSACOCHE, Lightweight	£15 10
1911 Twin **REX** Sidette, chain drive	£45 0
1912 Twin **REX** de Luxe, and new Sidecar	£45 0
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31 10
2¾ h.p. 3-speed **CENTAUR**, as new	£35 10
5½ h.p. Magneto Twin **REX**	£17 10
N.S.U., 1911, 3 h.p., 2-speed, as new	£29 10
N.S.U., 5½ h.p., twin	£24 10
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31 0
REX, 3½ h.p., spring forks	£12 10
F.N., Lightweight, battery ignition	£9 10
REX, 3½ h.p., magneto, 1910	£24 10
REX, 3½ h.p., magneto, 1909	£22 10
REX, 1912, 4 h.p., only used 100 miles ..	£31 10
REX, 1908, 2-speed, twin, and Sidecar ..	£19 10
3½ h.p. **ARIEL**, 1911, runs well	£25 0
3 h.p. **HUMBER**, chain drive	£8 10
3½ h.p. Light Low **REX**, specially good ..	£10 10
4½ h.p. Twin **MINERVA**	£15 10
MOTOSACOCHE, 1911, M.O.V.	£19 10
REX, 5½ h.p., twin, spring forks	£14 10
J.A.P., 6 h.p., M.O.V., free engine	£34 10
MOTO-REVE, twin, lightweight, runs well	£15 10
BRADBURY, 1912, 3-speed Sturmey	£42 10
REX, 3½ h.p., magneto, spring forks, 1908	£19 10
N.S.U., 3½ h.p., magneto	£17 10
5½ h.p. 2-speed Twin **REX**	£19 10
3½ h.p. 1912 3-speed **BRADBURY**	£45 10
5 h.p. Twin Magneto **PEUGEOT**	£17 10
5-6 h.p. Twin **J.A.P.**, magneto spring forks	£29 10
3½ h.p. Magneto **SIMMS**	£22 10
1911 2-speed Twin **REX** and Mills-Fulford coach-built Sidecar. Specially good ..	£42 10
3½ h.p. 2-speed **PEUGEOT**	£16 10
5 h.p. **V.S.**, torpedo tank	£17 10
6 h.p. **BAT-J.A.P.**, spring forks	£29 10
5 h.p. 2-speed **QUADRANT** Carette	£7 15
4-cylinder 2-seater **WOLSELEY** Car	£17 15
G.W.K. Cycle Car, latest-model	£150 0
PERRY 1913 Cycle Car	£136 10

SUNDRIES.

Armstrong 3-speed Gear and Free Engine, with belt rim and controls, brand new: Mark II., £5; Mark III., £5 12s. 6d.; Mark VI., Armstrong, with wheel	£7 12 6
New Avon (Druid) 26 × 2 Non-skid Covers	11 11
Myer's Motor Cycle Stand	3 3
New 26 × 2 and 26 × 2¼ Avon Tubes ..	5 9
New F.R.S. Standard 80oft. Lamp, with grid generator; usual price, 53/6; clearance price	35 0
6½ h.p. W.C. Engine	£4 10 0
3-speed Gear and Clutch for cycle car ..	£3 10 0
Cycle Car Radiator	£1 10 0
Cycle Car Chassis, with wheels and gear	£3 15 0
New Car Speedometer	£2 12 6
New Triumph Pattern Horns .... 3/- and	3 0
Wicker Sidecar, well upholstered	£3 3 0
Wicker Sidecar (NEW), with tyre	£4 7 6
New Wicker Upholstered Sidecar Body	16 6
New Cane Body	£1 7 6
Wicker Sidecar Body, good condition ..	10 0

SPECIAL QUOTATIONS TO THE TRADE

ROBERTSONS BARGAINS

SHOP-SOILED MOTOR CYCLES.

1913 **ALCYON**, 2½ h.p. £32
1913 **ALCYON**, 3½ h.p. £36
1913 **ZENITH-GREEN**, water-cooled £54
1913 **WILLIAMSON**, water-cooled £74

SHOP-SOILED SIDECARS.

MONTGOMERY No. 5, Edinburgh body £14 0
MONTGOMERY standard £6 15
MILLFORD spring wheel No. 4 chair £11 0
MILLFORD rigid No. 4 chair £9 0
MILLFORD rigid No. 14 chair £11 0
MILLFORD rigid No. 3 chair £10 10
BRAMBLE No. 6 ..... £10 15

SECOND-HAND MOTOR CYCLES.

1427. 1913 **RUDGE** Multi, 5 h.p., scarcely used £48
1435. 1913 **DOUGLAS** Model S, one week old £45
1446. 1913 **LEA FRANCIS-J.A.P.**, 3½ h.p., chain drive, F.R.S. lamp, generator, horn, tools, and spares £52
1457. Model **"A" HENDERSON**, 4-cyl. 7 h.p. F.E. £55
1458. 1913 **MATCHLESS**, 5 h.p., O.H.I.V., like new £50
1459. 1913 **A-C. SOCIABLE**, in beautiful order, side and tail lamps, large headlight, speedometer, watch, horn, tools, and spares £68
1327. 1912 **BRADBURY**, 3½ h.p. £35
1342. 1912 **ZENITH**, 6 h.p. £48
1283. 1912 **ZENITH**, 3½ h.p. £38
1285. 1912 **CLYNO**, 6 h.p., 2-speed £46
1338. 1912 **BRADBURY**, free engine £36
1362. 1912 **RUDGE**, free engine £35
1395. 1912 **J.A.P.-CHATER**, 6 h.p., free engine, and Sidecar with child's seat £42
1406. 1912 **A.J.S.**, 6 h.p., 2-speed, post horn, Jones' speedometer, mirror, watch, Miller lamp, P. and H. generator, etc £46
1412. 1912 **HOBART**, 2¼ h.p. £22
1426. 1912-13 **F.N.**, 4-cylinder, 2-speed £36
1428. 1912 **TRIUMPH**, free engine, Cowey, etc. £39
1430. 1912 **F.N.**, 4-cylinder, 2-speed, and cane Sidecar £42
1432. 1912 **NEW HUDSON**, 2¾ h.p., 3-speed £35
1433. 1912 **REGAL-PRECISION**, 4½ h.p., 2-speed, and Sidecar £34
1449. 1912 **TRIUMPH**, 3½ h.p. £34
1452. 1912 **ARIEL**, 3½ h.p., 3-speed £35
1455. 1912 (early) **CLYNO**, 6 h.p., 2-sp., kick starter £36
1456 1912 **ENFIELD**, 6 h.p., 2-speed, and Enfield cane sidecar £49
1332. 1911 **ZENITH**, 6 h.p. £42
1442. 1911 **TRIUMPH**, 3½ h.p. £28
1282. **BROUGH**, 5 h.p., twin cylinder £22

'PHONE: MAYFAIR 5767

157, GREAT PORTLAND STREET, W

MOTOR BICYCLES FOR SALE.

4-CYL. 4½h.p. F.N., drop frame, cylinders, pistons, valves, connecting rods, magneto, and transmission all new, tubular carrier, and kick-up stand, plating and enamelling good; £17/10.—Conductor, Theatre Royal, Pontypool, Mon. [3190

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

SCOTT, latest 1913 model, brand new; £58, great bargain.—Ginger, Motors, Banbury. [X1881

2½h.p. Werner, mag., 1913 Senspray, good condition; £10.—62, Bicester Rd., Aylesbury, Bucks. [X4740

OFFERS wanted for 2¼h.p. twin Moto-Reve, in good condition.—Rowland and Sons, Salisbury. [X4915

JAMES, latest 1913, 3-speed, chain drive, Canoelet sidecar, unscratched.—Hucclecote Lodge, Gloucester. [X4840

BAT, 3½h.p., 2-speed, and sidecar, sound, reliable, efficient; £20.—Fears, Optician, Kingswood, Bristol. [X4783

LAYTONS.—Douglas, 1913, model O, shop-soiled only; £42, catalogue price £48.—Laytons, Bicester. [X4812

1910 Enfield Twin (lightweight), splendid running order, reliable; £15, bargain.—6, Manor Rd., Oxford. [3311

1913 Rudge Multi, 3½h.p., shop-soiled only; to clear at £52.—R. A. Stone and Co., motor cycle agents, High Wycombe. [3187

4h.p. Bat, spring frame, new belt, perfect, £9/10; sidecar, 25/-.—Alexander and Co., Electricians, Fishponds, Bristols. [X4785

LAYTONS.—Douglas, 1913, model N, single speed, used 500 miles only; cost £44, price £35.—Laytons, Bicester, Oxon. [X4813

LAYTONS.—Triumph, 1913, 3-speed model, shop-soiled only; £51, catalogue price £59/15.—Laytons, Bicester, Oxon. [X4814

LAYTONS.—Triumph, 1912, clutch model, good order throughout, lamp horn, speedometer; £34.—Laytons, Bicester, Oxon. [X4820

3½h.p. Triumph, 1913, 3-speed. July model, perfect, run 1,000 miles; price £44.—Whitehouse, 45 Grosvenor Rd., Aldershot. [3332

BRADBURY, 1912, 2-speed, lamp, horn, mirror, and spares, hardly soiled, privately owned; £42.—Adkins, High St., Aylesbury. [X4580

HARTWELL'S Garage, Chipping Norton.—Triumph and Douglas agents; also agents for Swift cycle car for Banbury, Burford, and Chipping Norton.

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LEVIS, 2-stroke, ridden 60 miles, with horn, beautiful machine, only wants seeing; £29 to clear. [1786

F.N. Lightweight, 1910, 2-speed, shaft drive, replated and enamelled, fitted with 1913 improvements, had very little use, and is a bargain; £19.—Also

1907 Triumph, as above; £18 or exchange with cash for combination.—15, Church St., Wolverton. [X4797

TRIUMPH, 1911, clutch, first-class condition, little used, Lucas lamp set, all spares, belt, tube, etc.; £34.—Barrett, fruiterers, High St., Cheltenham. [X4864

DOUGLAS, 1913, model O, last Easter, lamp, horn, speedometer, back-rest, done 1,300 miles, Max rear tyre uncut; £38/10.—Boevey, Fort Albert, Alderney. [3219

1912 Clutch Model Triumph, in good running order, brand new, belt and back tyre (Clincher); £33.—Box No. 4,368, *The Motor Cycle* Offices, Coventry. [X4688

LAYTONS.—Zenith, 3½h.p., 1913, first-class order throughout, complete with nearly new sidecar, lamp, horn, etc.; £48, without sidecar £43.—Laytons, Bicester, Oxon. [X4815

LAYTONS.—Douglas, 1911, 2-speed, free engine model, engine just overhauled, whole machine in good order, lamp, horn, etc.; £26/10.—Laytons, Bicester, Oxon. [X4816

TRIUMPH, 1908, speedometer, lamp, horn, tools, new cylinder, piston, and carburetter, 1912, excellent running order; £22/10, or offer.—Halsted, Tournay Barracks, Aldershot. [X4685

LAYTONS.—Ariel, 1913, 3½h.p., 3-speed, kick starter, decompressor, 2½in. tyre, complete with sidecar, first-class order guaranteed; cost £67, offered at £45.—Laytons, Bicester, Oxon. [X4819

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

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NOVEMBER 6TH, 1913.

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Is the Supremacy of the 500 c.c. Engine Waning?

FOR the last few years no type of motor cycle engine has held such undisturbed sway among the mass of riders as the 500 c.c. single-cylinder. The sales of such a type of machine have probably been enormously in excess of all other types combined, and, despite the great improvements in twin-cylinder engines and the considerable popularity which such engines have lately enjoyed, there is really no serious diminution in the number of single-cylinder engines of 3½ h.p. met with on the roads. Even the tremendous and still growing popularity of the luxurious type sidecar has not shaken its position up to the present, and the successful application of the three-speed hub to motor cycles has probably vastly assisted it to retain its hold on the market, as it has been the means, at a comparatively slight extra cost, of enabling thousands of riders to fit passenger carrying attachments to motor cycles when otherwise they would have been almost forced to purchase a more powerful engine. There appear to be few limitations to the abilities of an efficient 3½ h.p. motor to haul a light sidecar and passenger, for the really remarkable displays put up by some of the best known long distance trials riders with such a type of machine show what can be done with careful handling, and even with ordinary intelligent driving a 3½ h.p. three-speed outfit can do yeoman service on average roads.

Why, then, readers may ask, should any interference with the design of this type of machine be meditated? As a matter of fact, excellent as are the results obtained, there are conditions such as heavy roads, head winds, or hilly country, that throw a great strain on so comparatively low-powered an outfit. And, further, an engine working at its limit for long periods is apt to fall off quickly in efficiency. Now, the difficulty manufacturers have to face is that it is desirable for them to market a machine that is a happy compromise between a sidecar and a solo mount, and 500 cubic centimetres capacity can be looked upon as thoroughly satisfactory for solo riding and, under fair conditions, for sidecar work; but what is wanted is something even more desirable—a machine that should be thoroughly satisfactory for both kinds of service without heed to weather or road conditions. Designers, therefore, have aimed at producing engines which, while not unwieldy or unduly heavy for solo work, are capable when required of hauling the extra load of a sidecar and passenger without the necessity for specially delicate handling, and to do this a good deal of quiet experiment has been going on by a number of manufacturers with single-cylinder engines exceeding 500 c.c., and we may look next year for a considerable number of such power plants in makers' lists.

The Desirability of a 600 c.c. Class.

THE interesting point now arises as to whether the 550 or 600 c.c. engine will eventually displace the present popular 500 c.c. motor, and if it does or even gains the preponderance in numbers on the road, what is going to become of the 500 c.c. class as regards competitions? The Tourist Trophy Races, A.C.U. trials, hill-climbs, and Brooklands all have established classes for engines of this size, and it may be an interesting problem for the authorities of the sport to decide in the near future as to whether a change may not soon have to be made in competition ratings. Already it is known that three or four firms will not standardise a 500 c.c. model next year, but instead offer a single of slightly greater capacity.

Special models would, therefore, have to be built for competition work, unless some change in the regulations for important competitions be made. From all we hear and know of the trend of single-cylinder design for the future, we believe that it will be imperative for the A.C.U. to institute an official 600 c.c. class in the more important competitions at an early date, and, on the whole, we should welcome such a change because we think that it is good for the industry and for the riding public that manufacturers should not get into grooves. The 500 c.c. engine has had a magnificent innings, and we do not suppose for one instant that its sphere of usefulness is over, but we do think that there is likely to be an enormous demand in the near future for engines up to 600 c.c., brought about chiefly by the wonderful increase in popularity of the sidecar, and we should like to see encouragement given to such a type of engine.

We have not dwelt upon the possibility of the twin-cylinder of 500 to 600 c.c. We are fully aware, however, that such engines are being rapidly improved, and may possibly in time even seriously threaten to capture the market, but we do not believe that the simple and highly efficient single-cylinder engine is finished with for a considerable time to come, and we are sure it will appeal to the vast majority of riders entirely on account of these two particular virtues.

The Depreciation of Cycle Cars.

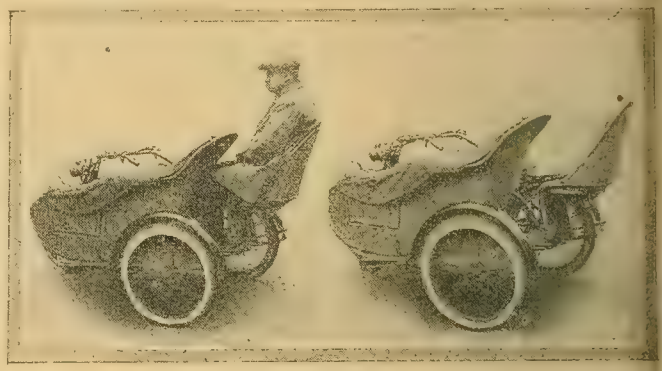
Lay journals may be pardoned for publishing statements to the effect that early model cycle cars can be run for a total outlay of three halfpence a mile, but any technical journal lending its authority to such gross under-estimates deserves no mercy. A study of the prices of second-hand motor vehicles shows that depreciation alone may form an item exceeding 1½d. a mile. For instance, £25 is a comparatively small amount to drop on the sale of the less successful types of 1913 cycle car, and it works out at 2d. a mile on a mileage of 3,000, or of 1d. a mile on a mileage of 6,000. When petrol, oil, tyres, taxes, garage, and licences are included, it is plain that the running expenses are considerably higher than some over-sanguine enthusiasts estimated twelve months ago.

Why Sell?

Owners of 1913 cycle cars who are thinking of selling should consider very carefully whether it may not be better worth their while to keep the vehicle and run it to destruction. Of course, if it be a "dud," the owner will probably decide to cut his loss and realise the best figure obtainable without delay. But if the machine has given good and faithful service, the owner should realise that his impending loss is very largely a matter of fashion. It is said that over 150 different makes of cycle cars were constructed during 1912-1913, and of these scarcely more than a dozen can survive in their original form. This wholesale changing of designs, patterns, and specifications puts last winter's cycle cars hopelessly out of fashion—they are *démodé*, so to speak, with a few regal exceptions, for just as diamonds are always in fashion, so a few makes of cycle cars I could name will undergo precious little change for next season. Consequently, Tom, Dick, and Harry will jump to the conclusion that nearly all the 1912-1913 cycle cars are worth but £70 or so apiece—just as their wives would refuse to pay a good price for one of last spring's hats. But many owners have 1912-1913 cycle cars in their stables which are as good as ever they were from a running point of view. I admit that these machines may be almost unsaleable by the end of next year; but if there is still three or four years' good running in them, they may be worth keeping. And here I have a special word of advice to offer. I have known many owners have great difficulty in selling motor cars, motor bicycles, and cycle cars even at a ridiculous price. But I never knew a motorist who kept his machine smart, clean, and in good tune ever have to go begging for a buyer. Only the other day I heard how one of the less meritorious cycle cars built last autumn realised £85 after it had done 15,000 miles in the hands of its first owner. He tuned it up, he kept it clean, everybody saw it daily doing hard work and doing it well; and when its owner's random fancy turned to something new, there were plenty of eager applicants ready to offer it a kind home at a decent price. *Verb. sap.*

A Sidecar Dickey.

I illustrate herewith a novel method of accommodating an extra passenger on a sidecar outfit produced by J. L. Butler, of 261, Kirkstall Road, Leeds. I cannot say I am particularly smitten with it personally, for I do not believe in overloading a machine, nor does its distribution of the weight appeal to me as ideal, but then I detest the popular pillion riding (by the way, I saw another couple come a fearful purler last week!), so I can quite believe that this sidecar dickey may become immensely popular.



A sidecar dickey made by J. L. Butler, of Leeds.

The Nailsworth Ladder.

I recently spent an instructive afternoon on the ill-famed Nailsworth ladder, which is alleged to possess much gradient worse than 1 in 3, and the sidecarist who endeavoured to ascend it with a three-speeded 6 h.p. sidecar outfit, geared 13½ to 1 on bottom, departed a sadder and a wiser man; indeed, he was the wee'est shade fortunate to depart at all in one piece, for the machine certainly got away with him when he was descending after conking out on the topmost bad knuckle, and only the easier stretch lower down enabled his cool head to make the brakes and compression on bottom gear once more operative. The afternoon provided an interesting commentary on the A.C.U.'s desire to see sidecars climb freak hills with the passenger "seated in a normal position," for his repeated failures were solely ascribable to lack of adhesion on the part of the driving tyre. The surface of the ladder is not loose; it varies from a kind

Occasional Comments.—

of hard, impromptu macadam to naked reefs of knobbly rock. He was using a non skid Kempshall—to my mind quite one of the most adhesive tyres on the market; but when this tyre hit one of the reefs, it spun round ineffectually and the engine raced furiously; if the impetus jumped the tyre over the reef—sometimes it did, sometimes it didn't—the effect was similar to letting in the clutch with a bang, and the engine didn't like it a little bit, and either conked out incontinently, or slowed its "revs." down to such a point that failure on the next knuckle was assured. Success or failure was thus purely a matter of tyre adhesion. I am of opinion that the machine would have gone up well with a passenger on the carrier; but the frightful rocking of the outfit and the absence of any cushion deterred the hardiest spectator from offering to lend his weight.

Another Problem.

The driver of this Nailsworth sidecar outfit propounded another problem of diagnosis, which up-to-date has completely stumped the clever owner, and several quasi experts. If he is rounding a corner on middle gear, well throttled down, and opens his throttle to tackle a succeeding gradient, the engine stops as if it had been shot. If he changes down on to bottom gear or up on to top gear, the engine leaps into full song again immediately. None of the control gear can possibly create a short circuit under these conditions, and though he cannot trace or remedy the trouble, he is convinced that the cause is connected with the carburetter. The engine will "rev" on middle gear on the straight flat quite as obediently as upon top or bottom. Will some expert oblige us with a solution?

Chronic Conkitis.

Many letters which I receive are difficult to answer, but few more so than one from a reader who owns a machine of comparatively unknown make. It behaves tolerably well in respect of power and reliability, but its paces are disfigured by an inveterate habit of knocking, which is shared by all the other engines of the same make within his acquaintance. It knocks whenever it is asked to pick up after a slow, and the conking is especially pronounced on hills. He asks how to cure this unpleasant feature, and how to render his engine the equal of other 500 c.c. engines of greater renown and ability. As it happens, I have never sampled an engine by this particular maker, who turns out so few that I had almost forgotten such an engine existed, and his own suggestion is that a different valve timing might improve matters. One would be more inclined to suppose that he has had the misfortune to purchase an engine well below the average in efficiency, and that no alternative valve timing will improve matters. In any case, the expense of experimenting with a speculative series of specially made cams and pinions is too great to be justifiable.

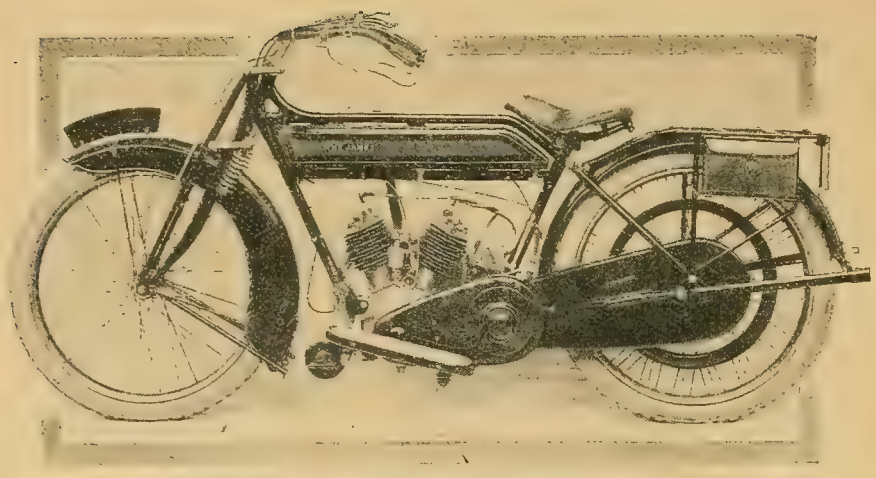
Reducing Transmission Friction.

If, as alleged, all the engines of this make knock under no very extraordinary inducements, one of two things is certain; either the engine cannot develop sufficient power to propel a sidecar smoothly, or else its compression is too high. It is a cheap and easy matter for an amateur mechanic to lower the compression ratio; he should experiment with washers of different thicknesses between the cylinder and crank case, lengthening the valve tappets to suit, either by home-made tin caps, or by the Service adjusters. This is the most promising region for experiment. In addition, it would be well to make sure that there is no undue friction in the gear box and back wheel bearings, that the engine's moving parts are all nicely free, that the silencer is clean, that the ignition is not timed over fast, and that there are no air leaks between the carburetter and the inlet valve. It is further possible that the engine is over-geared; many 500 c.c. engines will never take a sidecar at all nicely on a higher gear than 5 or even 5½ to 1.

Finally, it is conceivable that the carburetter fails to supply a sufficient volume of adequately rich mixture at low speeds. In this case he should slip a lining tube in the funnel or choke round the jet; if this reduces the knock, it should be worth while trying a two-jet carburetter or a by-pass attachment. An engine that accelerates badly cannot suck enough gas from a simple carburetter at low speeds to enable it to get away; and such engines are improved by an auxiliary jet set within a choke tube of very narrow bore.

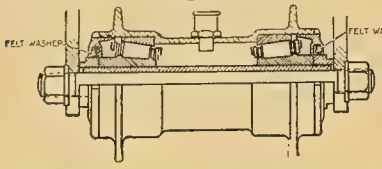
Group of Members of the Wrexham and District M.C. taken outside the Royal Hotel, Llangollen, where the president of the club, Mr. Noel Soames, entertained the members to luncheon on the occasion of this club's first run.

The 1914 James Models.



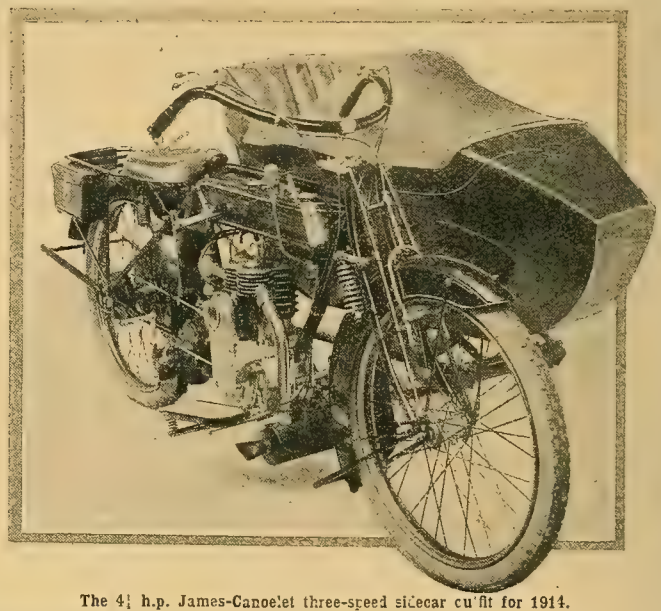
1914 model 3½ h.p. twin-cylinder three-speed chain-driven James.

FOR some time past the James Co. have been experimenting with a 3½ h.p. twin-cylinder model which has from time to time appeared in open competition. The fruits of these experiments are now ready for the market in the form of a very attractive machine, fitted with a three-speed bottom bracket gear and enclosed chain drive throughout.



Part section of the James front wheel hub, showing the Timken roller bearings which have been adopted to take side strain caused by the sidecar.

The engine is a 50° twin, having a bore of 64 mm. and a stroke of 77 mm. (496 c.c.), the cylinders being interchangeable and the radiating fins being staggered on the well-known James lines. Great care has been exercised in the design of the valve ports, and they are so arranged that air circulates freely round them. As regards the internal arrangements of the engine there are no great deviations from standard practice, but the steel flywheels are a fine piece of work. The magneto is chain driven, and lies high up behind the engine, where it is well out of the way of mud and wet.

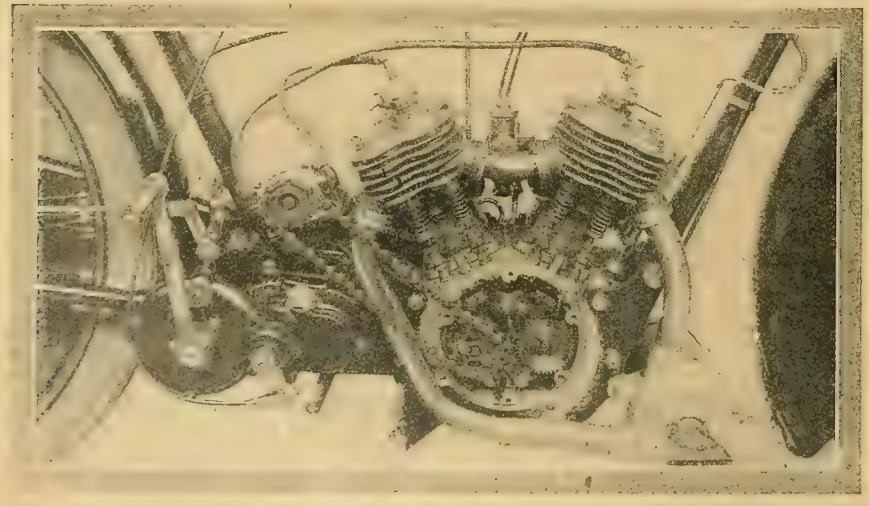


The 4½ h.p. James-Canoelet three-speed sidecar outfit for 1914.

Details of the Transmission.

The three-speed gear is a redesign of the usual James box, but although the wearing surfaces remain the same the actual gear box has been considerably reduced in size, and the standard ratios will be 4½ to 1, 7 to 1, and 11 to 1. An excellent feature is the enclosed kick starter. Both front and rear driving chains are carefully enclosed in stamped steel cases, which are split vertically and give easy access to the chains for adjustment or lubrication. To ease the shock of the drive a very neat spring cushion is enclosed in the rear sprocket and consists of a series of compression and recoil springs interposed between the driving member and the hub. A multi-plate clutch is fitted on the main gearshaft and is controlled from the handle-bar, though pedal control can be arranged if desired. The control of the gears is by a long flat striking lever working in a quadrant on the tank.

A strong frame supports the engine and carries a full complement of fittings, including sprung footboards and two stands. The toolkit is well stocked and the finish is excellent.



Timing gear cover of the 3½ h.p. James removed to show method of adjusting the magneto timing. Observe also neat fixing of gear box and kick-starter.

The Big Single Cylinder.

The big single-cylindered sidecar model has undergone no very great changes, though the engine has been increased in size to 86 × 103 mm. bore and stroke, giving a capacity of 599 c.c., and the air passages round the valve ports have been improved. A new piston is now used, having one ring at the top and one at the bottom end.

Hyatt roller bearings are now fitted to the front hubs to assist in taking the thrust on the front wheel when a sidecar is in use. This is a refinement which is well worthy of notice.

This single-cylinder is primarily a sidecar machine. While it is impossible to obtain such sweetness or refinement of running with this type of motor as with a twin of even larger capacity, it has the merits of simplicity, reliability, and great efficiency, qualities which will always weigh with a large number of buyers.

Strenuous Trial at the Cape Peninsula.

AT the break of dawn on Wiener's Day (October 6th, a local holiday), twenty-five motor cyclists assembled outside the City Hall, Cape Town, to compete in the 200 miles reliability trial for the Barling Cup, open to members of the Cape Peninsula M.C.C. A South African winter is notorious for heavy rains with flooded rivers and soaked roads, and under such conditions, for it had been raining for days, the men set off at intervals. The time allowances and distances between controls were :

	Miles.	Solo machines of 350 c.c. and under, Sid.-car machines of 500 c.c. and under.	Other solo and sidecar mach'nes
Cape Town to Wellington	45	140m.	130m.
Wellington to Worcester	36	160m.	140m.
Worcester to Villiersdorp	29	110m.	90m.
Villiersdorp to Sir Lowry Pass	50	210m.	180m.
Sir Lowry Pass to Cape Town	40	130m.	120m.

G. H. Jones (2½ F.N.) was the first to leave Cape Town, at 5.47 a.m., followed a few minutes later by F. J. Smuts on a 3½ P. and M., the last man leaving town being C. H. de Krielen, at 7.2 a.m., whose 7 Emblem, however, was the first to fall out through side-slipping on the treacherous surface of the muddy Paarl Road, thus causing his retirement.

After signing in at Wellington, the riders had to climb Bains Kloof, the first steep hill on the journey.

F. Barling (the donor of the cup) had to stop his 6 Enfield and sidecar; so also had V. Cardinal, who, riding the same make, came to a standstill near the top, forcing G. H. Jones, who was close behind him, to charge the bank and turn a complete somersault, dislocating the carburetter controls.

A USEFUL PASSENGER.
A competitor's sidecar being towed across one of the many streams.

Something like a Water Splash.

Coasting down from the top competitors were faced with the Breede River, which was flowing with considerable force across the main road.

F. J. Smuts was the first man to arrive at the river's side, and unhesitatingly plunged into the roaring torrent, only the handle-bars of the machine projecting above the surface. He had very hard work to push the machine through, and magneto troubles naturally were legion. W. Herbert (6 Clyno sc.), after successfully having pushed through the current, worked with his passenger for fifteen minutes to get rid of the water which found its way into the carburetter, magneto, and cylinder. While righting matters they saw O. J. Prillevitz (6 Enfield sc.) descending and forthwith crossing the river. As the current pressed the outfit dangerously towards the big boulders they shouted to him to turn the wheel and head the current; he did so in the nick of time. His was a remarkable performance, as he got his machine to fire within half a minute, and consequently was the first man to enter the Worcester control.

At another splash an enterprising farmer offered to carry across on his waggon mounts and riders for a consideration of five shillings a time. Some of the coachbuilt sidecars acted as boats and floated, but many were upset.

On to Worcester, where a big crowd had gathered to see the "two hundred milers" pass through, and here an exciting incident befell Thornton, whose sidecar connections came adrift while going all out, the outfit capsizing and the occupants being thrown in the mud, resulting in black faces, but luckily no injury.

A Novel Exhaust Pipe.

Three drifts had to be crossed before reaching the Upington Bridge over the River Zonder End on the commencement of the home journey, and R. C. Woodville's four-cylinder F.N. fired immediately on reaching the other side, while Garlick's Enfield fired all the time during the wheeling through process, the exhaust being conducted through a 3ft. tube to above the saddle.

Then came a still more difficult task—coasting down from a tremendous height over a rough surface, with many crossgulleys and numerous bends, towards "Boontjes kraal," a distance of about ten miles, where the main road from Caledon to Cape Town is joined.

The End of the Struggle.

After stopping at Hounhoek for the purpose of signing their names, the men, who, by the way, were far apart, steered their mounts over Sir Lowry Pass, through the control at the village, and *via* Somerset Strand, towards Cape Town.

A large crowd welcomed O. J. Prillevitz, who looked the fittest of all, at the City Hall, followed by F. Barling, with W. Herbert the next arrival.

One by one the competitors arrived, and it speaks volumes for the stamina of the riders and the reliability of the modern motor cycle that of the twenty-five entrants who started seventeen completed the course. Of these eight managed to come in before night fell, the last man signing in at 11.10 p.m.

The results are as follow :

1. O. J. Prillevitz (6 h.p. Enfield sc.)
2. W. Herbert (5-6 h.p. Clyno sc.)
3. W. H. Eastoe (7 h.p. Indian sc.)
4. F. Barling (6 h.p. Enfield sc.)
5. E. W. Watts (6 h.p. Enfield sc.)
6. G. H. Lunt (2¾ h.p. Douglas).
7. D. Garlick (6 h.p. Enfield sc.)
8. F. J. Smuts (3½ h.p. P. and M.)
9. R. C. Woodville (5-6 h.p. F.N.)

ARNOLD KEYZER

THE MOTOR CYCLE SHOW NUMBERS.

OLYMPIA, 1913.
THREE SPECIAL ISSUES
will be published as follows :
NOVEMBER 13th—
Passenger Machines of all Types
NOVEMBER 20th—
Buyers' Guide of 1914 Models.
NOVEMBER 27th—
Complete Show Report.

QUESTIONS & REPLIES

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Storing a Motor Cycle.

Now that the winter months are fast approaching, I am anxious to store my machine for the winter. Will you please tell me the best way?—F.B.

The best plan is to jack up both wheels so that the tyres are not on the ground, store the machine in a dark but dry place, and smear all bright parts with vaseline.

Swaffham to Birmingham.

Please let me know the shortest route from Swaffham (Norfolk) to Birmingham.—C.P.

Your best route would be as follows: Swaffham, Downham Market, Wisbech, Peterborough, Oundle, Market Harborough, Lutterworth, Coventry, Meriden, and Birmingham. The distance is approximately 128 miles.

Difficulty with Piston Rings.

I have a 1911 single-cylinder machine, and in January last when I was overhauling the machine, I was recommended by an engineer friend to fit wider rings to my piston. The grooves were widened on the lathe, and new rings fitted. Since then I have had five broken rings, on one occasion both rings snapping, and I am at present waiting for some new ones, as the trouble has occurred again. On every occasion except the last (when I had to leave the machine at a garage), I have fitted the new rings myself, and was very careful to see that they were not too tight. The engine is always well oiled. I should be much obliged if you would suggest a possible cause and remedy for this trouble, of which I am becoming rather tired.—L.H.

It is very difficult to give you an answer as to the cause of your piston ring trouble. The mere fact of having widened them should not necessarily make them liable to break, and we are rather inclined to think that the fit of these rings cannot be as good as you think, and should advise you to seek the advice of a competent engineer on the matter, as we gather from your remarks that you are not yourself an engineer. The rings, of course, should be an easy fit in their slots. Are you quite sure that you have not got carbon deposit in the slots behind the rings, as if there is much of this it is quite likely to force out the rings and lead to breakage? We advise you to look carefully to this point. If you are satisfied the rings fit properly and carbon is not present, and the trouble still continues, the only course is to fit a new piston. We do not think you were well advised to alter the original rings, as it is reasonable to presume the makers know what sizes are required.

The Question of Desaxe Cylinders.

(1.) Can you please let me know what the bore and stroke should be for a side by side twin engine of approximately 4½ h.p.? (2.) What would be the approximate compression space above the top of the stroke? (3.) Is there any advantage in having the cylinders *désaxé*? If so, how much would be correct to give the best results from the vertical centre line? (4.) Would not compression be retained longer, and more even wear of cylinder walls be obtained, if one ring top and bottom were fitted instead of the usual method of all at the top?—C.A.H. (Baluchistan).

With regard to your first question, a 4½ h.p. twin-cylinder engine would be approximately 650 c.c. capacity, and this, of course, could be made up by various sizes of bore and stroke, but taking 70 as a bore, you could get a combination of 70 × 78 up to about 7[illegible] × 75 to give you this power, though, as a matter of fact, the power of such an engine would be in all probability more than 4½. (2.) The compression space is roughly a quarter of the cubical contents, but this varies with the compression employed. (3.) The question of setting a cylinder *désaxé* is that the thrust of the piston on the walls is said by some designers to be slightly less than with the cylinder in a vertical centre line. The advantages or disadvantages, however, are more or less problematical, and we do not think there is very much in it either way. It is also claimed by some engineers that the thrust at the top of the piston when the explosion occurs takes place over a greater portion of the serviceable period of the stroke, on the same principle that if you mount a bicycle by the pedal you start with the pedal over dead centre. (4.) The number of the piston rings and the position in which they are placed depend on the design of the piston itself. Probably the best practice is three rings at the top.

A HEAVY LOAD FOR A SIDECAR.

Great amazement was created in the streets of Milan the other day by the sight of an 8 h.p. Chater-Lea motor cycle, with sidecar attached, towing a removal van, which, incidentally, was full of furniture. We are told that the motor cycle towed the van a distance of over seven miles as shown, and that the crowds who saw this strange sight could not have paid more attention if their king had been passing through the streets.

High Wycomte to Lincoln.

Kindly give me a route from High Wycombe to Lincoln, with distances.—E.T.L.

Your best route would be as follows: High Wycombe, Amersham, Chesham, Tring, Dunstable, Ampthill, Bedford, Eaton Socon, Buckden, Stilton, Peterborough, Market Deeping, Boarn, Falkingham, Sleaford, to Lincoln. Be careful of police traps in all the Huntingdonshire villages. Distance approximately 134 miles.

A Question of Balance and Cams.

I should be much obliged if you would inform me: (1.) If, when testing the balance of a single-cylinder motor, it is necessary to hang a weight equal to the whole of the reciprocating masses on the flywheel or only a weight equal to the half of them? I quite understand the means of doing it, but do not know which is the proper weight. (2.) Do you think it would improve a new motor cycle that seems to knock very easily on hills, and which has at present a very slow cam action to the valves, so to alter them that they opened quicker and consequently had a longer time wide open?—A.R.

In answer to the first question in your letter, it is necessary to hang a weight equal to half the whole of the reciprocating masses in order to test for balance. With regard to your second question, it is quite impossible to answer this without inspection of the machine. You do not even say what make of machine it is, but if of a standard make, in all probability the makers have settled the valve and cam action to their satisfaction, and it is highly probable that the best results have been arrived at, and without further particulars we should certainly hesitate to advise you to make any alterations but to look to other causes, verify the timing of the ignition, and set the spark to occur as the piston reaches the top of the stroke. Also see that your carburetter jet is quite free.

Questions from the East.

I shall be greatly obliged if you could tell me how to set my 1913 three-speed Rover motor cycle to racing pitch? Also, whether you advise one of the variable carburetters that are on the market, and what make will be most suitable? At present I have a B. and B. 1912 pattern. Shall I have to raise the compression ratio (at the time of tuning), and how much is necessary? Why I ask these questions is because I was in possession of a 1912 Rover single-speed which used to travel at 45 m.p.h. on the road, so I naturally would like this three-speed one to travel equally as fast, if not faster.—G.M. (Bombay).

In answer to your queries *re* tuning up your Rover you must not expect to get greater speed because you have got a change-speed gear fitted. As a matter of fact you are not likely to get such high speeds as regards maximum, but you will be able to keep up a much higher average than with a single gear. Tuning a machine up for a race does not mean structural alterations: it simply means seeing that every part is adjusted to the best possible position and in perfect working order. The carburetter you have fitted to your machine will give quite as good results as any other on the market, if it is properly tuned up. These are general rules: The compression must be perfect, valve springs of good strength, jet of larger size with air openings increased to suit, and an earlier magneto timing.

EXPERIENCE WANTED

"H.R." (Exeter).—Four-cylinder F.N. Reliability and economy.

"W.M." (Portsmouth).—Reliability of Paragon, or any other folding or collapsible sidecar.

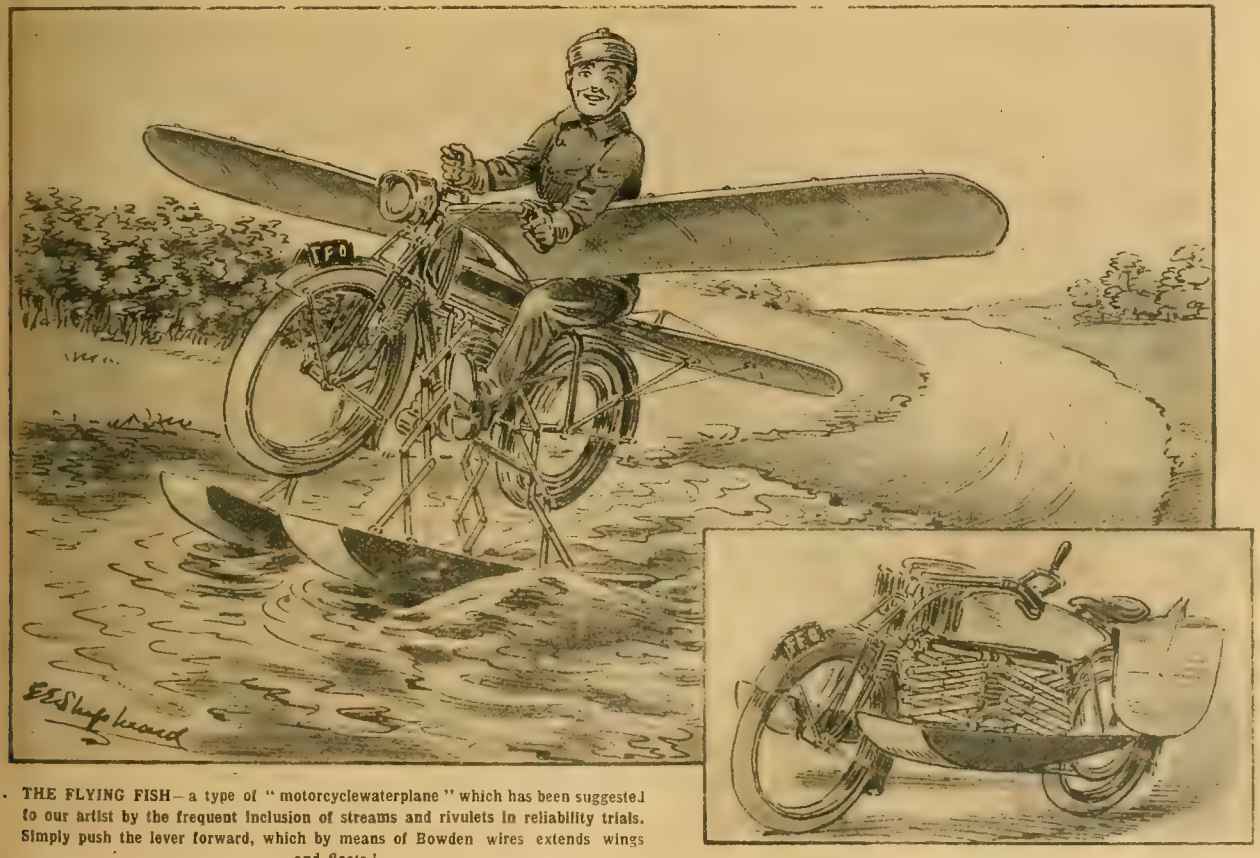
"R.A.D.H." (Stourbridge).—3 h.p. Enfield. Ease of starting, controllability, and efficiency of forced lubrication.

"A.C.H." (Burnham).—Benzole with 1912 2¾ h.p. Douglas, standard carburetter. Size of jet, and whether any alterations necessary to carburetter.

"W.M.J." (Coatbridge).—3¼ h.p. twin Lea-Francis, solo and with sidecar. Consumption, reliability, durability, and hill-climbing. Also dynamo lighting set.

"F.C.M." (Edinburgh).—Morgan Runabout. Wear, reliability, hill-climbing, consumption, maximum speed, ease of cornering. General comparison with sidecar.

"C.J.H." (London).—8 h.p. Williamson, air and water cooled, solo and sidecar, lubrication, cooling of rear cylinder, flexibility and durability. Also durability of Lomax bands.

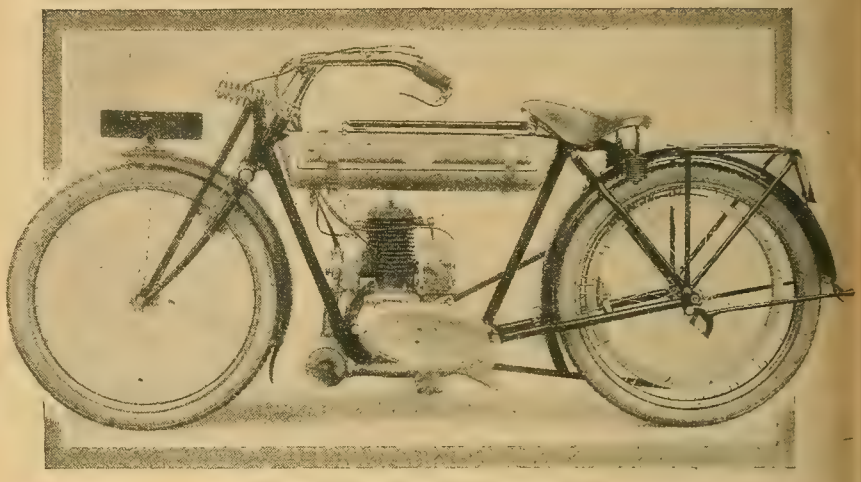


THE FLYING FISH—a type of "motorcyclewaterplane" which has been suggested to our artist by the frequent inclusion of streams and rivulets in reliability trials. Simply push the lever forward, which by means of Bowden wires extends wings and floats!

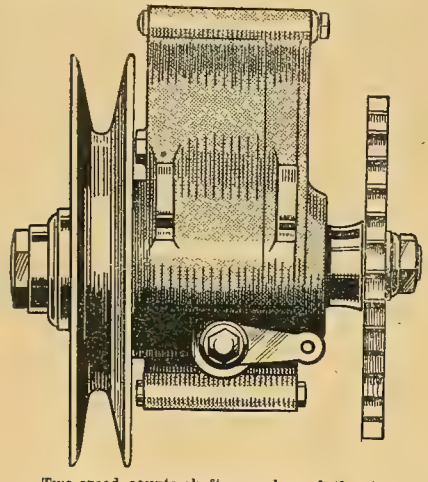
A Two-stroke Triumph.

Latest Addition to the Triumph 1914 Range. Companion to 4 h.p. Long-stroke Single-cylinder Mount.

LAST week, in dealing with the new 4 h.p. single-cylinder Triumph machines, we announced that the Triumph Co. would this week spring a surprise upon the motor cycling public, and that surprise is in the shape of a 2¼ h.p. two-stroke Triumph, which we now illustrate. This little machine is very attractive in appearance, and appears to be thoroughly workmanlike in its character. We tried it on the road, and, thanks to its two-speed counter-shaft gear, we found it possible to turn in an ordinary roadway, and start by sitting in the saddle and paddling along a yard or two. Nor is there any exertion in this mode of starting, seeing that the machine, fully equipped with petrol and oil, weighs only 125 lbs. It is well known that the Triumph Co. have been experimenting with different models all the year, and, as Mr. Schulte pointed out to us, what the Triumph designers have aimed at throughout their experiments was simplicity and reliability. They, too, desired to concentrate their attentions to one or two models at the most, as by so doing manufacturing costs were minimised.



The new 2¼ h.p. two-stroke two-speed Triumph.



Two-speed countershaft gear box of the two-stroke Triumph showing chain sprocket and belt pulley.

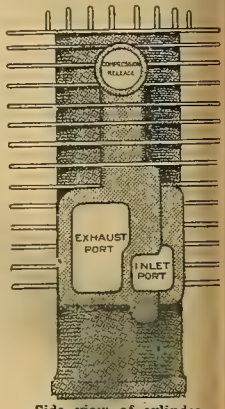
Some Mechanical Features.

The latest two-stroke Triumph has not been on the road long, and for that reason it is impossible to describe the engine in detail in this issue, as several patents are pending, but the brief specification is as follows: Two-speed dog clutch counter-shaft gear (no friction clutch provided), with handle-bar control throughout, including the gear. The engine, gear box, and magneto can be easily detached in one unit. At present 24in. wheels are fitted, but these may not be finally standardised. The height from saddle to the ground is 28½in.

A cylindrical tank is used on the new baby Triumph, which practically envelops the top tube, to which it is clipped by metal bands.

The transmission to the gear box is by enclosed chain; thereafter the drive is by belt on the right-hand side of the machine, the pulleys being of large size.

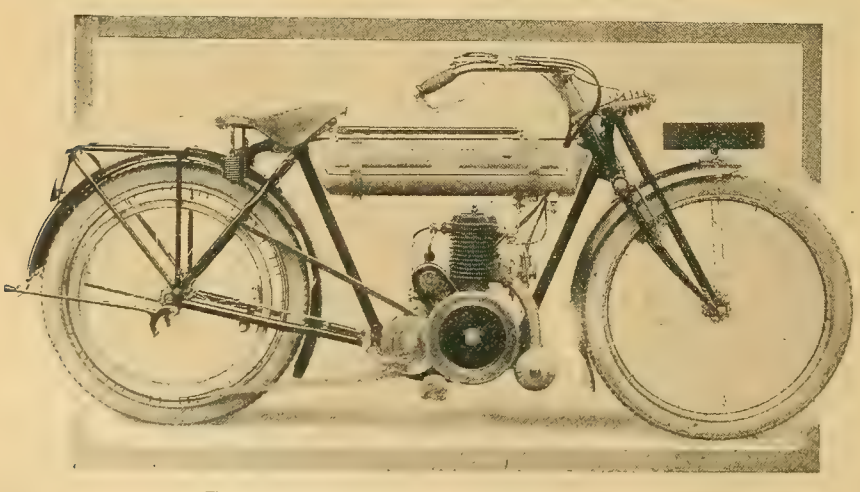
Naturally, one may expect novelty of design about any Triumph production, and these are most noticeable in the design of the engine. One of the most commendable points is the arrangement of the compression release valve, which, when in action, allows the gases to escape by a special passage to the exhaust port, thus obviating any escape of oil, which usually results in an oily cylinder, not to speak of sprayed overalls. The transfer port is a wide oblong passage. The exhaust and inlet ports are placed side by side in front of the engine; this arrangement not only enabling the burnt gases to warm the fresh charge, but, contrariwise, allowing the cool inrush of gas to lower the temperature of the cylinder at this point. The shape of the exhaust outlet is worthy of note, for the gases are shot down obliquely, like a coal shoot. It would hardly be possible for the exhaust to have a more easy flow. The piston is of the usual design, with two rings, and has the orthodox deflector on top.



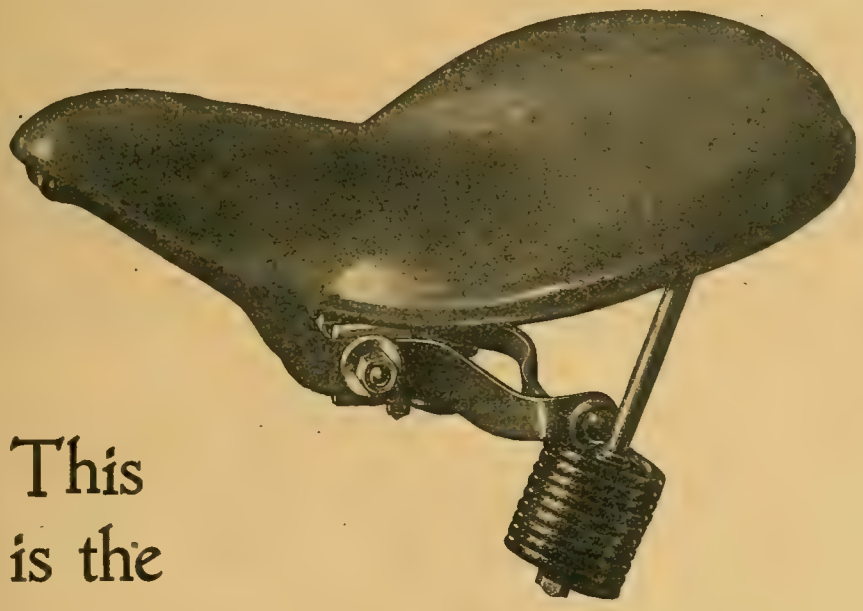
Side view of cylinder showing inlet and exhaust ports, and hole for compression release valve.

The Lubrication System.

One of the most interesting features of the machine is the lubrication system employed. There is no pump to the engine, but oil is carried in a forward compartment of the tank in the usual



Flywheel and belt side of the two-stroke Triumph for 1914.



This is the

BROOKS B170

the saddle with the Patent Compound Spring—

the saddle which, by reason of its commanding superiority in design, material, and workmanship, is universally recognized as best—the saddle that Experience always chooses and is, invariably, the ultimate selection of the novice, whatever he may tolerate at first—the saddle that is backed by the BROOKS reputation!

You may see it at

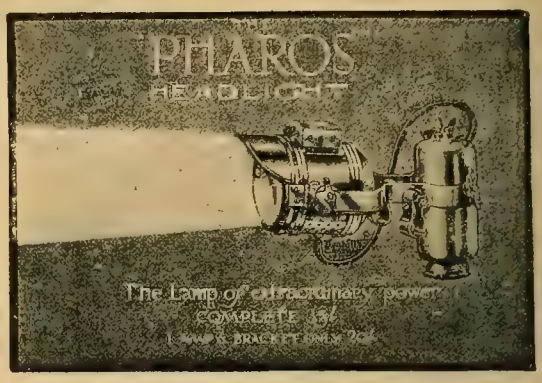
OLYMPIA, November 24th-29th,
STAND 227, Gallery,

where also we shall be delighted to show you all our latest lines—will you call?

J. B. BROOKS & Co., Ltd.,
49, Criterion Works, Birmingham.

The 'Pharos' Headlight

The 'Pharos' motor cycle headlight is a lamp of exceptional power, and its unique method of construction places it at once in the forefront of anything yet manufactured. The lamp is made of stout gauge metal, heavily nickel-plated. Every joint and attachment is strongly riveted. The reflector is of the lens type and is reinforced by a strong lens which takes the place of the front glass, thus giving a long and powerful beam. The DUNHILL adjustable bracket enables the lamp to be always regulated to the point of maximum advantage.

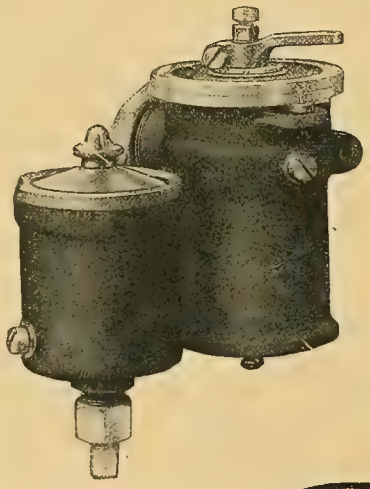


DUNHILL'S NEW M.C. OILSKINS

Undoubtedly the smartest and most serviceable oilskins on the market are the new Dunhill pattern here illustrated. These oilskins, which consist of a comfortable full jacket and trouser overalls with seat, are made in a new material of dark green colour, and are beautifully soft, flexible, and light in weight. Motor cyclists will find the new oilskins a valuable part of their equipment.

Price 33/6 complete

— Have you a copy of —
THE MOTOR CYCLE LIST?



The 'Lukin' (Patent) Carburetter

(Dunhill's Sole Agents).

The 'LUKIN' has the throttle on the atmospheric side, and NOT on the engine side, thus ensuring a correct proportion of petrol and air before they are mixed. The vacuum in the mixing chamber increases as the throttle is closed, providing a medium for the instant volatilization of the petrol when it is most needed. The 'LUKIN' Carburetter has no tuned jets, but it is tuned for every speed by means of a shaped valve. There is but one moving part. Needles, dash pots, tuned springs, and other delicate mechanisms are entirely dispensed with. Suitable for every make of Motor Cycle. It is a petrol saver, of unique value, and will save its own price in a month.

Price of Carburetter - - - 55/-

Write for particulars.

Dunhill's

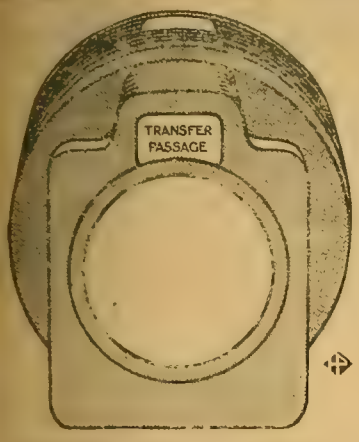
359-361, EUSTON ROAD, LONDON, N.W.

City Branch: 42-43, Lombard Street, E.C.

MANCHESTER: 88, Cross Street. GLASGOW: 72, St. Vincent Street.

The Two-stroke Triumph.—

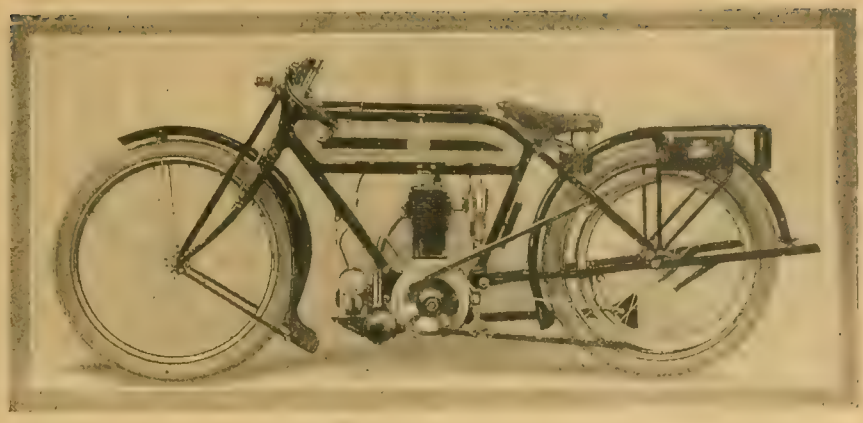
way. Embodied with the petrol filler cap is a small metal measure, which is used to draw off the oil from the front partition, and it is then mixed with the petrol to the extent of one-sixteenth of a gallon of oil to a gallon of petrol. The main advantage of this system is that the oil is drawn into the engine with the petrol, and therefore it is supplied in exact relation to the amount of petrol consumed, which is as it should be, for the wider the throttle is opened the more work the engine is doing; consequently the more oil it necessitates. The crank is thus revolving in an oil



Underside view of the cylinder of the 2¼ h.p. Triumph.

fog, and, contrary to what might be expected, during our trial of the machine we did not observe any suspicion of smoking, which may have been due to the large sized expansion chamber and the small flattened-end pipe which extends to a line with the gear box.

The magneto platform is cast in one with the crankcase, and the magneto can be slid freely along slots provided to take up chain stretch.



A sporting mount the 4 h.p. T.T. Triumph for 1914.

A point about the valveless Triumph is its ability to run at extremely slow speeds, and yet fire regularly every revolution. Many two stroke engines have a habit of four stroking immediately the speed is cut down, but the Triumph designers seem to have effectually overcome this trouble. Several carburetters have been tried, and the best results obtained from the Amac, which was fitted to the machine we rode.

An Absence of Vibration.

The Triumph is beautifully balanced, and the riding position with the footrests in the middle of the machine is a perfectly natural one. Vibration in the handlebar is almost entirely absent. Messrs. Hathaway and Hulbert described it as the most comfortable machine they had ridden. The spring forks, brake work, and such like details, are similar to the 4 h.p. model.

The valveless Triumph is not a potterers' mount, although it is bound to appeal to that very large section. It is even recommended for serious touring. Whilst inspecting the machine Mr. Schulte whispered to us that his 1914 mount was to be a 4 h.p. model. "I must go up hills fast" he added with feeling and a twinkle in his eye "and keep up with the rest of them."

The 4 h.p. Single Cylinder.

The Triumph standard models will in future be rated at 4 h.p., the stroke having been lengthened to 97 mm., the bore of 85 mm. remaining the same. The capacity is therefore 550 c.c. During the year single cylinders of 550 and 600 c.c. capacity have been exhaustively tested by the Triumph Co., and it was unanimously agreed that the 550 c.c. was the ideal double purpose mount, i.e., for solo or sidecar work.

We outlined most of the improvements in our last issue, the alterations apart from the longer stroke, being in detail only. Decompressors will be fitted to all engines in future, and other alterations include; new clutch control, giving free engine, 19in. belt drums, ⅜in. seat pillar bolts suitable for use with sidecars and new pattern handlebar. The price remains the same as in 1913.

As regards competitions, the Triumph Co., will refrain from competing except in more important events, unless of course the class definition is altered. For the Tourist Trophy Race they will build up several 499 c.c. engines

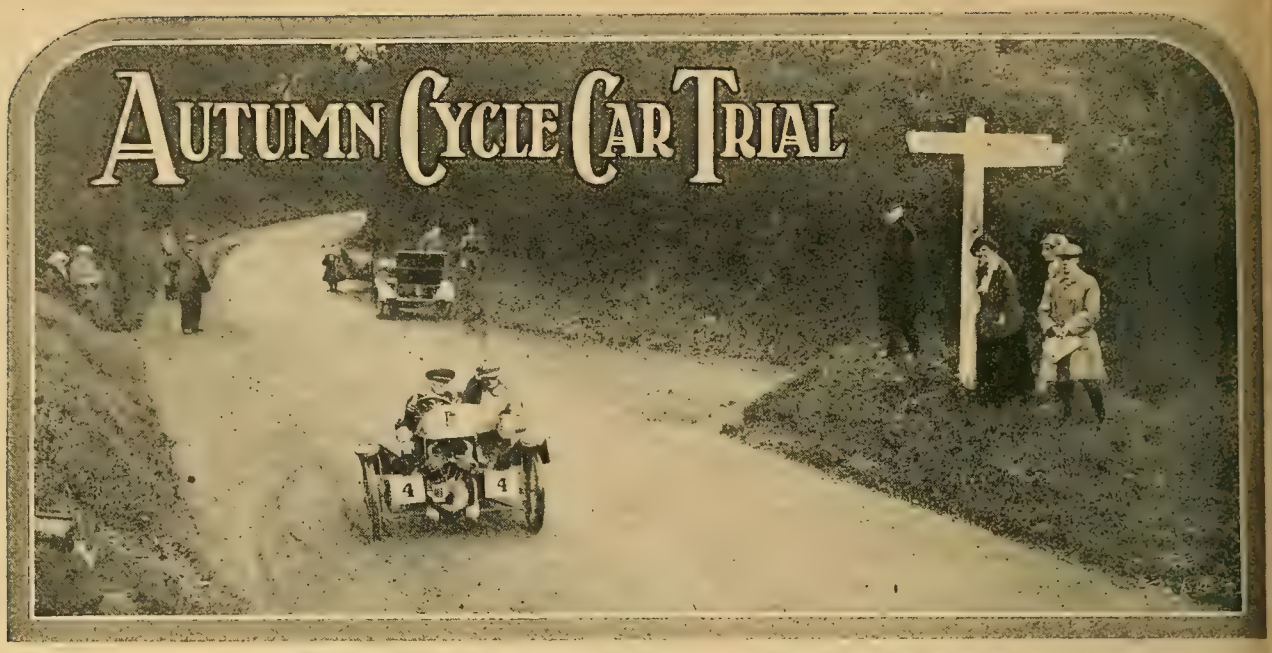
THE TWO TRIUMPHS FOR 1914.

Left, the 4 h.p. three-speeder. Right, the 2¼ h.p. two-speed two-stroke model. Both riders are of approximately the same height. Mr. Schulte, the managing director of the Triumph Co., is seated on the 4 h.p. model.

TYRE SIZES IN 1914.

Next year will undoubtedly see an increase in tyre dimensions, particularly on standard makes of machines with engines of 500 c.c. and over. In this connection it is interesting to note that the Dunlop Rubber Co., Ltd., Aston Cross, Birmingham, are introducing, in addition to the new motor cycle tyre illustrated in last issue, a 3in. motor cycle tyre to fit two and a half inch motor cycle rims, an innovation which will be acceptable to sidecar owners. The motor cycle tyre department of the Dunlop Rubber Co. is engaged at the present time in revising its existing range of patterns and bringing them up to the present exacting conditions of motor cycle work which, with the always growing popularity of sidecaring, are becoming daily more strenuous to tyre life. For sidecar use with a powerful engine the 650 × 65 mm. Dunlop grooved small car tyre is being used with conspicuous success.

AUTUMN CYCLE CAR TRIAL



AN AWKWARD CORNER. L. W. Spencer joining the main Portsmouth road near Hindhead.

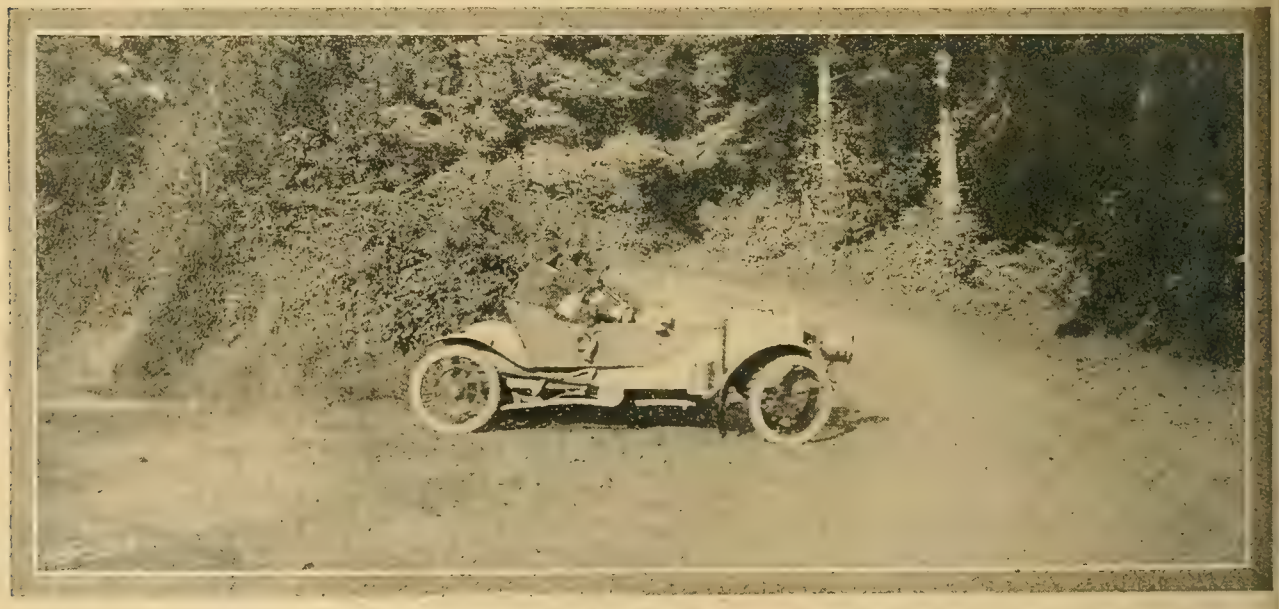
LAST week's cycle car trial of the Auto Cycle Union, extending to 108 miles, could hardly be termed a complete and searching test, but in that comparatively short distance many tricky hills were included, and the casualty list was, therefore, fairly lengthy. There were thirty-four entries in all, though three did not start. The most popular machines were A.C.'s and Morgans, represented by four each, G.W.K.'s, Humberettes, and G.N.'s each having a team of three.

Wednesday morning opened bright and fine, and an hour before the start many competitors were present busily putting finishing touches to their mounts, whilst officials doled out the petrol. We noticed that the Morgans were practically all of different type, some with side-by-side valves, others overhead, and two were water-cooled. Spencer's radiator had developed a slight leak, to which he applied much soap with good effect. The Ranger had bad luck in being prevented from starting owing to timing gear trouble. Martin's 10 h.p. Singer had been got into the cycle car definition by dispensing with the reverse gear and free use of a drill. Maitland turned up with his Beacon a minute or two to eight-o'clock, and after hurriedly filling up was despatched by Mr. Ebblewhite, only to take a wrong turning.

Early Adventures.

Wray Lane, leading to the top of Reigate, was the first ascent, and thus early three lost their non-stops, Parnacott's 499 c.c. F.N. motor bicycle engine, geared 38 to 1 on the low, having to give in, with the added handicap of brakes binding. Bryan (G.N.), too, unaccountably came to a standstill.

Thereafter undulating roads led through picturesque country and leafy glades in their autumn tints to Bore Hill, where it was arranged the stopping and starting test should be held. The gradient was between 1 in 10 and 12.



A. B. Phillips (8 h.p. Warne) negotiating the hairpin on Tanhurst Hill. He was one of the 19 to gain non-stop certificates.

The
Motor Cycle Gear for 1914
The Famous

STURMEY-ARCHER

3-Speed & Free Engine Gear

will be fitted by the following firms as a **standard specification** of their 1914 motor cycles—

TRIUMPH
HUMBER
BRADBURY
ROVER
ARIEL SWIFT
EXCELSIOR
CALCOTT
CAMPION
HOBART BIRD
SUN JAMES
L.M.C. A.S.L.
IXION
IVY-PRECISION
ROYAL RUBY
CONNAUGHT
VICTORIA
NORTON
GRANDEX

will be fitted by the following firms to their 1914 models, **to order**—

RUDGE-WHITWORTH
PREMIER
SINGER
ALLDAYS & ONIONS
HAZLEWOOD
BROWN
O.K.
RAGLAN
IXION
IMPERIAL
VELOCE
WULFRUNA
QUADRANT
MOTO-REVE
LEVIS

New booklet post free—

STURMEY-ARCHER GEARS, LTD., NOTTINGHAM.

OLYMPIA, STAND 159 (Gallery).

THE Passenger Machine for 1914!—

REX-J.A.P

New type, with COUNTERSHAFT 3-Speed GEAR, ——enclosed CHAIN DRIVE, and Kick Starter.——

The new type REX-J.A.P is a distinctive machine—incorporating every constructional point which experience has proved necessary.

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¶ *AGENTS—Write now for particulars of the REX-J.A.P Agency—it will interest you*

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MORE WORLD'S RECORDS

with the

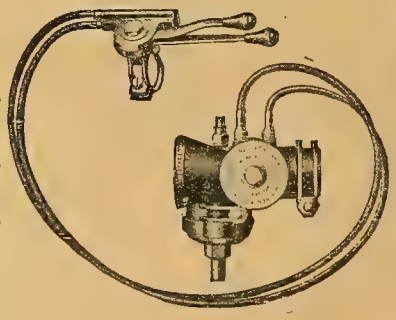
SENSPRAY

Carburetter.

B.M.C.R.C. MEETING (18th Oct.)

A.C.U. CHAMPIONSHIP (500 c.c.)
Mr. C. G. Pullin (3½ h.p. Rudge) .. .. **FIRST.**

Class B.
ONE HOUR SIDECAR RACE.
Mr. H. V. Colver, riding a 2¾ h.p. Enfield established a
WORLD'S RECORD for THE HOUR of 40 miles 988 yards.



Class C.
ONE HOUR SIDECAR RACE.
Mr. C. G. Pullin (3½ h.p. Rudge) .. .. .. **FIRST.**
In this race Mr. Pullin made
NEW WORLD'S RECORDS
for the **50 MILES** and **1 HOUR.**

CHARLES H. PUGH, Ltd., Whitworth Works, BIRMINGHAM.

Autumn Cycle Car Trial.—

J. T. Wood (h.p. G.W.K.) ascending Bowler's Green Hill.

S. Wright (Humberette) led, and made a very neat restart, as did Wood (G.W.K.) and Busby (Morgan), who, by the way, had a four-speed gear, *i.e.*, a separate two-speed gear box in addition to the usual Morgan gear. Keiller and Wilberforce (G.W.K.'s) did well; Godfrey (G.N.) was noisy, but restarted successfully. Thomas (friction-driven Pyramid) ran past Mr. Loughborough and his red flag, but restarted readily on a steeper gradient; A. B. Phillips (Warne) did very well; Spencer (Morgan) ran back a little, hesitated, and slipped his clutch to the summit. The Chater-Lea had its water boiling, but got away very nicely nevertheless. Pressland (Crouch) was good, also Cooper (Humberette). The Pyramid, driven by Payne, emitted a grating noise. Gibson (Morgan) did well, and Dew (Dew monocar) restarted with a grinding noise; his observer, on an 8 h.p. Chater-Lea sidecar, who pulled up behind and followed his man as if he were being towed, made as neat a restart as any cycle car. Maitland (Beacon), who was in trouble nearly all day, had to request his passenger to dismount, Bryan (G.N.) ran back and then got away well, whilst Browncott (A.C.) showed up splendidly. Adamson, on the low-built four-wheeler bearing his name, unfortunately put two gears in at once and caused some damage thereby

A few miles further the sharp rise on Tanhurst caused the competitors some anxiety, as well as the hairpin which followed. Pressland (Crouch) came to a standstill, also Maitland and Bryan again stopped. At the hairpin McMinnies seemed to misjudge the corner on his Grand Prix Morgan, for he ran wide on the grass, and though he tried to regain the road, his engine stopped with a grunt. He complained that he saw no arrow. Then followed a rough descent over stony surfaces. We passed Godfrey (G.N.) repairing a puncture, and later Portwine (A.C.) crawling along with his observer standing on the running board peering below deck, the floorboard being up and the tool box open. Portwine managed to keep going, so this was quite a sporting investigation into a strange noise.

More Hills.

After Godalming the ascent of Charterhouse Hill was encountered, and here the judges, Messrs. E. P. Greenhill and Glynn Rowden, were stationed. Most did very well, once a group of half-a-dozen appearing together, and the drivers naturally had little spurts among themselves, the Wilton in one case showing up well. Bradley, whose Duo won the palm for being the noisest in the trial, stopped on the bend owing to insufficient lock, and, after reversing, got away again. He baulked Panling's Swift, but the latter had no difficulty in restarting on the gradient. Gibson had meanwhile been delayed by a puncture. Passing through Milford, Bowler's Green Hill was climbed, and here those who had been showing up well on previous test hills again reproduced their good form. A lightning ascent was made by Martin on the Singer; Dew and McMinnies also went up well, too fast in fact for their observers, who lagged behind considerably. Higgs (G.N.) made an easy climb, also Pressland (Crouch). Spencer stopped for an unknown cause (presumably an air lock), for his engine restarted immediately. After the hairpin leading to Hindhead he was pulled up again with a puncture.

SCENES ON HASTE HILL.

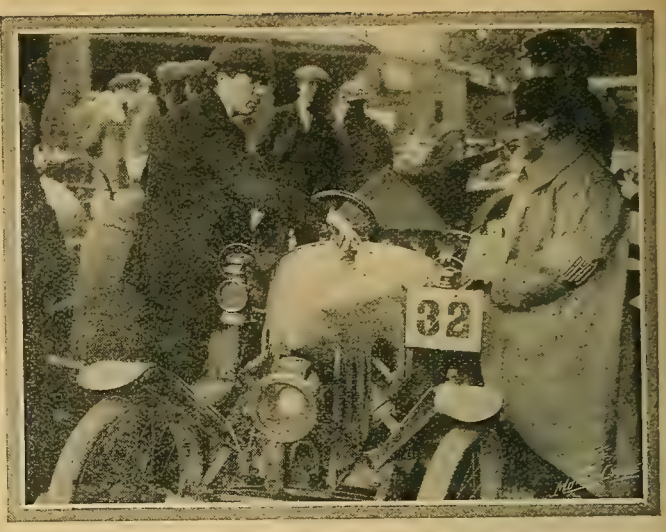
(1) C. F. Halsall (10 h.p. Wilton) rounding the corner. (2) J. Chater-Lea (8 h.p. Chater-Lea) nearing the summit.

Autumn Cycle Car Trial.—

Lunch was taken at the Royal Huts Hotel, for which 1½ hours were allowed. Petrol was checked into the tanks again. The afternoon course led up Haste Hill to Fernhurst. Haste Hill was no test for the majority, many going up on middle gear—indeed, both Martin (Singer) and S. Wright (Humberette) assured us that they had no occasion for their lowest ratios on any of the hills. Several simply played with the gradient, but the way they dashed round blind corners without slowing suggested an acquaintance with the hills. Portwine (A.C.) stopped with what he imagined was plug trouble, but eventually retired. Back to Hindhead, *viâ* Liphook, the route home led through Seale, Guildford, and Effingham. And then, as if to render the test more complete, the rain obligingly came down, beating on to the drivers and passengers of hoodless machines like hailstones. Soon the roads were muddy and the efficiency or otherwise (mostly otherwise unfortunate to relate) of the mudguards was demonstrated. The A.C.'s, G.W.K.'s, two of the Humberettes and Higgs' G.N. we singled out at the finish for special cleanliness. Quite the worst of the three hairpin bends came after Leatherhead, known as Headley corner, Keiller fouling his running board on the inside, and Panling being hindered once again.

The Willing Petrol Measurers.

At the finish the machines were ranged up in line in a by-street, and subsequently Dr. Low and his assistants for the third time checked the petrol consumption by filling the tanks up and measuring the amount used, which is a good, rough and ready method, but such details as the ground not being level and a couple of men standing on one side of the car were ignored. Just why the competitors were allowed to replenish at Hindhead we cannot explain—surely a hundred mile run should be possible without replenishments. Anyway, it enabled the officials to show their energy by checking the petrol into the tanks three times, and they seemed to like the job, judging by the time they took. Bradley's Duo finished on one belt, the other having disappeared during the morning, but he couldn't very well stop to pick it up. The Wilton, we were told, never fired on more than three cylinders at a time, but one could hardly credit it from the way it climbed the hills. We were, indeed, pleased to note that the lighter type vehicles were in no way overshadowed by the larger vehicles. The two A.C. Sociables, for instance, both ran faultlessly throughout; the Morgans were unlucky with tyres. The Pyramid—of which there were two examples, both of which made non-stops—is a comparatively



Dr. A. M. Low filling up the tank of H. R. Godfrey's G.N.

unknown cycle car. It is propelled by an 8 h.p. J.A.P. engine through a four-speed friction gear and a belt on either side. The friction gear is notable for the fact that the outer edges of the disc are bevel shaped.

The trial altogether was a great success; it certainly might have been a little more severe and longer, but that will come in time. Personally, we always think that a single day trial should be at least as bad as any one day in a six days event, but in this case it was fifty per cent. less severe. One or two drivers of cycle cars of proved reliability thought it a picnic, but that was going too far.

The complete results are given overleaf

J. T. Wood was one who looked upon the trial as no real test for his G.W.K. He started from home at 5 a.m., and covered fifty miles before the start, returning after the trial.

One or two competitors were bespattered with mud when they finished. The mudguarding problem is almost as difficult on light low built cycle cars as on motor cycles.

Rex Mundy (8 h.p. Humberette), followed by H. C. Munday (5-6 h.p. A.C. Sociable), climbing the High Street, Guildford, in the rain. Both made non-stop runs.

Autumn Cycle Car Trial.—

S. Wright's Humberette covered 250 miles in getting to the scene of the trial and home again. After the official trial of 108 miles he started for Coventry, reaching there at 11.20 p.m., after a non-stop run throughout.

A very neat dynamo lighting set was fitted to Victor Wilberforce's G.W.K.

The consumption of the Beacon is somewhat remarkable when it is considered that it covered more miles than it is credited with, owing to going off the course at the start. It may be added that the Beacon cycle car was made in eight days, and was not completed until the morning of the event, which accounts for its late arrival at the start. There is some excuse therefore for its failure on the hills.

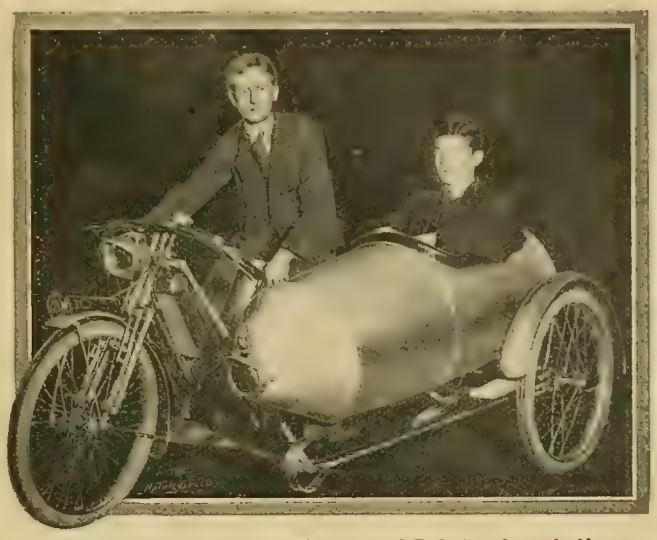
Tyre troubles were rather prevalent, especially considering that cycle cars are generally supposed to be less addicted to the puncture fiend than motor bicycles.

A number of competitors who were anxious to do well on consumption seized every opportunity of free-wheeling down hills, with the throttle dead closed.

The speed of Martin's stripped Singer on several hills approached 40 m.p.h. Professor Sharp, the observer on this car, looked none too comfortable as he shot past.

To our mind, Bradley and his Duo is just as much entitled to a non-stop certificate as McMinnies, as both did the same thing, viz., stopped on one of the bends. We witnessed both stops, and, as a matter of fact, the engine of the Duo was kept running, whereas the Morgan was stopped accidentally in the deep ruts at the roadside.

The Premier which was entered is a new pattern of much improved design with water-cooled V-type engine, three-speed gear box, and shaft drive to a worm driven axle. It was withdrawn a few days before the trial.



Norman Longfield and his unique silver plated T.T. Scott and novel sidecar constructed by himself. The entire outfit is plated, and, as may be imagined, it presents a most striking appearance. We are not told how it appears after a long run in the rain or how much metal polish is required to restore its pristine glitter.

TABLE SHOWING COMPLETE RESULTS AT A GLANCE, GEAR RATIOS AND ENGINE CAPACITIES.

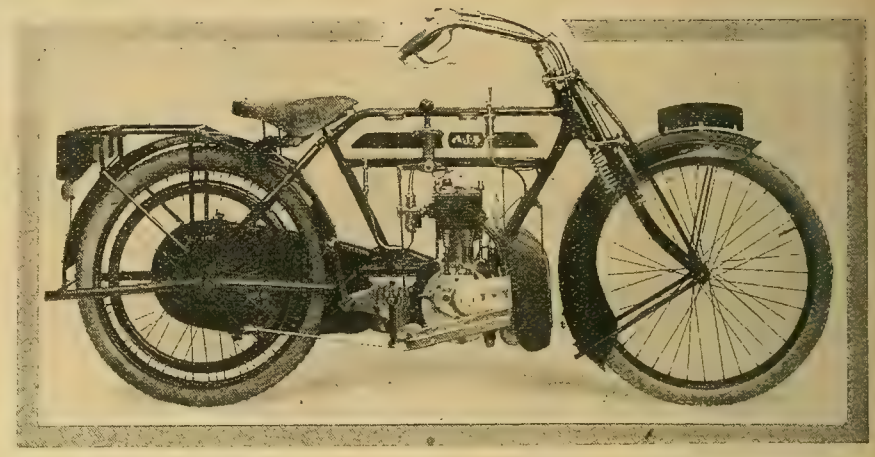
Driver, H.P., and Machine.	Gear Ratios. Highest	Gear Ratios. Lowest	No. of Cyls.	Bore and Stroke.	Capacity.	Miles per Gall.	Remarks.
CLASS H.				mm.	c.c.		
J. Munday (6 A.C.)	4.5	11.5	1	95 × 102	723	52	Non-stop
W. J. Brownsort (6 A.C.)	4.5	11.5	1	95 × 102	723	51	Non-stop
CLASS I.							
W. G. McMinnies (8 Morgan)	—	—	2	90 × 77.5	986	65	One stop; objection allowed
L. W. Spencer (8 Morgan)	4	10	2	90 × 77.5	986	51	Three stops: One air lock, two tyres
J. Gibson (8 Morgan)	4.5	11.5	2	85 × 85	964	—	Two stops for tyre troubles
Vernon Busby (8 Morgan)	4	11.5	2	90 × 77.5	986	38	Non-stop
CLASS J.							
A. E. Parnacott (3½ Cycar)	5	38	4	52.5 × 57	494	—	Retired
H. F. Welham (3 Welham)	5	16	1	80 × 80	402	—	Retired
CLASS K.							
Harold E. Dew (8 D.E.W.)	5	9	2	85 × 85	944	49	Non-stop
J. T. Wood (8 G.W.K.)	4.3	14	2	85.8 × 92	1065	49	Non-stop
C. M. Keiller (8 G.W.K.)	3.9	11	2	85.8 × 92	1065	45	Non-stop
J. G. Panling (7 Swift)	3.625	15	2	75 × 100	962	55	Non-stop
P. Meers (10 A.C.)	4	10	4	59 × 100	1096	34	Non-stop
A. C. M. Maitland (8-10 Beacon)	4.125	10.5	2	85 × 96	1090	72	Several stops on hills
Albert B. Phillips (8 Warne)	4	14	2	85 × 85	965	29	Non-stop
Sam Wright (8 Humberette)	4.46	16	2	84 × 90	998	47	Non-stop
Lionel Martin (10 Singer)	4	12.5	4	63 × 88	1096	35	Non-stop
R. G. Thomas (8 Pyramid)	4.5	21	2	85 × 88	964	41.8	Non-stop
L. T. Payne (8 Pyramid)	4.5	21	2	85 × 88	964	42	Non-stop
M. Bryan (7-9 G.N.)	4.25	9	2	80 × 98	985	47	Two stops on hills
C. Pressland (8 Crouch Carette)	5	13	2	80 × 90	904	33.6	Two stops: Shorting switch wire and test hill
A. Percy Bradley (8 Duo)	4.5	16	2	85 × 85	964	44	Stopped on corner Frith Hill, Godalming
J. Chater-Lea, jn. (8 Chater-Lea)	4.125	16	2	85 × 85	964	42	Non-stop
G. N. Higgs (10-12 G.N.)	4	8	2	84 × 98	1086	41	Non-stop
Wm. Cooper (8 Humberette)	5	16	2	84 × 90	998	36	Non-stop
R. G. Mundy (8 Humberette)	4.5	13.5	2	84 × 90	998	44	Non-stop
R. B. Adamson (10 Adamson)	3.3	11.3	2	85 × 85	1099	52	One stop on hill
H. R. Godfrey (8-10 G.N.)	4	10	2	84 × 98	1086	42	One stop for puncture
C. F. Halsall (10 Wilton)	4	13	4	89 × 100	1096	31	Non-stop
Victor Wilberforce (8 G.W.K.)	3.6	9.5	2	86 × 92	1068	41.9	Non-stop
John Portwine (10 A.C.)	3.875	12.5	4	59 × 100	1096	—	Retired

1914 MODELS.

ADVANCE DETAILS & ILLUSTRATIONS OF NEW DESIGNS.

A.J.S. Improvements: New Design Cylinder, more Efficient Lubrication System.

THE A.J.S. machines have been altered in a few details for 1914, but outwardly the design remains practically unchanged. On the 6 h.p. twin sidecar model, the detachable cylinder head has been done away with, but the swinging holding down bolts anchored to the crank case are retained. On the new cylinder casting the valve port and fins only hold the valve chamber to the cylinder, so that there is an air passage all round the valve chamber between the cylinder and the valves. The only reason for discarding the loose head is that inquisitive owners were always detaching it, whether it were required or not, with the result that when replacing it they seldom secured a compression-tight joint. Trials with the new cylinder have proved that it does not distort, and as it is more reliable from a perfect compression point of view the old style has been given up. The lubrication is by B. and L. spring fed drip from the oil tank, which is now in the centre of the petrol reservoir. The oil passes down a pipe which is branched as it approaches the crank case, and one lead goes to the near side pulley bearing, lubricating the crankshaft. For this purpose a groove is turned in the bush; the oil then passes along a hole in the crankshaft, and up another passage drilled in the web of the near side flywheel to the crank pin. After lubricating the crank pin the oil flows out of three oil ways drilled in the pin, which register with holes in the big end of the connecting rod, and so drops into the base. The other lead of the pipe goes direct to the crank case. Engine cradle plates are fitted at the rear of the crank case, as well as in front, thereby holding the engine more firmly in the frame.



Valve side of the 1914 pattern 2¾ h.p. A.J.S., showing kick-starter and change-speed gear lever.

The frame is strengthened by fitting a longer steering head, this being now eight inches long, fitted with larger ball races and lubricators to enable these bearings to be oiled—earlier models had no such provision. The down tube is 1⅜in. diameter, 10 gauge, and for eight inches below the socket lug a ⅜ vertical steel liner is fitted; the lug itself is carried lower and notched at the end to render this portion less subject to breakage from crystallisation. The chain stays are stronger than previously.

The tool case in rear of carrier is now superseded by two cases attached to the sides of the carrier and fitted in metal holders.

The rear mudguard is seven inches wide and the front guard is fitted with wide metal valances and a horizontal metal mud deflector.

The stop for the front brake on the front of the spring fork is lowered, so that this part will not foul a large lamp when it is carried low down on the steering stem. The guides for the front brake are now brazed to the fork tubes and a new front hub is fitted, this being both dust and mudproof.

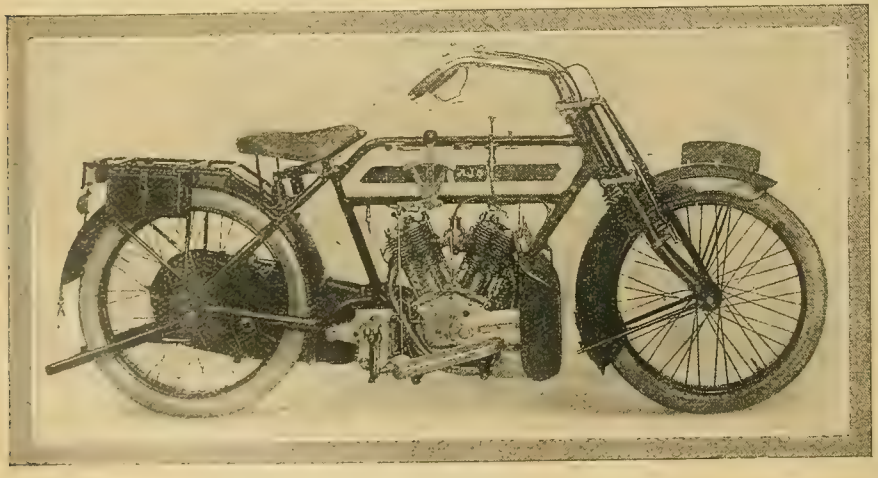
The Change-speed Gear.

In connection with the change-speed gear the following refinements are provided: the lever for changing gear is hinged on a bracket fastened to the bottom rail, the lever is of flat spring steel and works in a gate—it is sprung sideways to bring it out of the notches.

The kick-starter shaft is now carried in a bearing cast on an extension of the gear box, and sliding inspection windows are fitted to the chain cases for verifying chain adjustment. The footboard mats are much thicker, the mats being ⅝in. thick from the top of the pyramid pattern to the base, and the footboards are in a more comfortable position.

The sidecars will be exhibited in two models, both with the same chassis, which has an improved dropped frame, and is lighter than before. The bodies are boat shaped in wood and metal, and convenient cupboards are provided.

The improvements to the single-cylinder machine are that the one piece cylinder is fitted, the valves are enlarged to the size of those used on the twin, and the mudguarding is similar.



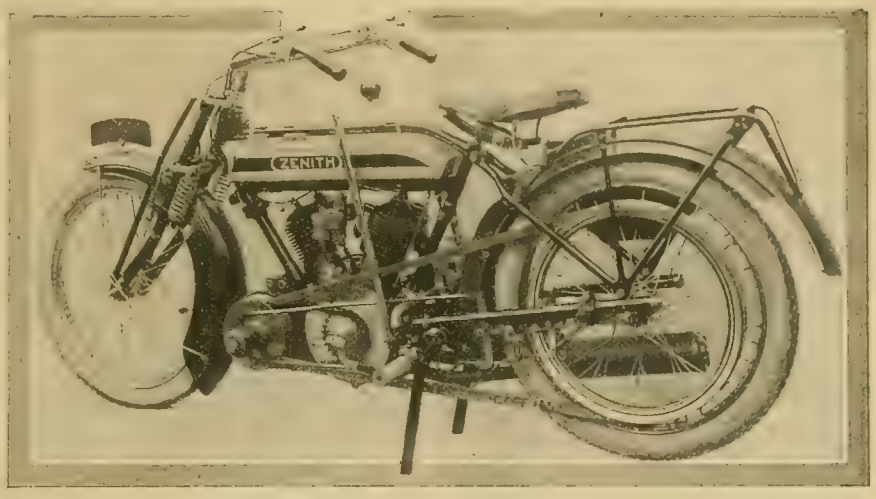
The latest model 6 h.p. three-speed A.J.S. sidecar machine.

The New 6 h.p. Zenith.

Counter-shaft Gear Providing Ratios between 4 and 11 to 1. A Long Belt Drive.

ON October 2nd we outlined the improvements to the new Zenith machines, and announced the policy of the firm for 1914. We are now able to reproduce illustrations of this popular motor cycle. The photograph of the complete machine gives an excellent idea of the general arrangement of the new counter-shaft drive and the length of belt employed, while the new and practical shape of the rear mudguard will also be observed. The latter was formerly of ample width, but it has now been improved by the addition of an extra wide lip designed to catch the mud thrown up by the belt rim. This lip extends almost from the end of the mudguard to the back stays, after which it is turned back, thus preventing wet from dripping on the belt. In the new models the rake of the front forks has been increased, while another improvement we may mention is a slight modification in the construction, the exact details of which we are not at liberty to mention, which permits the cylinders of the 8 h.p. model to be dismounted, while the rest of the engine remains *in situ*.

Zenith frames are built up with extraordinary care, and though we do not as a rule refer to factory details and tools, we cannot refrain from stating that Messrs. Zenith Motors, Ltd., possess a universally adjustable jig, used in the construction of frames, which is one of the most ingenious things we have ever seen.



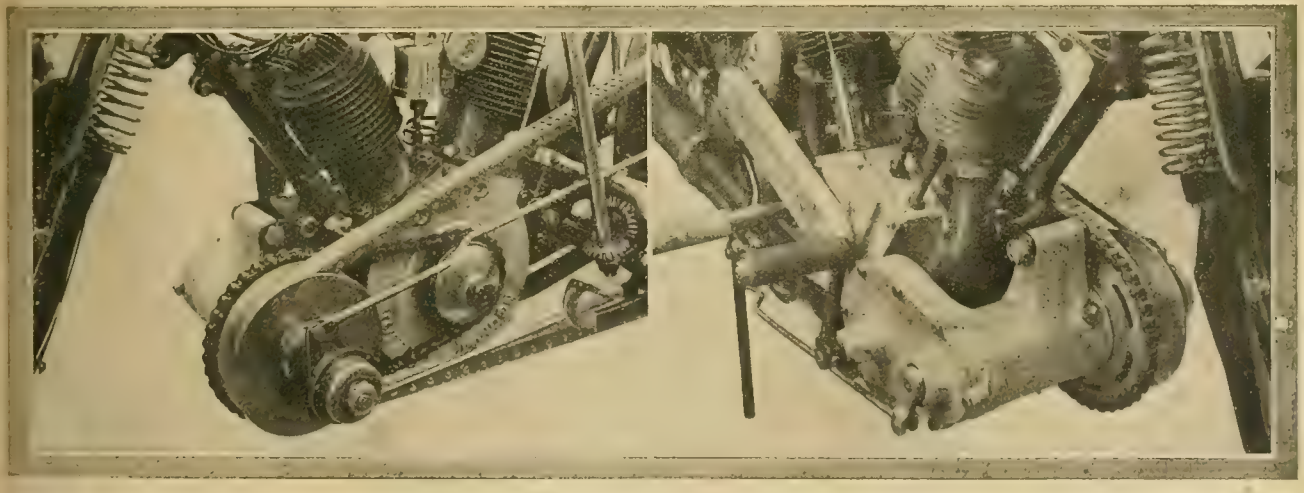
The latest model 3 h.p. Zenith, showing the improved rear mudguard and new system of transmission.

The Counter-shaft Gear.

The chief item of interest in the 1914 model is the new method of transmission by means of a chain to a counter-shaft placed forward of the crank case, and thence by belt to the rear wheel, which not only allows a larger belt pulley to be employed, but also affords a lengthy belt drive, both of which improvements place the belt under the best possible conditions. In the past Zenith machines have suffered for the want of a low ratio. Now, however, by the adoption of the counter-shaft drive ratios ranging from 4 to 1 to 11 to 1 may be obtained. It will be seen that with the exception of the chain the clutch and kick starter mechanism are entirely enclosed, but to protect the chain and belt still further an extra guard is being fitted.

Yet another excellent feature of the new system of transmission is that it may be fitted to both the 1912 and 1913 models. Inside the aluminium case is an outer shell running on ball bearings, to which the chain sprocket is attached. Inside it are two feathers which fit into grooves on a phosphor bronze piece, the inside of which is cone shaped, and forms the female portion of the clutch. The male cone, which is of steel, slides on a square shaft, at one end of which the belt pulley is fixed. The main clutch spring abuts against the thickest end of the steel cone, while against the thin end is a light spring pressing against a star piece, designed so that its arms drop into corresponding notches on a cap screwed on to and running solid with the outer shell, while behind it is a ball thrust. The object of this device is that on the slightest slip in the clutch being experienced the arms of the star piece drop into the notches, and both portions of the clutch are positively engaged. The clutch is put into action by means of a pedal just visible in the accompanying illustration behind the kick starter. The actual operation of declutching is brought into play by means of a quick pitch screw. The whole device reflects the greatest credit on the ingenuity of Mr. F. W. Barnes, who has brought the Zenith to the high state of perfection it has now attained.

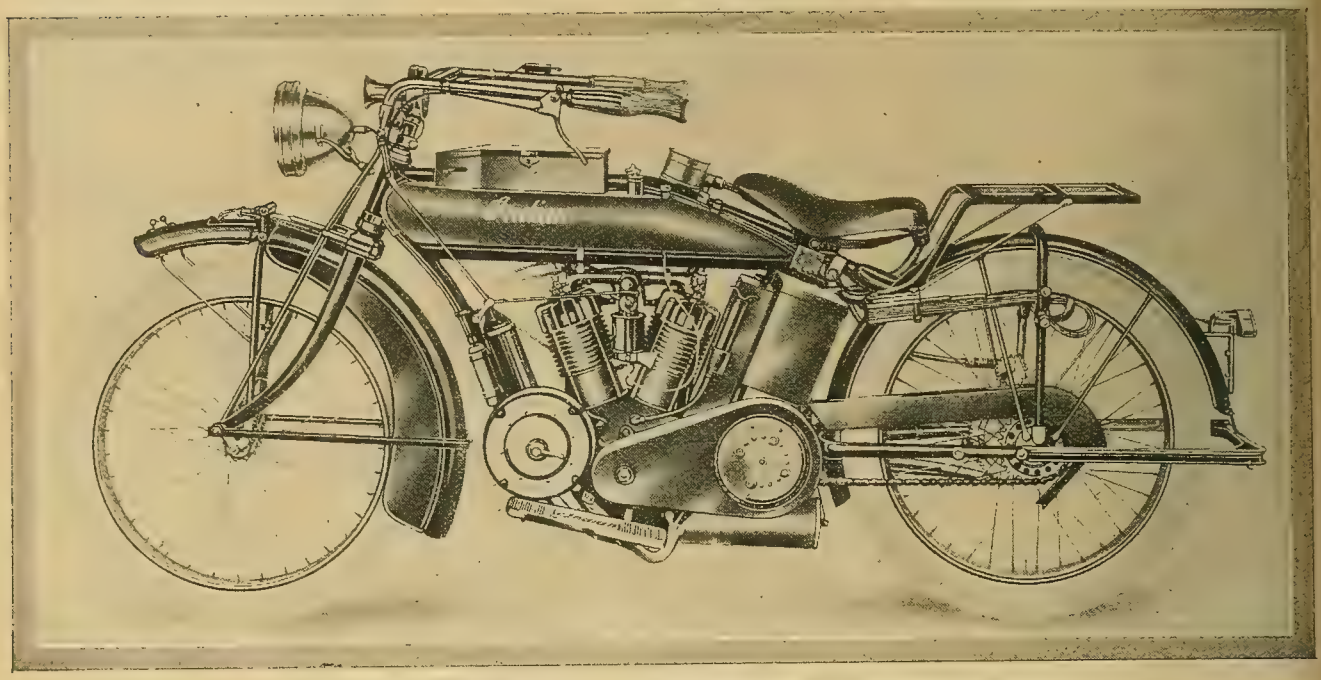
There will be three Zenith twins in 1914, the 3½, 6, and 8 h.p.



The 1914 model 6 h.p. Zenith has a counter-shaft Gradua gear in front of the engine. The drive from the engine is by chain and thence to the rear wheel by belt. The kick-starter is seen in the right hand illustration.

Indian Innovations for 1914.

Fully Equipped Machines; Electric Starting and Lighting Plant.



The 1914 model 7 h.p. Indian with electric self-starter and electric lighting outfit, including a rear lamp.

THE innovations introduced by the Hendee Co. for next year are, to say the least, startling in their novelty.

Four models will be produced, three of which—the Hendee Special, the twin standard model, and the road racing machine—will have the 7 h.p. engine; the other will be fitted with the 3½ single-cylinder power unit. Both these engines are already well known, so we can pass on at once to the 1914 improvements.

Every machine will be sent out fully equipped with everything that is necessary for the road; all will have Corbin-Brown rear-driven speedometers and two-speed gears. These gears have been strengthened and improved; a sector plate with adjustable notches, heavier control rods, and a declutching lever with a continuous plate to fit a foot of any size, have been adopted.

The road racing model will be provided with speedometer only, as speed work, it is pointed out, is carried on only in daylight, and consequently a lighting outfit will not be required.

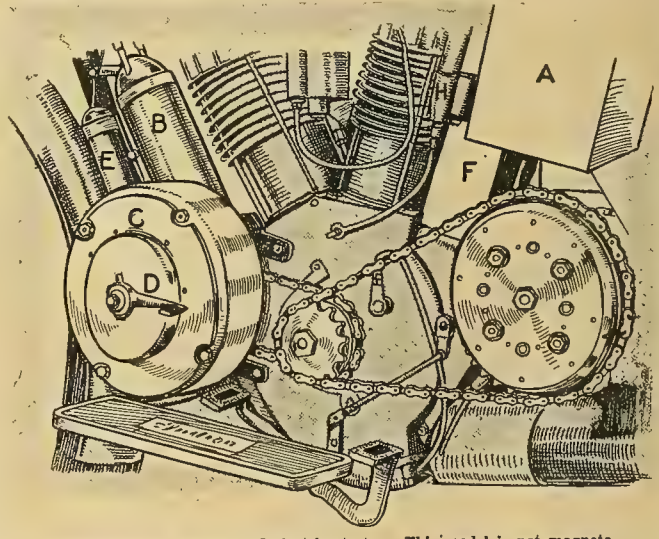
Complete Electrical Equipment.

The standard models, both 7 and 3½ h.p., will be fitted up with a complete electrical installation consisting of head light, said to be capable of throwing a powerful beam five hundred feet, rear light, showing a red light to the rear and a white light on the number plate, as in car practice—this is interesting, in view of the recent decision of the Divisional Court and the possible developments therefrom—and an electric horn. Two storage batteries are supplied, so that one may be charged while the other is in use. The carrier is now arranged to get the benefit of the rear springing; the kick-starter has been improved, and all models will carry front wheel stands. Indian machines are already noted for their silence and the ease with which they can be controlled—thanks, partly, to the pilot jet which is incorporated in the carburetter.

Electric Starting Device.

For the greatest novelty, however, we must turn to the Hendee Special, which is not only equipped with the lighting plant already described, but also boasts an electric starter, which works as follows:

The motor dynamo, of the multi-polar type, having four poles and four sets of brushes, is fitted in a weather-proof casting just in front of the engine—the place usually occupied by the magneto. As a motor it develops approximately 1½ h.p. As a generator it begins to charge the accumulators, which are fixed directly over the gear box, at 12 m.p.h. on high gear and 8 m.p.h. on low. The charging of the accumulators is regulated by a magnetic regulator attached to the dynamo. The entire system is fully protected by means of a magnetic cut-out.



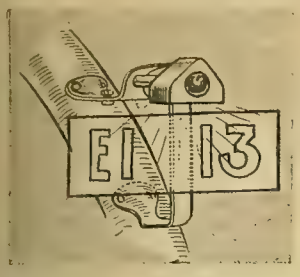
Indian lighting dynamo and electric starter. This model is not magneto ignited.

A. Battery case containing unspillable accumulators. B. Induction coil.
C. Electric starter. D. Dynamo starting pedal. E. Automatic cut-out switch or dynamo governor. F. Oil reservoir. H. Hand oil pump.

The starter has a high over-load capacity, and immediately the engine begins firing the starter automatically becomes a generator, and charges the batteries. The generator is always running while the engine is firing, but automatically cuts and charges the batteries become fully charged.

For starting, the motor, which is geared approximately two to one on the main shaft, takes the current from the accumulators, and when the engine is cold will start it firing in a few seconds. When the engine is warm it will commence firing almost the instant it

is started. Should the motor cycle be laid aside for a period, there will, it is said, always be enough current in the accumulators to furnish regular ignition, and the machine can be started by pushing off. As soon as the engine starts running the accumulators are quickly recharged by the dynamo. The whole system is exceedingly simple, and is one which has been used successfully on motor cars for some years past.



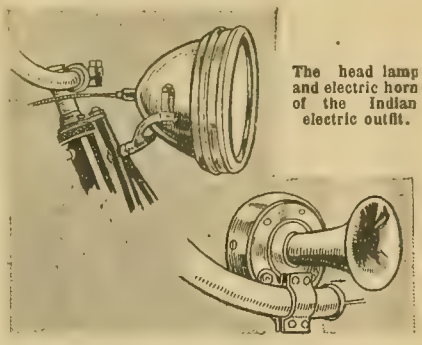
Rear light of the new Indian, which shows a red light rearwards and also illuminates the number-plate.

Minor Improvements and Prices.

We have been aware for some time, as our readers know, that electric lighting by means of a dynamo must come into use, and we congratulate the Hendee Co. on being the first to fit this desirable feature as standard, and also on going farther and providing an electrical starter.

With reference to the frames, the fore and aft springing, by means of laminated leaf springs, has been retained, and for sidecar work a light reinforcement in the lower down tube has been added, which prevents the frame from twisting or being thrown out of alignment.

The prices are: Hendee Special £77, Standard 7 h.p. twin £70, Standard 3½ h.p. £60, in every case complete.



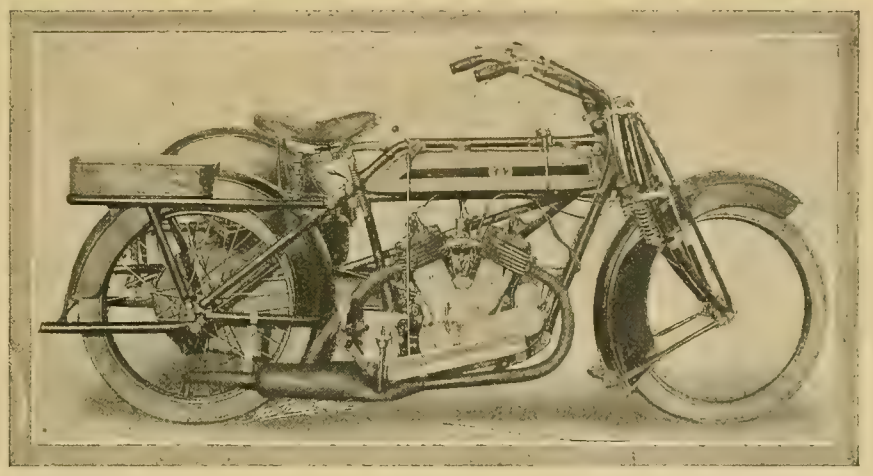
The head lamp and electric horn of the Indian electric outfit.

New Three-speed Twin-cylinder Rex.

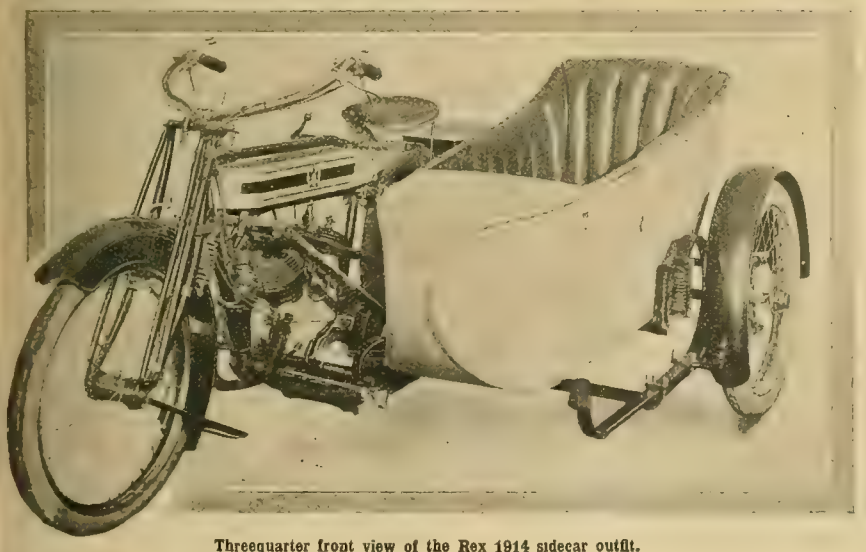
Chain or Belt Drive; A Larger Engine of Improved Design.

CONSIDERABLE alterations have taken place in the twin Rex engines for the 1914 season, and the new features are carried out on somewhat unusual lines. The cylinders project deeply into the base chamber and are surrounded by an oiltight pocket formed by the crank chamber casting. Oil is fed directly into this space and passes directly on to the pistons through ports in the cylinders; thus both front and rear cylinders are equally well lubricated. The dimensions of the engine are 80 × 95 mm., 952 c.c., and the cylinders are each held down by two long bolts to the head only. The crank case design is neat and clean. The timing case is circular and the tappet guides are mounted in flat cases, which have detachable extensions covering the valve gear. Roller bearings are fitted to the big ends, and the usual Rex eccentric rim flywheels are retained. The magneto has been placed between the front cylinder and the down tube and is chain-driven.

The drive is by chain to a three-speed sliding gear box carried in the counter-shaft through a cork insert clutch. The final drive is also by chain and the kick starter and transmission are totally enclosed.



Valve side of the 6 h.p. 1914 chain driven Rex showing valve-covers, new-change speed gear in the counter-shaft, tool box on the carrier, and large expansion chamber.



Threequarter front view of the Rex 1914 sidecar outfit.

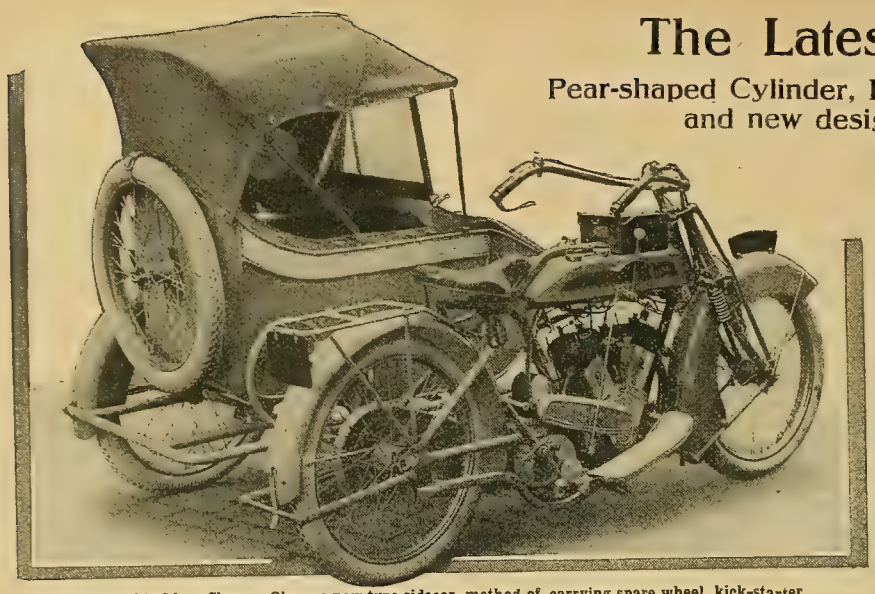
Transmission Details.

Neat rubber-covered footboards are fitted. The new silencer is of large dimensions and has a gradually tapering tail pipe extending to the rear spindle. The frame design remains practically unaltered except for the carrier, which is rather lower than usual and has fixed to it a large metal box lined with felt, which provides ample accommodation for tools and spares and has a specially strengthened lid to carry luggage or heavy weights. The front hubs are now fitted with larger bearings and waterproof washers. The tank retains the distinctive Rex features, and has hinged glass-topped filters and sight feed drip lubrication.

We also inspected a belt-driven model which, except for the transmission, is identical. The Rex-Roc gear is used, and it is fitted with a simple kick or hand starter, which works on the ratchet principle.

The Latest Clyno.

Pear-shaped Cylinder, Improved Lubrication, and new design Sidecar.



The 1914 5-6 h.p. Clyno. Observe new type sidecar, method of carrying spare wheel, kick-starter, change speed gear, and footboard.

THE Clyno Engineering Co. have obtained a reputation second to none for their sidecar models, and next year the added refinements will keep this machine in the forefront for passenger work.

The main alterations in the engine, which is a 50° twin-cylinder, 76 mm. by 82 mm. bore and stroke, giving a capacity of 744 c.c., is the casting of the cylinders pear-shaped for next year's machines, for the purpose of more perfect radiation. It also has the advantage of giving a very neat-looking cylinder. An alteration has been made in the design of the crank case, whereby an equal supply of oil is assured to both cylinders. The neat valve stem covers are retained. A new pattern of front chain case has been adopted, and the foot brake has been improved in detail.

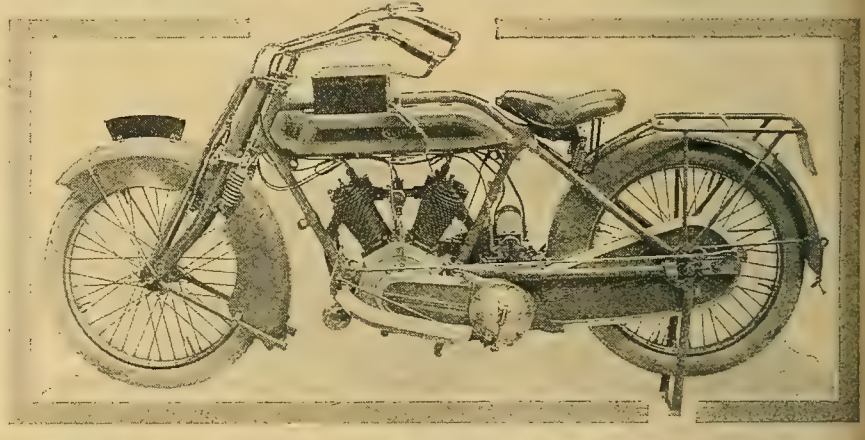
An excellent feature is the provision of large fuel tanks; two and a quarter gallons of petrol can now be carried.

The Detachable Wheel.

Of course, the detachable wheels to both machine and sidecar are retained, and probably no feature has gained such universal popularity among riders. It is literally but a moment's job to take out and replace any of the three wheels, the spare being carried on a dummy hub on the sidecar rear panel. A slight reduction has been made in the total weight of the machine. A minor improvement is the use of inverted levers for front brake and exhaust lifter control. The three-speed car type counter-shaft gear box is a really fine piece of work, with its six-splined mainshaft. The whole box is mounted with great rigidity, and the transmission is particularly sweet as a result. The ratios provided are 5, 9, and 15 to 1. On the top of the gear box the magneto is fitted, driven by an enclosed chain, easy adjustment being afforded by sliding the magneto.

The New Sidecar.

Comfort, combined with a handsome appearance, is the keynote of the very fine sidecar for 1914. As already stated, the wheel is of the Clyno patent detachable type, and the spare is neatly mounted on the rear panel on a dummy hub, and supported by a bracket. A complete measure of protection is provided for the passenger by a really well fitted hood with side curtains and an adjustable screen. When all is "storm rigged," the occupant is almost as well protected as if in a car. An attractive panel of canework runs along the sides of the coachwork. The design of the sidecar body is a new one for the Clyno firm, and is, we think, an improvement as regards appearance on the 1913 models. Altogether, these passenger outfits are among the finest to be met with on the road, and their wonderfully successful appearances in the big trials prove them to be as reliable as they are handsome.



Showing the clean lines of the 1914 Clyno. It will be noticed that the radiating fins extend the whole length of the cylinder.

The 2½ h.p. Puch Motor Cycle.

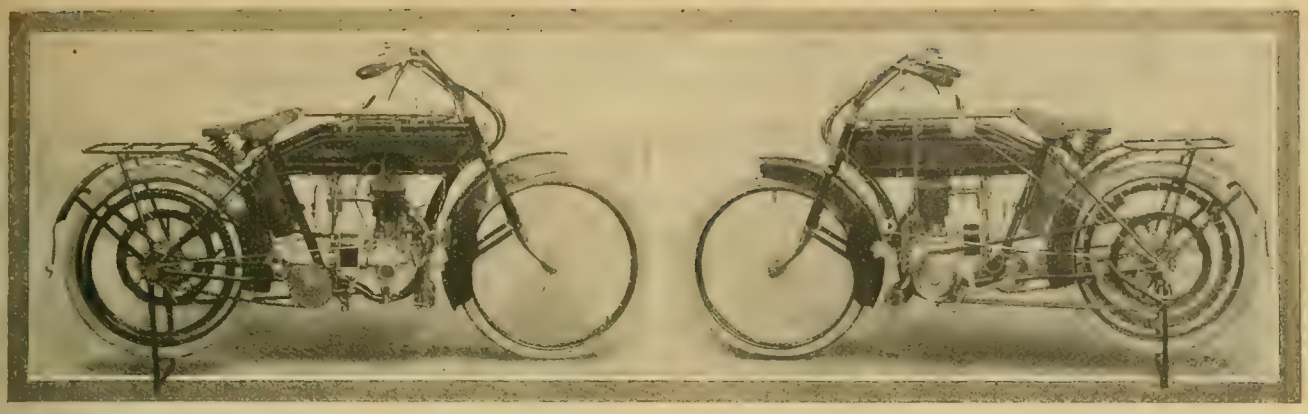
A 2½ h.p. single-cylinder model of this attractive little machine had just been uncrated when we examined it recently. The machine was finished in green.

It was fitted with an Armstrong three-speed hub, a Bosch magneto, and a B. and B. variable jet carburetter. The device by which the pulley is geared down is retained, also the belt tensioning device, which, on the model we examined, was operated by a handle attached to the top tube, similar to the N.S.U. two-speed gear. The petrol tank is fitted with a sump and filter. The toolbag is fitted under the saddle between the rear frame member and the back mudguard. There is no front wheel brake, but a brake lever attached to the handle-bar operates independently upon the brake rim. The magneto is driven by skew gear off the camshaft and is situated behind the engine. The spring forks are of simple design, having enclosed springs. There are inspection windows on the timing gear case and crank case.

Transmission is by belt. The pulley is approximately seven inches in diameter and the belt rim fourteen inches. The belt, of foreign manufacture, is of rubber with a leather back. Pedalling gear is fitted, and a spring stand operated by the heel of the rider. The back mudguard is hinged. Pirelli tyres are fitted.

REX-JAPS FOR 1914.

The Rex-Jap for 1914 has been greatly improved. In future this machine will be made throughout at the Aston Road Works of the Premier Motor Co., Ltd., and next year it will be entered in all the large competitions. The main improvements are enclosed chain drive, neat counter-shaft three-speed gear and kick-starter. The whole machine is exceedingly well finished and of most robust construction.



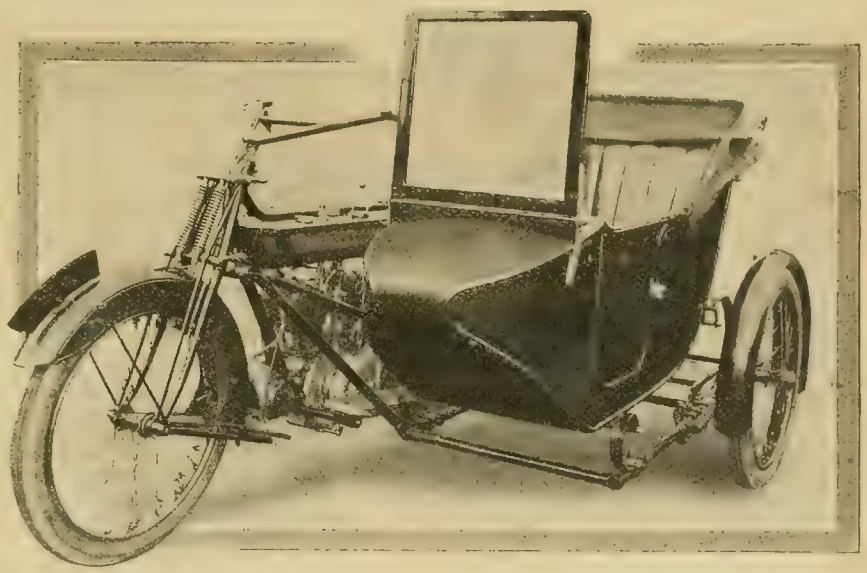
The latest model Puch single-cylinder mount, which is fitted with Armstrong three-speed gear, under-geared drive, and Bowden controls.

Enfield Improvements for 1914.

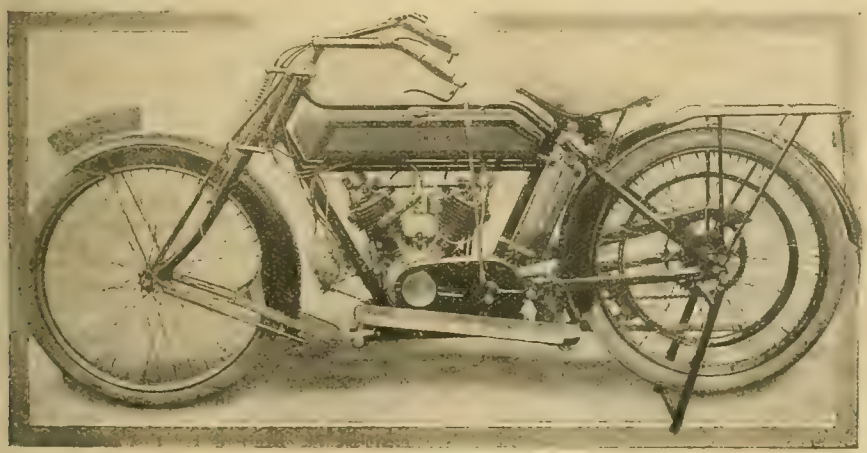
THE 6 h.p. sidecar model Enfield has been so successful, both in competition and in the hands of private owners during the past year, that the company have not considered it necessary to make any great changes.

The first point to attract attention is the substantial cast aluminium casing which now encloses the two engine chains and the selective clutch mechanism. The case is split horizontally and is rigidly attached to the frame so as to prevent rattles, and, at the same time, it leaves plenty of clearance inside so that the chains cannot hit. The handle starter chain passes through slots in a boss at the back of the case, and has been fitted with an improved starting clutch, while the handle itself, when out of action, is held in a neat spring clip in such a position as to be out of the way of the rider. The hand oil pump is fitted with a two-way tap, one lead being taken to the engine and the other to the gear, so that the latter may be lubricated from the saddle. Plating has been dispensed with wherever possible, and the all-black finish on the handle-bars and hubs looks smart and workmanlike.

650×65 Palmer cord cycle car tyres are fitted all round, and these, with the two springs, which will be a feature of the new spring forks, give somewhat increased comfort, added to which a very neat spring handle-bar may be obtained as an extra. XL'All saddles and Amac carburetters are to be standardised on this model, and probably the footboards will be sprung at the front end.



Enfield sidecar combination, with smart coachbuilt sidecar equipped with windscreen.



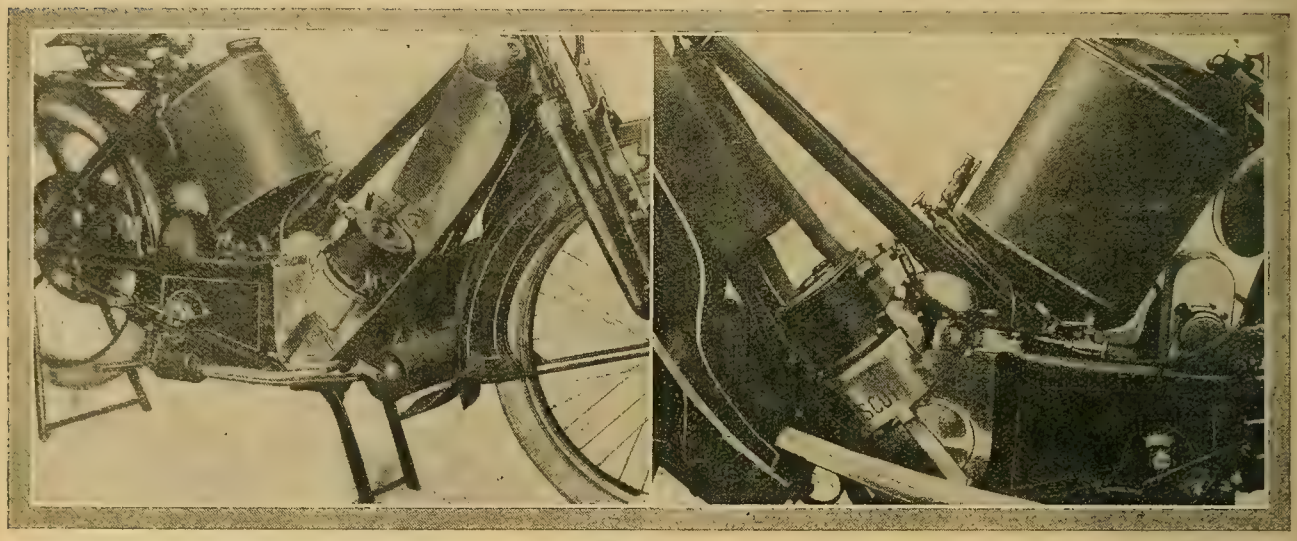
The latest design 3 h.p. two-speed Enfield.

Passengers are, of course, thoroughly well catered for in the large and comfortable sidecar fitted. Choice is made of either art cane sidecar body or coachbuilt body, and a special Colonial sidecar in art cane, giving exceptional clearance between the chassis and the ground, is a model which will doubtless appeal to overseas riders.

The little 3 h.p. model will, in future, have a chain-driven magneto placed in much the same position as before, and the kick starter has been changed over to the near side and now acts direct on the crankshaft. Other Enfield features remain the same. The usual smart green and black finish will remain the same, and the all-black finish will not be standard for the 3 h.p. model. It is not generally known that the Enfield Company have a private testing track, and it was interesting to watch two of the 6 h.p. models going through their paces, for, besides having a good turn of speed, they are capable of crawling round the track.

The New Two-stroke Scott.

Features: Drip-feed Lubrication; Increased Ground Clearance.



Power unit of the 1914 Scott, showing water-cooled cylinders, new sight feed lubricator and general arrangements.

THE general outline to the eye of the 1914 two-cylinder two-stroke Scott will be substantially the same as it has been this year, but beneath the surface there lies a really large amount of original and sound detail improvement. Not merely changes made for the sake of changing, but because those changes will undoubtedly make the 1914 Scott an even sounder and more reliable a mount than ever. It has never been the aim of the Scott designers to aim at quantity production, and no effort will be made next year to secure a record output from the works at Shipley, efforts being concentrated on making each machine despatched individually as perfect as can be. Needless to say, the general principles and lay-out, which has made the Scott so distinctive, will be fully retained.

Some New Mechanical Details.

The chief alteration will be the use of a drip feed lubricator, by means of which a more constant and better regulated supply of oil can be fed to the engine, and it will be found that the presence of this lubricator will greatly diminish the quantity of oil used. It may safely be asserted that the great majority of Scott riders over-lubricate their motors, and those of us who have had much to do with long-distance trials know that these machines can be, and are, driven by experts up hill and down dale day by day without showing any more smoke from the exhaust than a four-stroke motor does. Yet many and many a Scott is seen in the hands of the public smoking briskly about the country, and this new lubricator should materially assist some of these riders to keep down their oil bill, and at the same time avoid undue carbonisation of their engines. The small silencer near the cylinder has been raised further from the ground, as it was found that occasionally the too dashing cornerist hit it against the earth.

The small driving sprocket has now been so fitted that it is absolutely impossible for it to work loose, without in any way rendering its removal difficult.

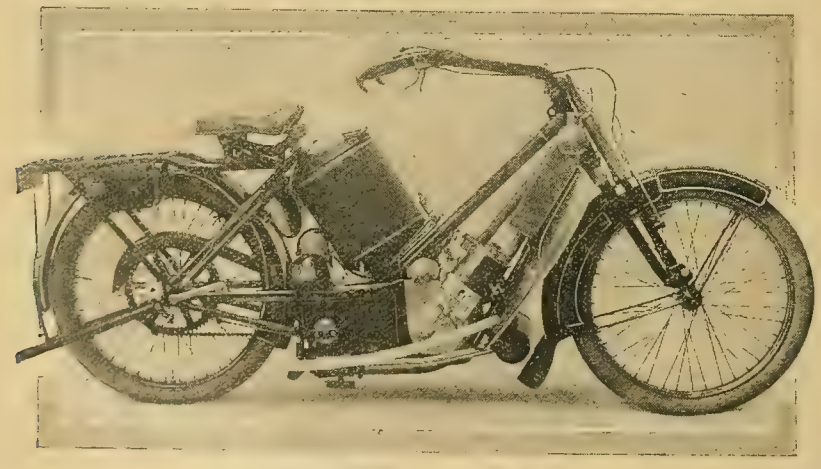
A large lubricator has been fitted to the gear box. In the former models removal of the gear shield was necessary to lubricate the gears, and many riders neglected to go to this trouble with sufficient frequency for the proper working of the change-speed mechanism. Now the laziest Scott rider can lubricate his gears as easily as he can oil his engine, even when a sidecar is attached.

The handle-bars are now covered by black celluloid: a move in the right direction towards an all-weather finish.

It is all these minor improvements that show the constant care exercised to keep the best class machines up-to-date.

Tests Before Delivery.

Every Scott engine is subjected to a bench test of 3½ hours' duration before it is sent out on the road in charge of a tester. Up to the present, if the machine came through both these tests satisfactorily it was considered ready for despatch to the customer, but in future the engine will be dismantled, examined, and all parts tested by gauges, and then reassembled before despatch. It should thus be quite impossible for a 1914 Scott to leave the work with even the slightest defect in its composition. Considerable reorganisation of the stores department has been effected in order to provide for immediate despatch of spares, if required, the idea being to make the Scott service as good as the Scott motor cycle.



Side view of the 8¾ h.p. 1914 model Scott.

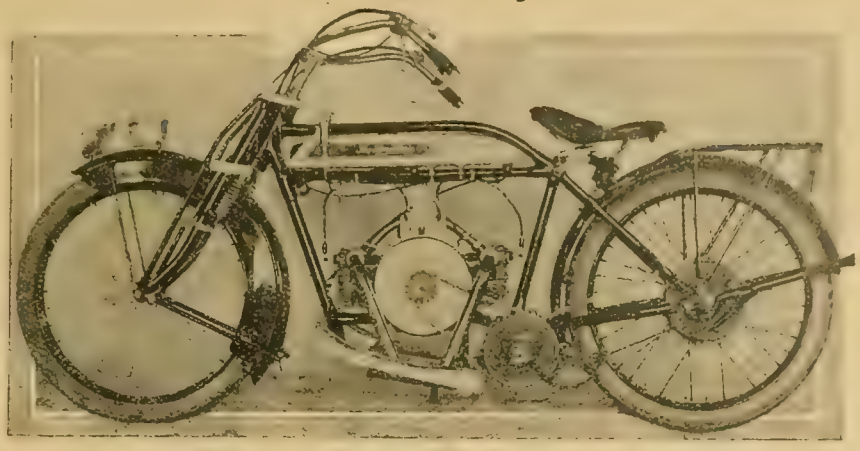
AN OVERSEAS NORTON.

A special colonial model Norton will be marketed for 1914, with a slightly higher frame, giving greater tank capacity, but at the same time low riding position is obtained by the dropping of the rear end of the top tube. The ground clearance will be 5in.

A 499 c.c. Horizontal Bradbury Twin.

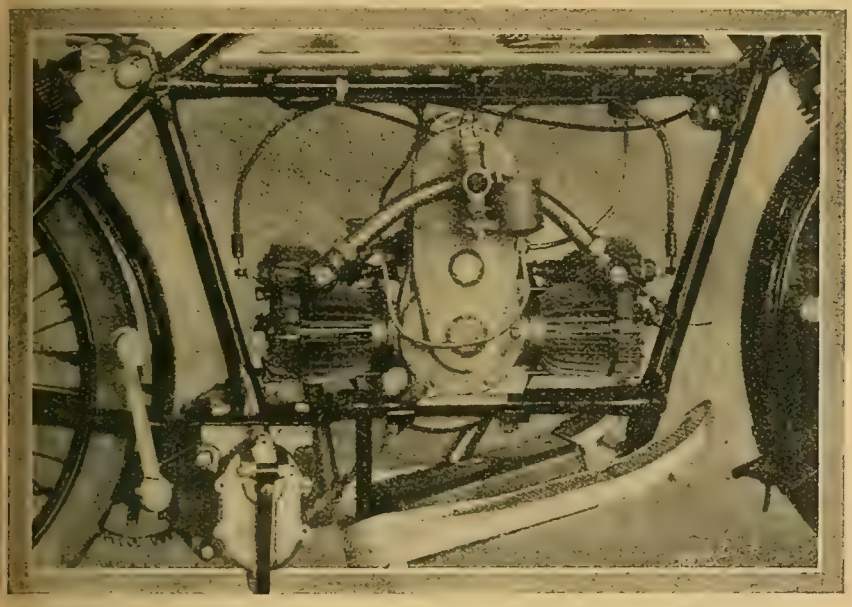
MESSRS. BRADBURY are introducing an entirely new model in the shape of a horizontally opposed twin, of which we are able to give a few particulars. The cylinders are fitted with detachable heads, which enable the cylindrical portion to be machined all over, thus ensuring an even distribution of metal, and the whole cylinder is plated to prevent rust. The crankshaft is made of high tensile steel, runs on ball bearings, and is of the three-throw type, which allows of excellent balance being obtained. The valves are side by side, and are operated by adjustable tappets. The transmission is by $\frac{5}{8}$in. × $\frac{1}{4}$in. chains, enclosed throughout.

The three-speed gear box is of the sliding dog type, provided with a kick starter and a large clutch with cork inserts, the latter being operated from the handle-bar. The gears are 4, 7, and 12 to 1 (solo), and 5, 8, and 14 to 1 for sidecar use.



The complete 3½ h.p. horizontal engined Bradbury from the flywheel side.

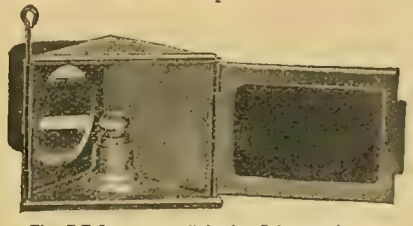
The tank is capable of holding 1¼ gallons of petrol and three pints of oil. 2$\frac{5}{8}$in. tyres are standard fittings; the rear brake is of the internal expanding type; wheelbase 54in.



Timing gear side of the new Bradbury horizontal twin, bore and stroke 68 × 68·75 m.m.

F.R.S. REAR LAMP.

Another addition to the rear lamps is the F.R.S., a neatly made lamp in the form of half a cube, divided diagonally. It is designed to be fitted to the rear number plate, and to illuminate the number, as well as throw a red light rearwards. The electric bulb takes four volts and half an ampère.

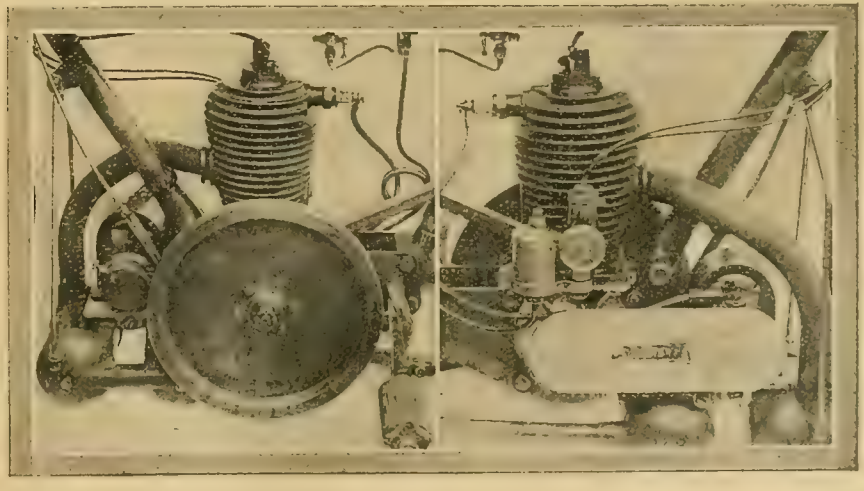


The F.R.S. rear red light for fixing to the rear of a motor cycle. At the side will be seen a plain glass for throwing a white light on to the number plate.

A VILLIERS TWO-STROKE.

A New Departure for 1914.

There have been many rumours current about a horizontal twin which was to emanate from the Villiers factory at Wolverhampton. This idea, however, has been given up, and a very neat little 2¼ h.p. single-cylinder two-stroke motor will be standardised in its place. The bore and stroke of the new engine are 70 mm., giving a capacity of 269 c.c. A roller bearing is fitted to the big end, and a large diameter outside flywheel employed. The primary compression is in the crank case, and the lubrication is centrifugal. When we saw the machine undergoing its road tests it was running particularly smoothly and silently, and it appears to produce plenty of power per size. Thanks to a large outside flywheel the engine is very flexible. It will, it is expected, appear at Olympia in a finished form.



Left and right side views of an entirely new model Villiers two-stroke engine.

TIME TO LIGHT LAMPS.

Nov.	6th	5.23 p.m.
,,	8th	5.20 ,,
,,	10th	5.17 ,,
,,	12th	5.13 ,,

Next Thursday!

The first of our three special Olympia Show Numbers. This issue, which will deal mainly with passenger machines of all types, will be considerably enlarged.

A Proposed New Club.

It is proposed to form a motor cycle club at Blackheath. Those interested should write Mr. A. J. Barnes, Senrah, Liskeard Gardens, Blackheath, for the date of the meeting, which it is intended to hold at the Swan Hotel, Old Charlton, S.E.

Brooklands.

The few weeks preceding the Show usually produce a crop of records, and already a number of riders are waiting a favourable opportunity to set up new figures. J. Cocker is at the track with a Singer sidecar, and seems fairly confident of annexing the hour record; there is the Rudge contingent too, out for the hour motor bicycle record; whilst among cycle cars, the Stellite has lately been put through its paces, possibly to provide figures for the Wolseley Company's guidance.

Choosing a Second-hand Mount.

The Motor Cycle advertisements of second-hand machines are now classified in alphabetical order, and the machines are clearly subdivided under the headings of the various different makes. The task of selecting a suitable second-hand motor bicycle or sidecar is now rendered a great deal easier, and, in view of the great increase in *The Motor Cycle* miscellaneous advertisements, the change is sure to be appreciated.

Rear Lighting.

The Chief Constable of Leeds is reported to have stated that the recent decision of the courts with regard to rear lights will be strictly enforced in that locality, unless the Local Government Board immediately issues an amending order. The Chief Constable thinks that a reasonable time has now been allowed in which to obtain the necessary lamps.

The Darlington Police are demanding names and addresses of all motor cyclists seen riding without rear red lights. A correspondent says that a somewhat amusing aspect of the case is that he was stopped on the 30th ult., and afterwards watched the same constable stop several other motor cyclists. At the same time a local car driver passed with his rear lamp extinguished, and was not interfered with. This is another proof of how difficult it is to do two things at once.

SPECIAL FEATURES:

MANY NEW MODELS.

A RACING OR TOURING CARBURETTER AT WILL.

THREE TRIALS DESCRIBED AND ILLUSTRATED.

A Show Attraction.

An attractive feature of the Sturmey-Archer exhibit at Olympia will be a huge revolving epicyclic gear, lit up by electric lamps, illustrating in a simple manner the epicyclic principle.

Villages and Roads in the United Kingdom.

At the A.A. and M.U. dinner it was mentioned that there are 45,000 villages in the United Kingdom, and 230,000 miles of roads. 20,000 miles of these are being watched over by A.A. scouts.

A Novel Match.

Mr. Rupert May, who is well-known as a rider of Triumph motor cycles, is also a keen golfer, and last week he indulged in a novel match with a fisherman named Mackinlay. The rules were that Mr. May should drive his golf ball by means of the orthodox clubs, and Mr. Mackinlay should cast a weight of 2½ ozs. by means of a fishing rod. Quite a sporting match ensued, but in the end Mr. May proved a fairly easy winner with 87 strokes against 102 casts. The match took place on the Wellington (Salop) Golf Links.

AUTUMN CYCLE CAR TRIAL. Vernon Busby (8 h.p. four-speed Morgan) in the stopping and re-starting test on Bore Hill.

Shipping to Lagos.

On October 16th we published a letter from "F.C.M.," asking if readers who had been to West Africa would let him know whether a tin-lined case was necessary. He now writes to thank those who have given him information, and mentions that his correspondents agree that a tin-lined case is an unnecessary luxury.

An Australian T.T. Race.

News has been received that the West Australian Tourist Trophy Race has been won by J. Norton mounted on a 3½ Triumph at an average speed of forty miles an hour, which, considering the somewhat rough roads in that part of the world, is a remarkably fine performance.

Electric Light and Vibration.

We are assured by the manager of an important firm making electric lighting sets for motor cars that motor cyclists need no longer fear that they will suffer with broken filaments owing to vibration. On the motor cycle lighting set which this firm has in hand the filaments will stand far more vibration than they can possibly receive from a motor cycle even on the roughest roads. Our leaderette of a few weeks ago on the subject of dynamo lighting for motor cycles was opportune, as we know of more than one firm who are either experimenting or have models ready for fitting to motor cycles.

Silencer Regulations.

Readers know that there is a good deal of doubt in the minds of the authorities as to what complies with the silencer regulations. The makers of the Clair silencer, Messrs. J. C. Lyell and Co., Ltd., 113, Great Portland Street, W., have decided in future to indemnify each user of one of their silencers against conviction. The firm are being constantly asked whether they will guarantee the Clair fully to comply with the law concerning silencers and cut-outs, and they have now decided to adopt the above course in self-defence. They point out that they reserve the right to defend any action, and in the event of conviction they would pay the fine.

The late Mr. Percy Lambert.

It is our sad task to have to record the death of Mr. Percy Lambert, who met his death at Brooklands on Friday last, through the bursting of a tyre while attempting the hour record on a Talbot car. Poor Lambert was a keen motor cyclist during the early days of the movement, and, probably, this fact accounted for his wonderful prowess in car racing of recent years, as there is no better training for this sort of work than motor cycle riding. In 1903 he was entered by Mr. F. R. Goodwin, who was then connected with the Star Company, to ride a 2½ h.p. Star-Griffon in the 1,000 miles A.C.C. trials, which started daily from the Crystal Palace. His machine had a bore and stroke of 66 × 90 mm. and weighed 110 lbs. In those days a thousand miles was no small feat, but Lambert, who was then only twenty-one years of age, got through the trial and gained an award in the second class. Next year he rode a 2¾ h.p. of the same make (75 × 80 mm.) and came through the six days in excellent form, though he suffered terrible tyre trouble, which dogged him right up to the end. In Hounslow the back tyre was past repair, so he slung it round his neck and pedalled back to the Down Street Motor House on the rim. The result was that he gained a third-class certificate. Of poor Lambert's recent performances we need say nothing, as they are fresh in the minds of everyone. He was a man whom the writer was pleased to reckon among his friends, and his popularity was in no small part due to his happy disposition and his ability to be merry and bright even when things seemed at their worst. He had long been out of touch with motor cycling matters when he had a joyous spin round Brooklands on the writer's machine only a few months ago, and could then hardly realise how great improvements had been made in motor cycle construction.

FUTURE EVENTS.

Nov. 7-15. - Motor Car Show at Olympia.
„ 24-29.—MOTOR CYCLE & CYCLE CAR SHOW AT OLYMPIA.
Dec. 26-27.—MOTOR CYCLING CLUB Winter Run from London to Exeter and back.
„ 27.—Birmingham M.C.C. Reliability Trial to York.

Triptyques for South Africa.

The Automobile Association and Motor Union has now completed negotiations with the Government of the Union of South Africa, whereby the Association can issue "triptyques" or customs permits for the temporary importation for touring purposes of motor vehicles into South Africa, without the necessity of depositing duty with the Customs at the port of arrival.

In future a member of the A.A. and M.U. can obtain before leaving England a triptyque available for six months which will enable him to take his machine into the country without the slightest difficulty.

The triptyque system has now been in operation for some years in the principal countries of Europe, and has proved a very great boon to motorists. It has simplified the once formidable customs formalities, and it is to be hoped that all countries which levy an import duty on motor cars will adopt this method of guarantee instead of compelling the tourist to deposit the duty on the frontier.

A Competition for Lady Motor Cyclists.

The proprietors of *The Ladies' Field* are offering three valuable prizes for the best amateur ideas and suggestions for a lady's motor cycle costume. The particulars should be preferably accompanied by rough sketches. The outstanding points should be practicability, simplicity, and attractive appearance.

The first prize is a 2¾ h.p. lady's Douglas, value £53. The second prize is a Wall Auto-wheel for attachment to a lady's pedal bicycle, value £16 16s. The third prize is a lady's leather coat, value £10 10s. Six motor mascots will be awarded as consolation prizes to the senders of the six next best suggestions.

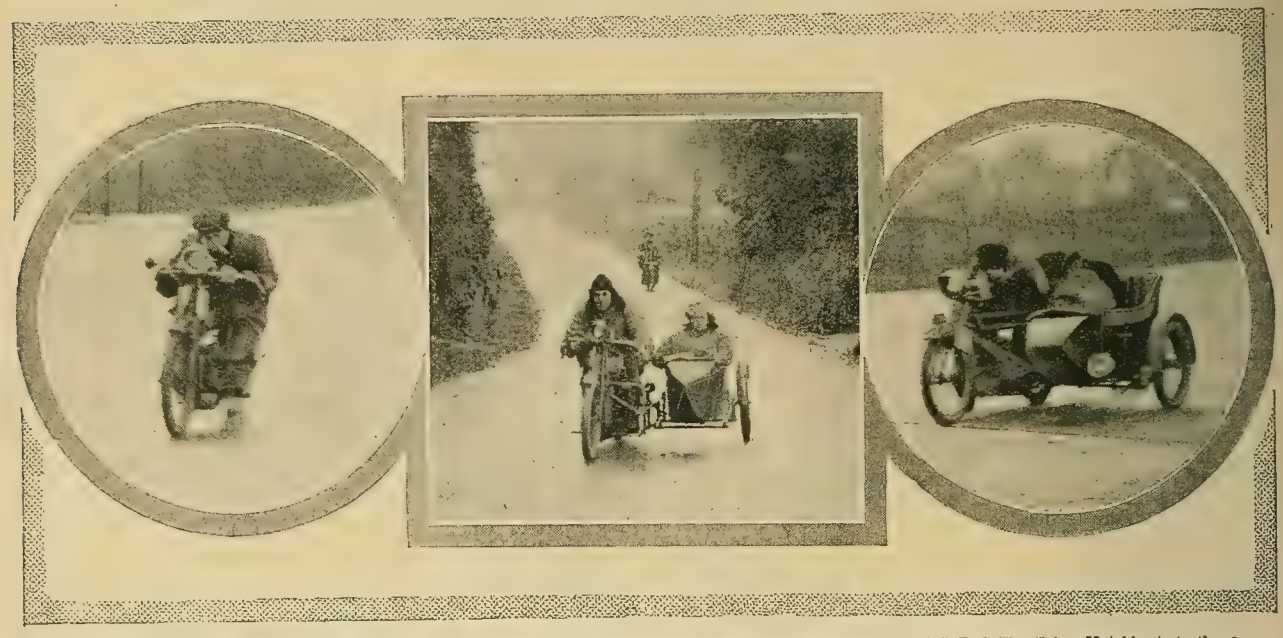
The conditions are that all entries are to be endorsed with the name and address of the sender, and to be accompanied by the heading of the current issue of *The Ladies' Field*. They are to be addressed to the Editor, *Ladies' Field*, 8, Southampton Street, Strand, London, W.C., and the word "Competition" should be written in the top left-hand corner.

Letters should reach the office of the above journal by first post Monday, December 8th.

STREATHAM M.C.C. TRIAL. G. Nott (Clyno sidecar), followed by another competitor, on Chalk Pit Hill.

Reliability, Acceleration, Speed, and Re-starting.

Ambitious Trial of the Streatham and District M.C.C.



(1) H. G. Dixon (3½ h.p. James) in the speed test on Brooklands. (2) A. M. C. Scott (Premier sidecar), followed by F. A. Applebee (Scott), on Tilberstowe Hill. (3) C. R. Collier (7 h.p. Matchless) starting for his flying lap on Brooklands.

A MOST interesting trial was held by the Streatham and District M.C.C. on Saturday last, and the results should prove instructive, as it comprised an acceleration test, a 100 miles reliability trial, a speed test on Brooklands, and a stopipng and re-starting test on a stiff gradient. A gold medal will be awarded to those who qualified in all four tests, a silver medal to those who qualified in three tests, and a bronze medal to those who only qualified in two tests. Out of an entry of eighty-six, only four failed to put in an appearance at Godstone, and just before 8 a.m. Godstone Green presented a busy spectacle, all the machines being ranged up in their allotted order along one side. Punctually as the clock struck the hour the first man was sent away on the acceleration test over a distance of fifty yards.

The Acceleration Test.

In each class the fastest average over this distance was taken as a standard, and only those who accomplished speeds within 5 m.p.h. of the standard were considered to have qualified. In practice this worked out well, and few failed to pass test except in Class III. (for solo machines between 350 c.c. and 500 c.c.), in which Crawley (3½ Triumph) set such a hot speed that eleven failed to get within the specified 5 m.p.h. margin.

Among the few who stopped their engines, Frank Smith had particularly hard luck, for his Grand Prix Clyno usually gets off the mark like a rocket. W. Cooper was allowed a re-start, as it was discovered that his petrol was turned off before he crossed the line. The following are the provisional results of the test :

Class I. (up to 300 c.c.)—Best performance, Colin Taylor (2½ Connaught). All qualified.

Class II. (from 300 to 350 c.c.)—Best performance, J. B. Sproston (2¾ Sunbeam). All qualified.

Class III. (from 350 to 500 c.c.)—Best performance, S. Crawley (3½ Triumph). The following failed : H. V. Colver (3 Enfield), L. A. Bollack (3½ Singer), J. H. Kerr (3½ N.S.U.), M. C. Breese (3½ B.S.A.), E. H. Littledale (3½ Ariel), Mrs. Hardee (3½ P. and M.), A. Roberts (3½ Blackburne), T. Pollock (3½ James), H. Collier (3½ Matchless), R. Croucher (3½ Kerry-Abingdon), and J. Gibson (3½ Triumph).

Class IV. (from 500 to 750 c.c.)—Best performance, R. G. J. Charlesworth (5 Zenith). All qualified.

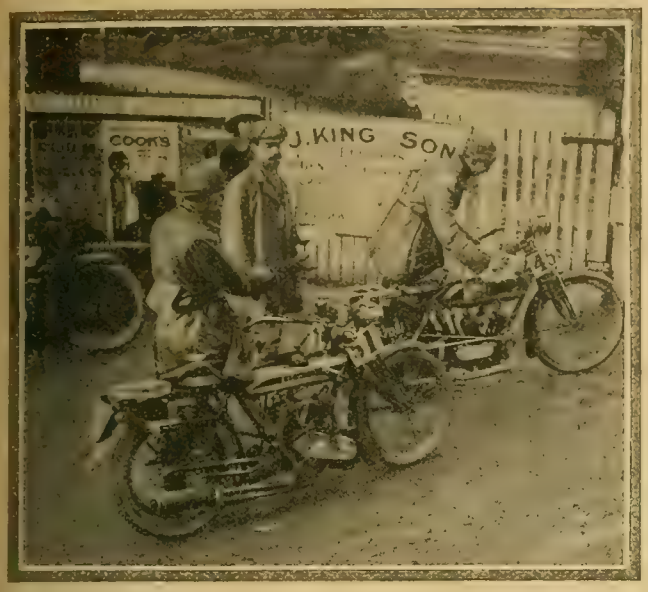
Class V. (from 750 to 1,000 c.c.)—Best performance, A. B. Wade (6 Zenith). Sydney George (7 Indian) and A. J. Luce (6 Zenith) failed.

Class VI. (machines and sc. up to 500 c.c.)—Best performance, F. J. Watson (3½ Ariel sc.) All qualified.

Class VII. (machines and sc. from 500 to 750 c.c.)—Best performance, E. B. Ware (5 Zenith sc.) George Wray (5-6 Clyno) failed.

Class VIII. (machines and sc. from 750 to 1,000 c.c.)—Best performance, E. L. Boutle (8 Chater-Lea sc.) A. C. Scott and T. S. Fordham (8 Premier sc.'s) failed.

George Wray (5-6 h.p. Clyno sidecar) ascending Chalk Pit Hill.



G. Price (3½ h.p. P.V.) and A. B. Wade (6 h.p. Zenith) waiting at the level crossing at the bottom of Pebble Hill.

CLASS IX. (four-wheeled cycle cars).—Best performance, L. Martin (10 Singer). All qualified.

CLASS X. (three-wheeled cycle cars).—Best performance, L. W. Spencer (8 Morgan). All qualified.

Tampering with the Arrows.

After the acceleration test, the first section of the non-stop reliability trial commenced, the route including such well-known hills as Chalk Pit, Polsteeple, Cudham, Brasted, thence *viâ* Oxted up Tilburstow Hill, through Nutfield, Betchworth, up Pebble Hill, Leatherhead, Cobham, to Brooklands. Considering the amount of rain that had fallen, Chalk Pit Hill was in wonderfully good condition, and caused but few failures. H. G. Bell (2½ F.N.) was stopped near the foot of the hill and came no further, and R. Abbott (3½ Bradbury) had trouble.

After Chalk Pit some of the arrows had been tampered with and quite a number lost their way. This was not the fault of the club officials, for the directions had been carried out very thoroughly, but some mischievous persons had removed some of the arrows and reversed others; in fact a pedestrian was seen walking about with one in his hand. Polsteeple Hill had a very slippery surface and caused more than one failure through rear wheel slip; also at this spot T. West (8 water-cooled Morgan), with Reg. Holloway as his passenger, broke a low gear driving chain. The surface of Cudham Hill was comparatively good, and consequently the hill presented little difficulty to the majority of riders. On Brasted Hill H. Collier had gear trouble. The surface was in fair order, and many three-speed machines sailed up on middle gear.

Slippery Surfaces and Steep Hills.

The country was beautiful in its autumn garb, but the fallen leaves and recent rains had made some of the narrow lanes so greasy that solo riders had to exercise the greatest caution over long stretches of road. At the top of Pebble Hill quite a little crowd of spectators had gathered to see the fun. We noticed a particularly fine ascent by T. C. de la Hay (6 Sunbeam sc.), and other good climbs by T. G. Meeten (3½ Rudge), J. B. Sproston (2¾ Sunbeam), A. C Scott (8 Premier sc.), and T. Silver (3½ Quadrant sc.), while A. G. Cocks, on the little Connaught, had to assist his machine slightly. On the way to Brooklands we overtook L. A. Bollack, who reported a stop for a broken belt, and shortly afterwards A. G. Cocks, who had shed the nut which holds on the driven sprocket; however, he managed to get another nut and continued again in great form. The non-stop section ended about half a mile from Brooklands, and competitors were sent on *viâ* the Byfleet Gate. On reaching the track a complete lap had to be made finishing in the straight and a minimum speed was set for each class.

Brooklands proved a surprise to many who were not previously acquainted with the track, and more than one rider found that his machine had a tendency to "dry up" in the neighbourhood of the aeroplane sheds. Three competitors had hard luck on the track, H. F. S. Morgan having carburetter trouble, E. B. Ware (5 Zenith sc.) shed a belt, and C. F. Halsall (10 Wilton cycle car) ran out of petrol. This was all the more disappointing in that all three machines are capable of high speeds and have previously shown up well on the track. A. B. Wade (6 Zenith) accomplished the fastest lap at 56.37 m.p.h., and Crawley's Triumph again proved its worth by lapping at 53.05. The following are the times of those who successfully attained their set speeds:

CLASS I.—Minimum set speed, 33 m.p.h.

R. O. Clark (2½ F.N.) ..	35.77	C. Taylor (2½ Connaught)	34.75

CLASS II.—Speed, 37 m.p.h.

J. Sproston (2¾ Sunbeam)	39.93	W. L. Barratt (2¾ Douglas)	42.94
J. S. Watson (2¾ Sunbeam)	40.77	C. Aslen (2¾ Grandex) ..	41.0
H. R. Davis (2¾ Diamond)	37.28	S. Tubb (2¾ Humber) ..	43.02
A. F. Selby (2¾ Sunbeam)	41.0		

CLASS III.—Speed, 42 m.p.h.

C. E. Noakes (3½ Sunbeam)	45.08	H. Willoughby (3½ Rudge)	50.75
T. G. Meeten (3½ Rudge)	48.48	H. G. Dixon (3½ James)	43.79
R. G. Mundy (3½ Triumph)	50.38	H. Collier (3½ Matchless)	42.85
L. A. Bollack (3½ Singer)	43.36	W. C. Drake (3½ P. and M.)	44.87
J. H Kerr (3½ N.S.U.) ..	44.03	A. V. Sumner (3½ Zenith)	50.21
C. Walters (3½ P. and M.)	43.21	R. Croucher (3½ Kerry-Abingdon)	46.81
A. C. Breese (3½ B.S.A.) ..	43.21	J. Gibson (3½ Triumph) ..	46.09
E. H. Littledale (3½ Ariel)	46.94	S. Crawley (3½ Triumph)..	53.05
J. Oliphant (3½ Premier)	47.81		
A. Roberts (3½ Blackburne)	48.53		

CLASS IV.—Speed, 47 m.p.h.

G. Price (4 P.V.)	47.58	G. T. Gray (5-6 Rudge) ..	46.44
R. Charlesworth (5 Zenith)	50.96		

CLASS V.—Speed, 52 m.p.h.

B. A. Hill (7 Indian) ..	53.22	G. Griffith (8 Zenith) ..	55.03
A. Wade (6 Zenith)	56.37		

CLASS VI.—Speed, 32 m.p.h.

F. Edmond (3½ Humber sc.)	34.28	J. E. Greenwood (3½ Sunbeam sc.)	37.10
T. Silver (3½ Quadrant sc.)	37.82	F. J. Watson (3½ Ariel sc.)	37.89
K. Holden (3½ B.S.A. sc.)	40.77		

CLASS VII.—Speed, 37 m.p.h.

A. H. Wright (6 A.J.S. sc.)	37.95	T. Stevens (3½ James sc.)	38.67
G. Nott (5-6 Clyno)	37.78	F. Smith (5-6 Clyno sc.) ..	47.12
T. C. de la Haye (6 Sunbeam sc.)	41.00	Hugh Gibson (5-6 Bradbury sc.)	43.75
G. Wray (5-6 Clyno) ..	38.13	C. Freeman (5-6 Clyno sc.)	40.35

CLASS VIII.—Speed, 42 m.p.h.

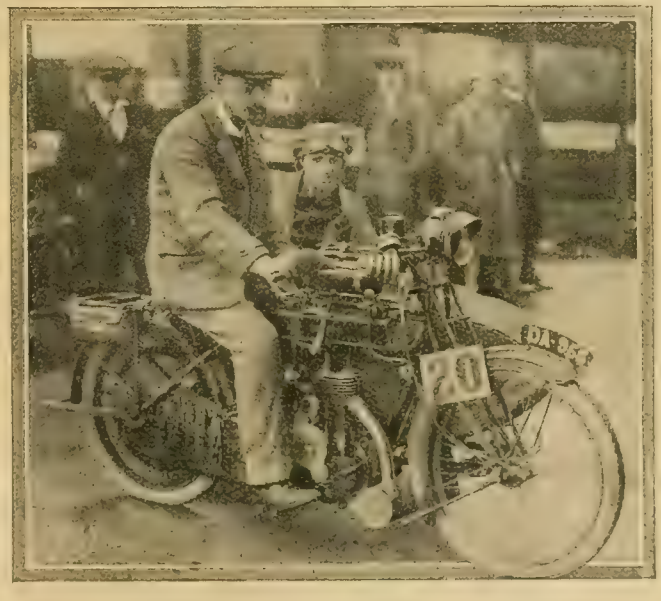
J. Woodhouse (7 Quadrant sc.)	43.87	C. Collier (7 Matchless sc.)	43.75
		E. Boutle (8 Chater-Lea sc.)	43.43

CLASS IX.—Speed, 40 m.p.h.

L. Martin (10 Singer c.c.)	52.66		

CLASS X.—Speed, 42 m.p.h.

T. V. West (8 Morgan) ..	42.75	L. W. Spencer (8 Morgan)	42.94



J. E. Greenwood, the designer of the Sunbeam, on the 1914 model 3½ h.p. sidecar machine with which he competed in Saturday's trial.

Reliability, Acceleration, Speed, and Re-starting.—

It would appear at first sight that the speeds allotted to the various classes were not too high, but it must be remembered that the machines had gone through nearly seventy miles hard work, and were in full touring trim. J. Chater-Lea, V. Busby (3½ Quadrant), and F. J. Ellis (6 Matchless sc.) all suffered tyre trouble during the morning, and H. E. Chapman (5-6 Clyno) was reported to have been involved in an accident near Redhill.

Mechanical Details.

A look round the competing machines during the lunch interval proved interesting, for there were several 1914 models taking part in the trial. Both the 6 h.p. and 3½ h.p. Sunbeams are very workmanlike-looking machines. Colver's Enfield had a chain-driven magneto, a new oil pump, an experimental inlet pipe, and the kick starter on the left-hand side. Two 7 h.p. M.A.G. engines were competing, one in a Matchless and one in Charlesworth's Zenith; both ran very quietly and smoothly. The sidecar on J. Woodhouse's Quadrant was built on novel lines, and part of the top and side hinged back to allow the passenger to enter. Ray Abbott reported that he had run out of petrol, and ascribed his run of bad luck to the fact that he had shaved off his moustache. F. G. Edmond was out on the new water-cooled 3½ h.p. Humber, which was apparently running beautifully. The new twin Bradbury and the 1914 Diamond are both fresh arrivals to competition work.

The Afternoon's Run.

After leaving Brooklands on the second part of the reliability test, a route was taken to the Portsmouth Road, which was followed past the well-known Hut Hotel, then *viâ* Horsley and up Crockmouth Hill. This slope was so slight that no machine in good trim should worry about it, but the surface was distinctly dangerous, and it is difficult to see why it should have been included, unless as a means of reaching other tests. Dorking was the next objective, and thence a long pull led up to Coldharbour. Some fine roads were found on this section, but the surface again became greasy near Betchworth, and this state of affairs continued to Reigate.

The Re-starting Test.

On turning up Wray Lane a large placard announced that the non-stop section finished half a mile away, which considerably assisted speed-judging. Further up competitors were stopped and sent up singly for the re-starting test. This took place on a gradient of, we should judge, about 1 in 7, the surface, though fairly dry, being slippery on account of its chalky nature.

There was much rear wheel slipping, and it was curious to notice fallen leaves actually smouldering after machines had passed over them with buzzing back wheels. The following made particularly fine ascents: T. C. de la Hay (6 Sunbeam sc.), C. Duplock (6 A.J.S. sc.), H. R. Davis (2¾ Diamond), T. Stevens (3½ James sc.), F. J. Watson (3½ Ariel sc.), Frank Smith (5-6 Clyno sc.), A. Roberts (3½ Blackburne sc.), Hugh Gibson (5-6 Bradbury sc.), G. Price (4 P.V.), C. Freeman (5-6 Clyno sc.), Lionel Martin (10 Singer c.c.), C. R. Collier (7 Matchless sc.), H. G. Dixon (3½ James), W. C. Drake (3½ P. and M.), and J. G. Pauling (Swift c.c.) H. F. S. Morgan was troubled with rear wheel slip, but once he got a grip he went away at a great pace. Crawley caused a sensation by his wonderful recovery after a bad skid. W. Cooper (8 Humberette) got away well, but missed gear at the top of the hill. At the first attempt, Colin Taylor (2½ Connaught) had a wonderful skid, his machine describing a complete circle; he was, however, given a second chance and got away well. After the test competitors were sent straight back to Godstone and the finish. The organisation was excellent throughout, and in spite of the large amount of work necessary provisional results were obtainable soon after ten o'clock, and subject to confirmation by the committee and the correction of time errors, the awards will be as follow:

Gold Medal Winners.

E. L. Boutle (8 Chater-Lea sc.)
C. E. Noakes (3½ Sunbeam)
T. G. Meeten (3½ Rudge)
J. B. Sproston (2¾ Sunbeam)
E. V. Walters (3½ P. and M.)
J. Oliphant (3½ Premier)
T. Stevens (3½ James)
A. F. Selby (2¾ Sunbeam)
H. Gibson (5-6 Bradbury sc.)
H. B. Willoughby (3½ Rudge)
*G. Price (4 P.V.)
C. Freeman (5-6 Clyno sc.)
B. A. Hill (7 Indian)
A. B. Wade (6 Zenith)
H. G. Dixon (3½ James)
*W. L. Barratt (2¾ Douglas)
W. C. Drake (3½ P. and M.)
A. V. Sumner (3½ Zenith)
*R. G. Charlesworth (5 Zenith)
S. Crawley (3½ Triumph)

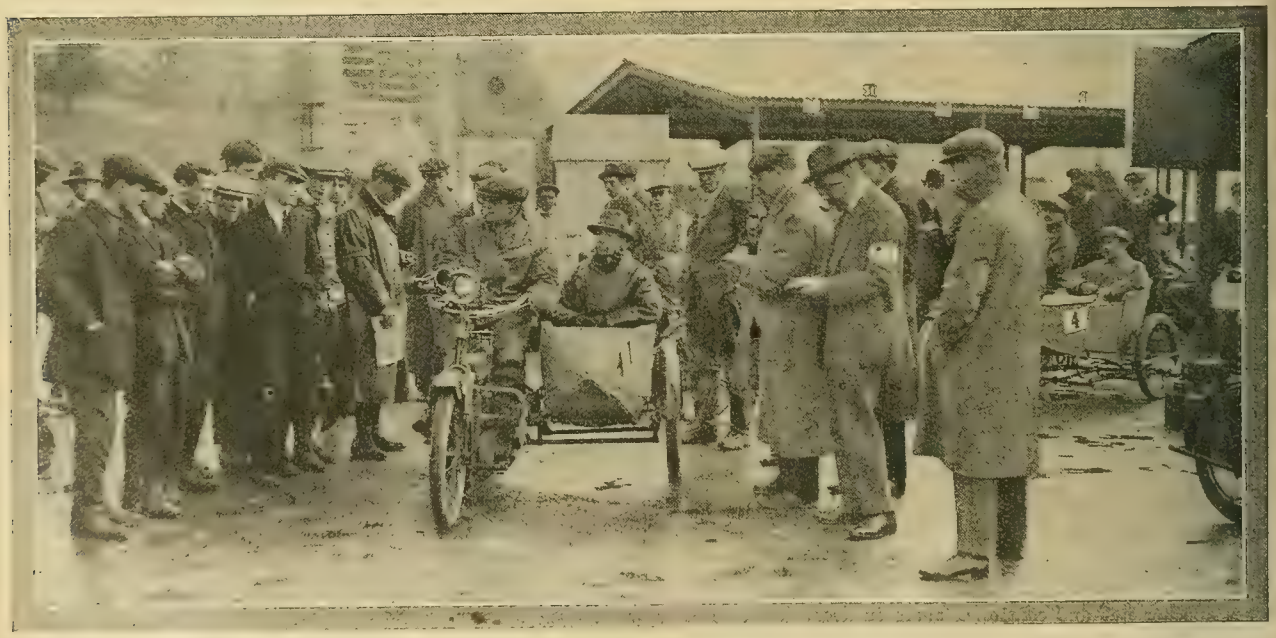
Silver Medal Winners

G. T. Gray (5 Rudge)
A. H. Wright (5-6 A.J.S. sc.)
G. Nott (5-6 Clyno sc.)
T. C. de la Hay (6 Sunbeam)
R. O. Clark (2½ F.N.)
R. G. Mundy (3½ Triumph)
J. Greenwood (3½ Sunbeam sc.)
*J. S. Watson (2¾ Sunbeam)
G. Wray (5-6 Clyno sc.)
K. Holden (3½ B.S.A. sc.)
M. C. Breese (3½ B.S.A.)
C. Duplock (5-6 A.J.S. sc.)
*H. R. Davis (2¾ Diamond)
E. H. Littledale (3½ Ariel)
C. Taylor (2½ Connaught)
F. J. Watson (3½ Ariel sc.)
F. Smith (5-6 Clyno sc.)
A. Roberts (3½ Blackburne)
C. F. Halsall (Wilton c.c.)
R. G. Charlesworth (5 Zenith)
S. Tubb (2¾ Humber)
R. Croucher (3½ Kerry-Abingdon)
W. Cooper (Humberette c.c.)

Bronze Medal Winners.

T. Silver (3½ Quadrant sc.)
L. A. Bollack (3½ Singer)
T. Chater-Lea (8 Chater-Lea sc.)
S. George (7 Indian)
F. A. Applebee (3¾ Scott)
F. J. Ellis (6 Matchless sc.)
R. Pearson (5-6 Clyno sc.)
Mrs. Hardee (3½ P. and M.)
H. F. S. Morgan (8 Morgan c.c.)
T. Pollock (3½ James)
J. Woodhouse (7 Quadrant sc.)
C. Aslen (2¾ Grandex)
F. G. Edmond (3½ Humber sc.)
J. G. Pauling (Swift c.c.)

*Doubtful.



Competitors in the Streatham and District M.C.C. Trial leaving Brooklands after the speed test for the return journey. In the foreground is E. L. Boutle (8 h.p. Chater-Lea sidecar.)

The Urgent Need for Up-to-date Signposts.

An A.A. and M.U. £45,000 Scheme.

BY invitation of the Committee of the A.A. and M.U. we attended the inaugural dinner held at the Savoy Hotel on Thursday evening last, when the scheme outlined in the daily press of last week by the A.A. President, Lord Lonsdale, was explained in detail by the Chairman of the Association, Mr. Joynson Hicks, M.P. Among those who supported the Chairman were Lord Montagu of Beaulieu, Sir George Gibb, Messrs. Stenson Cooke (secretary A.A.), W. Rees Jeffreys (secretary of the Road Board), and J. W. Orde (secretary of the Royal Automobile Club). *The Motor Cycle* was represented by Mr. W. Grew.

Mr. Joynson Hicks, in a well considered speech, mentioned that the idea of the committee is to start the fund with the sum of £5,000, and it has for its object the improvement of the signposting of roads in the United Kingdom. Under present conditions signposting is in about the same position as it was in the days of the coaching era, and it is the intention of the A.A., if the fund be sufficiently supported, to set an example to the local authorities in signposting main roads so that their policy will be followed on every road in the kingdom on which there is any considerable traffic. These signposts, it is suggested, should be placed in prominent positions, made easily legible, and the arms should be placed at different heights in order that they may be visible from any direction. Not only should they indicate the names and mileage distances of neighbouring places, but also the names of the localities in which they are erected.

The Chairman's speech was seconded by Lord Montagu of Beaulieu, who appealed to the Association to commence their operations on roads which had already received grants from the Road Board. He also appealed to the A.A. members to subscribe the sum of 10s. each, which would bring in a sum of £40,000, so bringing the fund up to £45,000. Lord Montagu also pointed out that if the new signs were erected in the form of a cross at dangerous cross roads and turnings, the present danger signs might be dispensed with; also, that in organising the scheme, it should be arranged for distances to be measured from one recognised centre.

The Chairman of the Middlesex County Council, Mr. W. Regester, heartily supported the scheme, and suggested that what is wanted is uniformity in signposts. He was followed by the Chairman of the Middlesex Highways Committee, Mr. Hugh Lewis, who pointed out that reform in the direction indicated was much needed. He said the Middlesex County Council had spent huge sums on the roads, but had been loyally supported by the Road Board to the extent of 75% of the total expenditure.

The Hon. Harry Lawson, M.P., proposed the health of the Chairman, and drew the attention of those present to the fact that what is required in this country is a perfect system of roads as well as signposts, not only for pleasure vehicles but for business purposes. He asked the general public to subscribe to the fund, and not leave all the spade work to motorists.

Sir George Gibb, whose speech was listened to with close attention, said that the Road Board had already discussed the question of uniform signposting, but they were not absolutely certain of their legal position; if they had legal authority to subscribe to the fund they would do so. He particularly referred to the importance of making the sign on the post lucid and legible.

The proceedings terminated about 11 p.m.

CLUB NEWS.

Motor Cycle Union of Ireland.

The annual dinner will take place at the Grand Central Hotel, Belfast, on November 7th.

Wrexham and District M.C.

The members of this newly-formed club were entertained to lunch by the president, Mr. W. Noel Soames, on the occasion of the opening run.

Maesteg and District M.C.C.

The results of the gymkhana are as follow:
Slow Race.—M. Margan (3¾ Scott).
Suffragette Race.—Chess and Wilson (2¼ Levis).
Lemon Cutting.—Will Thomas (2¾ Douglas).
Polo Competition.—Will Thomas (2¾ Douglas).
Obstacle Race.—Chess and Wilson (2¼ Levis).
Tent Pegging.—Frem Thomas (6 J.A.P.).
The special prize for the best performance was won by Will Thomas (2¾ Douglas).

Barton-on-Humber and District M.C.C.

Speed trials took place on the 25th ult. Results:

CLASS I.—For machines prior to 1910, on formula.
1. C. H. Atkinson (Rex Tricar) 28.33

CLASS II.—For motor cycles up to 350 c.c., on formula.
1. B. Hodgson (Sunbeam) 74.16
2. J. H. Furniss (Elswick) 43.26

CLASS III.—For motor cycles up to 570 c.c., on formula.
1. A. Curtis (Precision) 84.45
2. M. Wadsworth (Norton) 79.64

CLASS IV.—For passenger motor cycles, any capacity, on formula.
1. F. G. Howard (Quadrant) 65.88
2. A. Curtis (Precision) 65.34

CLASS V.—For T.T. motor cycles, on time.
1. F. Hopper, junr. (Torpedo) ... ... 33s.
2. M. Wadsworth (Norton) ... ... 34.2s.

CLASS VI.—Unlimited, on time.
1. B. Hodgson (Zenith) ... ... 32.4s.
2. F. Hopper, junr. (Torpedo) ... ... 33.8s.

Newton-Stewart M.C.C.

A hill-climb was held on the Mines Hill on the 29th ult. The hill was ascended from the Bargaly side. Results: J. F. Morrison (3½ Premier) first and fastest time; G. Taylor (3½ Rudge Multi) second; G. Cocker (3½ Rudge Multi) third.

Cheltenham M.C.C.

A passenger trial for sidecars and cycle cars was held on the 29th ult. on a route over the Cotswold Hills. Results: 1, W. B. Gibb (2¾ Douglas sc.); 2, F. W. Corbett (2¾ A.J.S. sc.).

Bristol M.C.C.

The results of the recent reliability and speed-judging competition over a secret course of about forty-five miles, including two ascents of Weston Lane, are as follows: Out of twenty-five starters fourteen made non-stops: Eric Butler (Humber), total error 1m. 20s.; P. A. Stone (Morgan), 5m. 5s.; D, L. Thomas (Douglas), 6m. 26s.; P. Grout (A.J.S.); E. Davis (Premier); P. H. A. Matthews (Swift cycle car); Rev. P. Bischoff (Clyno); M. King (Scott); G. Fry (Rudge Multi); W. H. Mogford (Zenith); F. C. Wasley (Rudge Multi); C. Selman (Premier); W. H. Shaw (A.J.S.); A. Stevens (Douglas).

Liverpool A.C.C.

A novelty was introduced into the above club's reliability trial for the Mead-Martin Challenge Cup; this was the handicapping of the competitors according to past performances. Results:

1, L. V. Barton (6 Rex), cup and gold medal; 2, J. Baker (6 Enfield sc.); 3, J. Green (3½ New Hudson).

Motor Cycling Club.

Members who are able and willing to serve on the committee, which meets fortnightly, are asked to send their names to the hon. sec., Mr. S. May, 34, Gower Place, W.C., or to submit names of suitable candidates, as there will be three or four vacancies to be filled up at the annual meeting next January.

The Committee has arranged to have a club smoker on Thursday, November 20th, at the Holborn Restaurant, at 7-30. The annual dinner will be held on December 13th, at the Trocadero.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

A Novel Sidecar.

Sir,—With reference to Mr. Fletcher's letter on page 1418, I fail to find any similarity between the novel sidecar he described and those illustrated in Mr. Manning's list, so perhaps Mr. Fletcher will be good enough to disclose the identity or the manufacturer of his sidecar.

W. M. PANNETT.

Some Advantages of a Twin.

Sir,—Your correspondent "Twin Enthusiast" might lead some of your readers to believe that East Anglian roads were really awful. As a matter of fact they are not too bad, and have been considerably improved of late years, probably in readiness for military operations here if necessary.

Regarding his 3 h.p. twin climbing Maldon Hill on top. I believe the top gear of his machine is about 5 or 5½ to 1. Any decent 3½ single-cylinder should climb that hill geared 4¼ to 1, with a ten-stone passenger on the carrier. I have done so repeatedly myself. Personally a 7 h.p. twin appeals strongly to me, but I should think twice before again having a lightweight twin, for the humming of the engine makes me feel positively ill after a very little while.

EAST ANGLIAN RIDER.

Rear Lamps for Motor Cycles.

Sir,—We note in last week's issue of *The Motor Cycle* in your leading article under the heading "Must Motor Cycles Carry Rear Lights?" that you state "There is really no suitable lamp on the market at the present time." We are pleased to advise you that all 1914 Indian touring models will be equipped with an electric rear light, which not only shows a red light behind but illuminates the rear number plate.

In many countries outside of the United Kingdom rear lighting on motor cycles has been compulsory for some years past, and our company has for many years been in position to supply these.

We have never fitted them in this country before, for the very reason that they did not seem to be required, but now, in view of recent legal decisions in regard to rear lighting on motor cycles, we shall supply them as part of our standard equipment. Surely there is no reason why other motor cycle manufacturers cannot do the same.

HENDEE MANUFACTURING CO.

The Liverpool A.C.C. Trial.

Sir,—I notice on page 1420 of your last issue, a small paragraph "summary of correspondence" respecting the above Club's Trial. I appreciate your reason for not publishing the letters owing to same being signed with *nom des plumes*, but I venture to suggest that it would have been considerably fairer to Mr. Sproston, who won the cup, not to have published any remarks at all. It appears to me, and to others of my committee who have brought it before me, that this is an attempt of certain interested parties to damage the performance of Mr. Sproston. It is not sporting, and I suggest that Mr. Heaton, who is one of the best of sportsmen, would deprecate this action. The cup was offered *not* for the "best" performance, under which Mr. Heaton would have won it, but for any competitor to win the cup he had to win a gold medal. The performances for gold medal awards were arranged on a sort of handicap: solo riders over 2¾ h.p. had to climb every hill, solo riders 2¾ h.p. and under were allowed to fail on one hill, sidecar machines were not taken up one hill, and whilst the larger models had to climb the five still left in, the 3½ h.p. models only had to climb four. Knowing the hills as I do, this made a very reasonable and fair handicap, and without in any way disregarding Mr. Heaton's very excellent performance, Mr. Sproston was awarded the Reliance Cup by the judge, purely on the conditions attached to the Trial, Mr. Sproston's total error for the various checks being but three minutes, whereas Mr. Heaton, who was second, was nine minutes in error. This result, I may say, was worked out without consideration of secret checks.

S. W. PHILLPOTT,
Hon. Sec., Liverpool A.C.C.

How to Test Benzole.

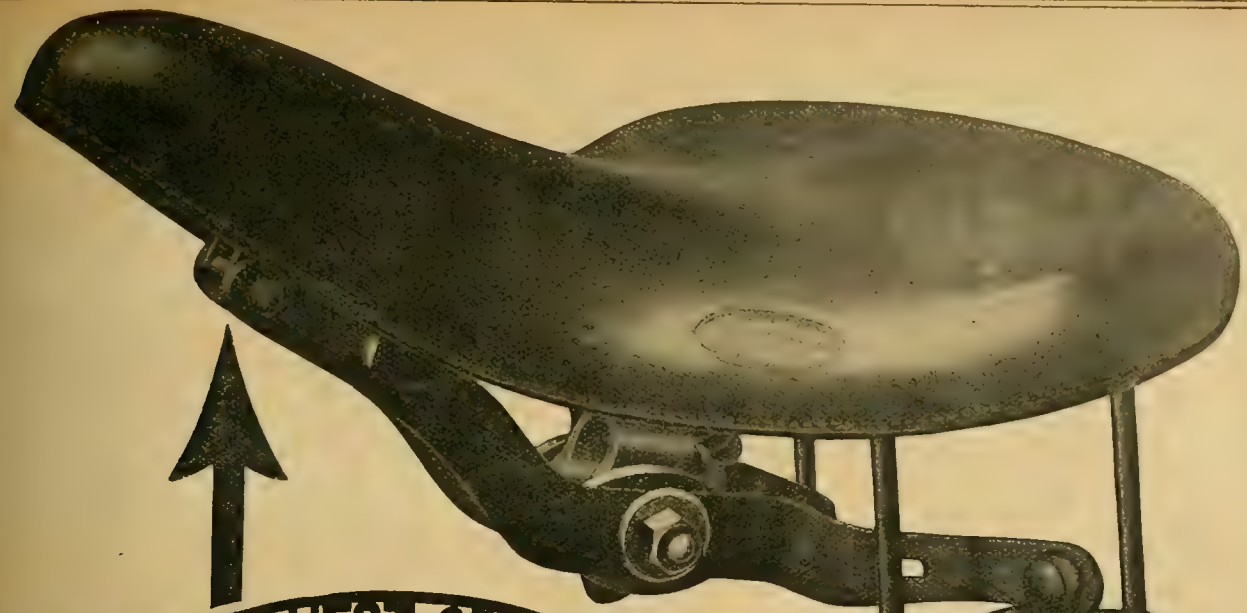
Sir,—I do not wish to take up your space on a technical matter outside motor cycling, but I still think that Mr. Thomas is wrong in advising the novice to test without a condenser. As a works manager of a tar works where some fifty samples are tested each day, and having tested some thousands of samples myself, I may claim to know something of the matter. In tendering advice of a technical nature to the novice, the human element must be allowed for, and Mr. Thomas cannot blithely say that if his details are not followed to the letter then he washes his hands of it. The fact that works exist where benzole is tested by lads according to his method proves nothing at all, except that there are works where benzole is not tested according to the standard method.

With reference to the testing of sulphur, Mr. Thomas is undoubtedly correct. Probably the best method for the novice is the sulphuric acid test described by "Chemist." This, of course, is only a test, and not an estimation.

TECHNICAL CHEMIST.

LAST WEEK'S AUTUMN CYCLE CAR TRIAL.

On the left, R. G. Thomas (8 h.p. friction and belt-driven Pyramid) at the starting point. There were two machines of this make in the trial, and both made non-stop runs.



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Test the truth of this at our expense!

So confident are we that the "EMPIRE de LUXE" Pan Seat is the acme of perfect design that, to popularise it, we make an offer whereby you may obtain one advantageously.

OUR CLAIM: Consequent upon considerable exhaustive experiment we claim to have produced, in this model, a Motor saddle which affords a degree of durability, stability, and comfort, never before attained.

—and WHY: Because it gives a particularly low riding position — the seat has a strong pressed-steel base, shaped anatomically — top of finest quality leather, well-padded — and the vital and exclusive features of its design as emphasised here are:—

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OUR OFFER: To prove that this IS the perfect anti-vibratory Motor Seat, we are offering 1,000 of these —

"Empire de Luxe PAN SEAT"

No. 73, regular price, 30/- — at the special price of "20/- EACH AND YOUR OLD SADDLE." Now fill up the coupon and let us hear from you.

The Leatheries, Ltd., Sparkbrook, Birmingham.

12

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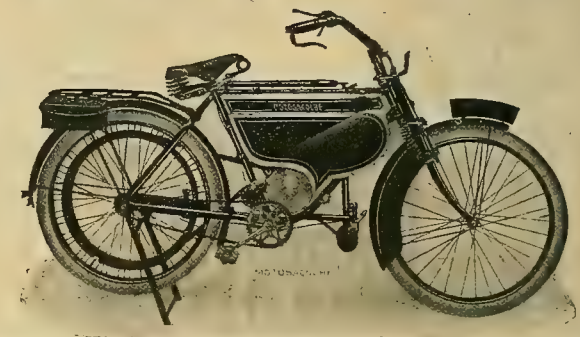

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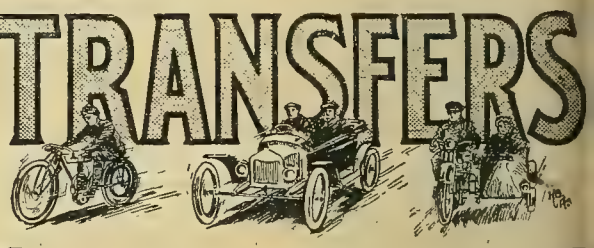

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An Easily Removed Three-speed Hub.

Sir,—"Ixion" has expressed a desire to see a hub gear that can be removed easily.

I am running at present—and shall be pleased to show him—the following: 8 h.p. Matchless, Sturmey-Archer three-speed hub, and—dare I say it—the back wheel comes out after slackening two nuts (no need to run the nuts right off) and goes back again without any adjustment whatever.

The hub stands the big engine quite all right. After 15,000 miles (all sidecar work, and once towing another sidecar outfit ten miles) I have taken the clutch plates out to look at them. They are not scored at all, the simple explanation being that I have never neglected to lubricate them, and on the low gear the clutch is home in six yards.

For a long time I was a counter-shaft gear enthusiast, and I gave Mr. A. D. Powell, of Northampton, the order for the Sturmey-Archer on condition that he could fit it in such a way that the back wheel could be removed like my T.T. Triumph.

This he has done, and I congratulate him on doing a clever job, and the Sturmey-Archer firm on their gear.

WILLIAM LEES.

A Sidecar in Australia.

Sir,—Having been a constant reader of your valuable paper for the past two years I thought the enclosed photograph of myself and my Bradbury sidecar combination might be of interest to you.

Mine was the first sidecar in Moree, which is a town over four hundred miles from Sydney, and is in one of the finest grazing districts in New South Wales. There are a great many cars here, something like 250, but motor cycles are scarce, worse luck, as I was hoping to be able to form a club and have some good runs. The roads are good for about fifteen miles round the town, but after that there is no metal and it is all black soil plains, which are good in dry weather but absolutely impossible to ride over in the wet.

I have been riding the Bradbury for nearly two years and have never had the slightest trouble, which speaks volumes for the machine, as I was quite a novice when I got it and have ridden over some very bad country roads.

Every week I look forward to receiving my copy of *The Motor Cycle*, and have received some very good hints from it.

Moree, N.S.W., Australia. ERIC L. HUDSON.

E. T. Hudson on his 8½ h.p. Bradbury sidecar. See accompanying letter.

The Large Single Geared Twin

Sir,—Now that single geared machines are considered by some as antiquated, I want to put in a word for the single geared big twin.

A 6 h.p. semi T.T with an adjustable pulley weighs less than most two or three-speed 3½ h.p. machines, and can do all the work of the latter, and, withal, is a pleasure to drive.

With a minimum possible gear of 4½ to 1, I have yet to find a hill that I cannot climb, though the machine has, amongst others, Alms Hill and Porlock to its credit, the latter on a wet day.

With regard to economy, a large engine is so seldom "all out" that the bearings wear splendidly.

After two seasons' average hard use the bearings show hardly any play. I have used the same belt for more than twelve months, the original front tyre is still on the front wheel, and I am now using my third back tyre.

S. KING SMITH.

An Undesirable Practice.

Sir,—I should like to support BL 2318 in his remarks on carrier-riding. I have taken carrier-passengers several thousand miles altogether, and although I have suffered several accidents, in an approximately equal distance solo, I have never had a mishap when two-up. My experience is certainly not due to slow driving—I run a 6 h.p. twin and do not waste time—and I have had the usual amount of riding on skiddy roads, and through traffic, not to mention sudden tyre deflations at speed; but I can confidently say that given a plucky passenger, there is no more danger than in solo work. The only advantage of the sidecar as far as safety goes is in the elimination of the passenger factor, and with the girl of to-day, it is almost an unnecessary precaution.

The advantages of the practice are numerous: I can do 80 to the gallon with my passenger, and I have yet to have my first stop on a hill; so I, for one, should strongly object to carrier riding being suppressed by legislation.

C.H. 759

Sir,—May I congratulate you on having the courage to tackle this very urgent question. I am very pleased to see "Ixion's" very appropriate remarks in your issue for October 23rd, and trust they will be taken to heart by those who indulge in this dangerous practice. Last Sunday I was on my way from Westerham to Burford Bridge and overtook two youths on a light weight twin (no, not a Douglas), and, having ample time, followed them for some miles to make observations. I noticed that the machine was obviously overloaded and extremely unsteady on the greasy patches met with. On quite slight rises pedalling was resorted to, and, in several cases, the passenger dismounted and ran. Approaching Redhill the road makes a winding descent into the town, and here the driver was able to touch about 30 m.p.h. On one of the sharp curves he was unable to keep to the left side of the road, and would have smashed into a large motor car had not the driver of it smartly pulled out of the way. They crossed the main London road at a good 25 m.p.h., and I only hope the policeman there will charge the driver with driving to the common danger. The machine was obviously out of control, due to the extra weight carried. Personally, I have had three narrow shaves on corners from fools riding in pairs on motor bicycles, and I promise that the next one who serves me this trick shall have a summons for driving to the common danger. I am inclined to think we should soon see the last of this idiotic practice if the above course were pursued. THE DREADNOUGHT

Sir,—As a motor cyclist who has carried passengers some 25,000 miles on a specially constructed seat on the carriers of my 1910 and 1911 F.E. Triumphs, I cannot allow the statements made in your issue of September 25th regarding the danger of this system of passenger carrying to pass unchallenged.

To commence with, I fear the writer of the article has had very little practical experience or he would not have suggested that it is necessary or advisable for the passenger to be in sympathy with the driver as regards steering; on

the contrary, it is essential for the passenger to sit and move naturally and to take no part whatsoever in balancing or steering the machine.

The strain on the machine generally is far less when carrying the passenger on the carrier than when pulling a sidecar, and there is far less risk of accident due to mechanical breakdown. Also there is less liability to collision in tight corners owing to the small space required, and little fear of overturning on sharp corners.

The carriers, wheels, frames, etc., of most 3½ h.p. and upwards machines are sufficiently strong with an ample margin of safety to carry a double load.

My experience is that with a passenger on the carrier the machine is as easily steered and is as steady, if not steadier, in traffic as when riding solo, provided always that the passenger takes no part in the balancing and steering of the machine.

Many motor cyclists, although they wish to take a passenger, cannot afford to purchase and run a suitable sidecar outfit, neither have they space for it in their homes and would have to go to the additional expense of storage. Further, a decent 3½ h.p. machine will take a passenger on the carrier as fast as or faster than the average 6 and 8 h.p. sidecar outfits at something like half the running cost.

Whilst it must be admitted that great care should be exercised when travelling over wet roads, especially tram rails, its many advantages as compared with a sidecar (of which method I have had some 10,000 miles experience) have been recognised, and this method is now being used by a large number of motor cyclists who, speaking generally, do not unnecessarily run the risk of smashing up their passengers, themselves, or their machines.

Accidents are liable to and do happen to all classes of vehicle, sometimes with the most careful and expert drivers in charge, but I think you will agree that each class of riding or driving has to be learned—solo riding is different from sidecaring, and carrier passenger carrying is also quite distinct, and no one should take a passenger on his carrier or by any other means until he has thoroughly mastered and is proficient in the method he intends to adopt. [How is he to become proficient?—Ed.]

As regards the danger of burst tyres, I have had some ten to twelve bursts during the past few years, but in only one case did the machine fall, and that was through the tyre rolling off the rim and locking the wheel dead, fortunately unattended by any injury either to my passenger or myself. This trouble is now fast becoming minimised now that tyre manufacturers are producing suitable and special tyres for this class of work.

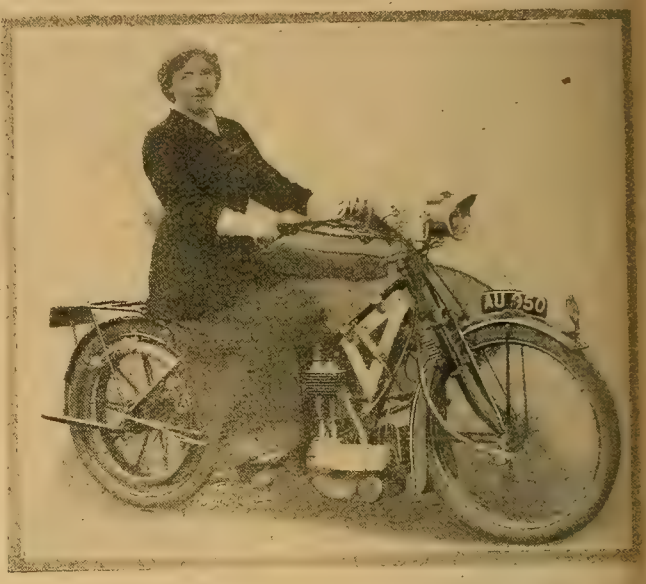
In conclusion, I may say that the narrowest escapes I have had have been under circumstances where had I been carrying my passenger in a sidecar instead of on my pillion seat bad smashes would have been unavoidable.

W. T. SAUNDERS.

First ascent of East Lomond Hill. See accompanying letter from T. R. Inglis Melville

The Most Suitable Frame for Ladies

Sir,—I have read your article with reference to Miss Reid, and I am pleased to know of yet another lady rider who does not approve of the diamond frame for ladies.



Mrs. M. Wilson, who contributes the letter on this page.

With my open frame I can dress for any ordinary social function without any trouble. My machine is also a 3½ h.p. Brough, and I have done over 4,000 miles this summer with sidecar attached, and often a passenger over 13 stone.

(Mrs.) MAUDE WILSON.

What it Costs to Run a Cycle Car.

Sir,—I was much interested in your article on this subject, and herewith I hand you my experience of upkeep of Singer cycle car.

I have now run the car 6,114 miles. You will note that the item for repairs seems a heavy one, but I must explain that it includes £5 for a new engine fitted by the makers, as they had found their former engine to contain a radical fault. The fitting of the new engine has made the car much more efficient, and I have nothing but praise for it. Of the miles run 4,625 were done on petrol—157 gallons, which equals 29.45 miles per gallon, and 1,489 miles on Ford's benzole—32¼ gallons, equal to 46.20 m.p.g.

Details of Expenses.	s	d.		Per Mile. d.
Petrol and benzole	269	5	=	.528
Lubricating oil	21	2	=	.042
Repairs	239	1	=	469
Insurance, licences, and registration	197	7	=	.389
Lighting	7	3	=	.013
Tyres and repairs	160	2	=	.315
Total cost	894	8	=	1.756

To the insurance and licences I have put down the amount accrued due to this date

THOMAS WADSWORTH

On East Lomond Hill

Sir,—I enclose a photograph of my 3½ Triumph, which successfully reached the summit of the East Lomond Hill, a few miles from here (Kingskettle, Fifeshire) on 14th ult. The hill is about 1,500 feet high, and the machine took a coach-built sidecar to within a few hundred yards of the summit, where it had to be detached owing to the presence of a high wall. The machine received no tuning whatever, and although I am over 13 stone, the engine did not over heat. This is the first time a motor cycle has been at the summit of the Lomond.

T. R. INGLIS MELVILLE

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PATENT AUTOMATIC GOVERNOR PULLEY

STILL IN FRONT FOR EFFICIENT BELT DRIVING. EXPERT or AMATEUR, IT IS ABSOLUTELY UNEQUALLED.

PROOF → 1st, 2nd and 3rd IN THE SCOTTISH SPEED CHAMPIONSHIP.

MILLS' CUP, won by Mr. D. H. NOBLE (Middlesex Trial) ROVER using Philipson's Standard Governor Pulley.

IMPORTANT. ACCEPT NO PULLEY UNLESS IT BEARS THIS TRADE MARK.

Patented and Registered Home and Abroad.

REGISTERED PA PH GO PY TRADE MARK

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To avoid disappointment, ORDER EARLY.

Full working instructions sent with each pulley.

UNSOLICITED TESTIMONIAL.

Messrs. Phillipson & Co. [COPY] Swansea, October, 1913.

Dear Sirs,—I would like to say how very pleased I am with the results obtained with your pulley since I adopted it to use on my Standard Triumph. I have covered fully 10,000 miles with it, and it appears quite as good as the day I fitted it, the flanges having just recently been trued up for the first time. It does ALL you claim for it, and this is saying much in the face of the fact that there are so many fitments for motor cycles put on the market claiming advantages that are not and never can be obtained. Prior to fitting your pulley I had to keep my gear to not higher than 5 to 1 for my all-round work as a traveller in this country. I can now set it at 4¼ or 4½ to 1 on top, and with ratio obtained with your pulley it enables me to climb a dangerous hill in comfort, and I have the advantages, "which are many," of the higher gear on good roads. I have recommended it with confidence to my motoring friends all over this country.

Yours faithfully, C. H. SIMONS.

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Solo rider or sidecarist, your most exacting demands are met in the Bat. Economical to run, easy to control, and above all highly reliable. Write for "Book of the Bat," post free.

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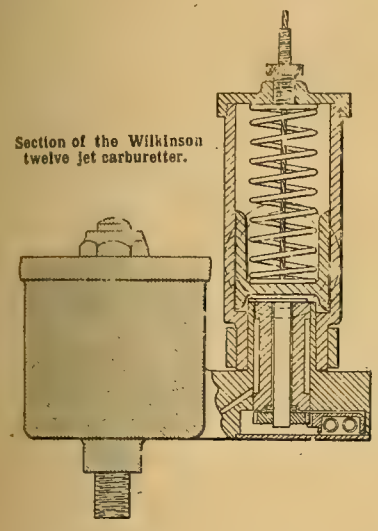
A Racing or Touring Carburetter at Will.

Twelve Jets controllable from the Saddle.

ONE of the most desirable features of a motor bicycle is its ability to run slowly, and there is no question of doubt that five or six years ago the change-speed gear was hurried forward, as it was realised that with such a device a motor bicycle could be made to run at any speed and



Section of the Wilkinson twelve jet carburetter.

would therefore appeal to the inactive. Of late years, however, great advancement has been made in the design of carburetters, until nowadays it is quite a usual sight to see a motor cyclist walking alongside a fixed geared machine with the engine firing regularly. But it is not every carburetter which renders this feat possible, and, further, it is only certain types of slow running engines that permit of such a performance.

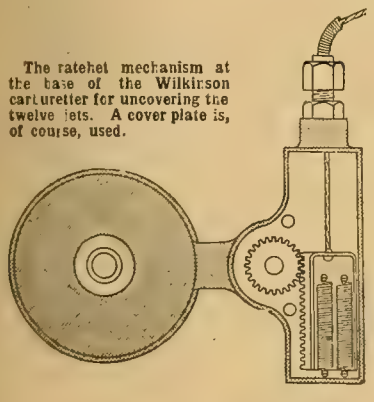
A Road Test.

Last week we had an interesting demonstration of a new carburetter (which we have already referred to and illustrated), viz., the Wilkinson twelve-jet. Mr. J. H. Wilkinson owns a T.T. Matchless-J.A.P. with overhead valves, and we think Mr. Prestwich himself will admit that of his splendid range of engines, the 5 h.p. T.T. model with overhead valves is one of the most difficult to control at slow speeds. Mr. Wilkinson rode his machine over from Doncaster to our offices, purposely to demonstrate its docility when fitted with one of his carburetters. We measured the gear used, and found it to be $3\frac{5}{8}$ to 1, yet the rider had no difficulty whatever in turning round in an ordinary roadway with the engine firing regularly. It was a most impressive sight to see him threading his way in and out of the traffic, and turning round as slowly as if he were mounted on a machine with a three-speed gear. We tried the machine ourselves, and found that even without practice we were able to equal Mr. Wilkinson's feat.

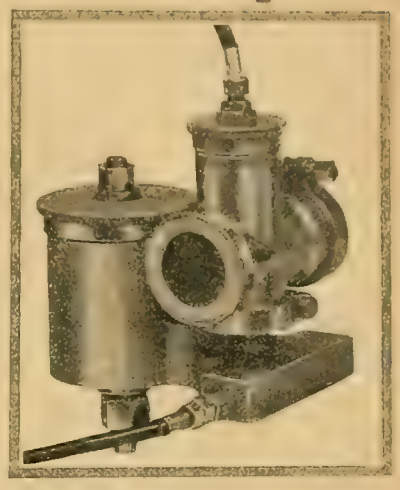
The most attractive point about the Wilkinson twelve-jet carburetter is the ability of the rider to vary the opening of the jets from the saddle. A flat valve covers the jets, and, by means of a Bowden wire, they may be covered and uncovered one by one. In other words, the driver has a carburetter completely

J. H. Wilkinson and the 5 h.p. single geared Matchless-Jap he used to demonstrate his twelve-jet carburetter.

controllable from the saddle, which may be immediately adjusted for slow running and low consumption, and at once made into a racing carburetter by opening up the jets. Thus the time taken to change jets in the ordinary way is done in a twinkling by a handle-bar lever with the Wilkinson instrument.



The ratchet mechanism at the base of the Wilkinson carburetter for uncovering the twelve jets. A cover plate is, of course, used.



The complete Wilkinson carburetter in its latest form.

We have tested some carburetters which, although giving extremely slow running, are unable to pick up rapidly without choking the engine. Twice, after running some distance with the Wilkinson carburetter at a very slow speed, we opened up the jets, and the engine at once gathered way, and we were soon travelling at a speed in excess of the legal limit. A separate lever is provided as usual for the air, and the port is of large size, and admits sufficient air when all the jets are in action.

It will be understood that with a variable jet carburetter petrol can be economised, and, furthermore, the engine can be kept very cool by governing speed by the lever controlling the opening of the jets. A choked jet is a thing almost unknown, as, if any foreign matter finds its way to one of the jets, a further opening of the lever clears the obstruction. The behaviour of motor cycles fitted with this device in important trials will be watched with interest, especially as more and more attention is now being paid to flexibility tests.

The Wilkinson carburetter is being made by Messrs. Rotherham and Sons, of Coventry, and will be handled in London by Messrs. Brown Bros., Ltd.

NEXT THURSDAY'S ISSUE
OF
THE MOTOR CYCLE
will be mainly devoted to
Passenger Motor Cycles of all Types.

HORSE POWER OF NEW VELOCE.

Since the description of the new 2 h.p., 2-stroke Veloce went to press last week, we received information from the makers, Veloce, Ltd., Fleet Street, Birmingham, that the brake horse power, developed at 2,800 revolution per minute is 3.6. They have therefore decided to call this engine a 2½.

STEEL PISTONS AND RECORDS.

It is interesting to note that when Mr. H. C. Newman broke sidecar records at Brooklands on Oct. 20th he used "Simplex patent steel pistons, made by the Oxygen Welding Works, Ltd., New Summer Street, Birmingham, on his Ivy-Precision.

Hill-climbing and Racing in New Zealand.

MOTOR cycle events are exceedingly popular in New Zealand, and two successful competitions were held last month, one a race meeting at New Plymouth, when five and ten mile races were held, and the other a hill climb at Lyall Bay, near Wellington. The racing was very keen, and in the five miles race Anderson (3½ h.p. Triumph) was first, after a Douglas rider had set the pace at the outset. Anderson was third in the ten miles, Boucher (3½ Rudge) scoring a fine win, with Coleman (2¾ Douglas) second.

Boucher is evidently one of the best riders in New Zealand, for he was in great form at the Lyall Bay hill-climb with his Rudge. He made fastest time of the day, and also received a special prize for being the rider whose two attempts varied the least in time, his variation being only one-fifth of a second. Other competitors rode Triumphs, Douglas, B.S.A., Indian, and Matchless machines.

J. Boucher (3½ h.p. Rudge), who won the hill-climb at Lyall Bay N.Z., on 30th September.

PETROL COSTS.

HAVING regard to the steadily mounting price of petrol, the accompanying curves are intended to point out the effect in the aggregate of, and the importance of striving after, any small improvements which can possibly be made in the petrol consumption (m.p.g.) figures.

Fig. 1. In these curves a yearly mileage of 6,000 is assumed, and the total cost in petrol can be read off when the mileage per gallon, and the price per gallon, are known. Thus, taking petrol at 1s. 9d. and the consumption as being 100 m.p.g., then the season's petrol bill would be £5 5s. Supposing a wasteful engine, a heavy 8 h.p. machine, or a sidecar machine, in use, and petrol consumption 60 m.p.g., then expenditure would be in the neighbourhood of £9. As showing the result of the constantly increased price of petrol, take the price in 1910 to have been 1s. 1d. At 100 m.p.g. the season's petrol bill would have been £3 5s. as against present £5 5s.

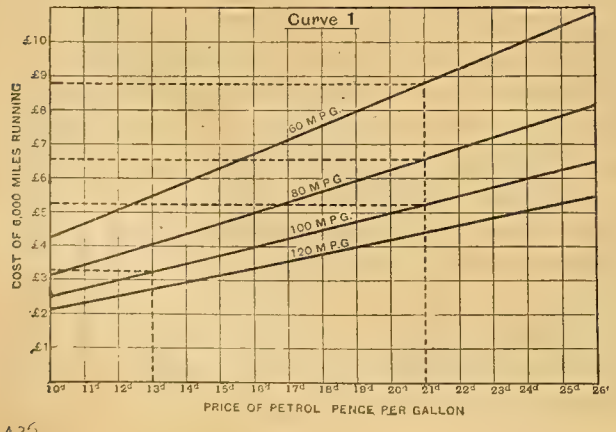
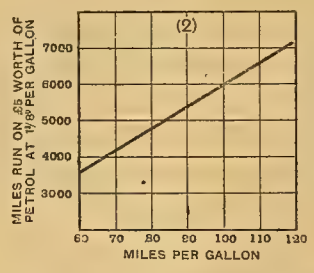


Fig. 2 shows in another manner the necessity of reducing running cost of petrol. The curve shows the number of miles running which can be obtained with varied consumptions (in m.p.g.) for the expenditure of £5 (petrol at 1s. 8d per gallon). The distance varies from 3,600 miles at 60 m.p.g. to 7,200 miles at 120 m.p.g. For every increase of 10 m.p.g. one stands to gain an additional 600 miles of running with the same expenditure (£5) on petrol.



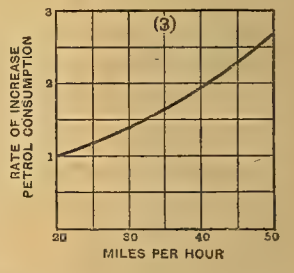


Fig. 3 shows the importance of moderate speeds in touring work, if m.p.g. figures are to be high. Taking a given level course, and considering a machine to traverse this course at different speeds ranging from twenty to fifty miles per hour with the same weight carried, and the engine working as nearly as possible at the same efficiency on each journey, then the curve would represent the ratios of the petrol consumptions at the different speeds, the consumption at 20 m.p.g. being taken as unity.

ELIGNUM.

"Lathe Work by some Amateurs" is the title of a book recently issued by Drummond Brothers, Ltd., Ryde's Hill, Guildford. It describes various machines made on a Drummond 3½in. centre lathe by amateurs.

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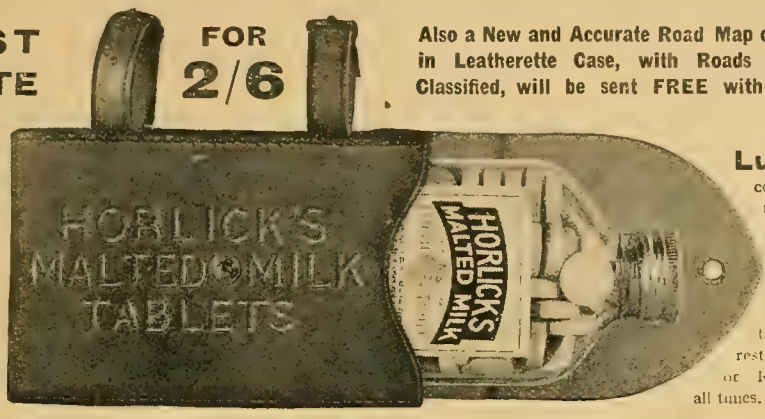
A LEATHER CASE WITH FLASK OF HORLICK'S LUNCH TABLETS.

To be attached to the Frame.

BY POST COMPLETE FOR 2/6



Also a New and Accurate Road Map of ENGLAND & WALES in Leatherette Case, with Roads shown in Colours and Classified, will be sent FREE with this Case and Flask.

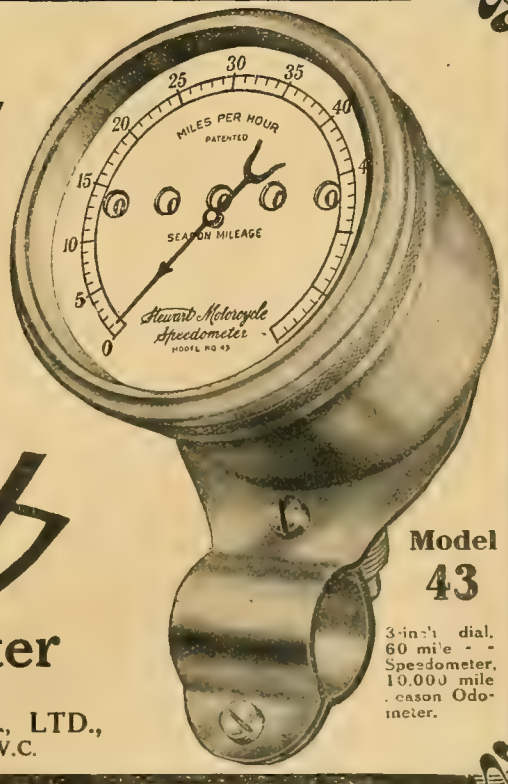
THE LEATHER CASE illustrated is strongly made in solid, light brown leather and is excellently finished. It may be attached to the handle-bars or frame in a convenient position, so that the Flask may be removed for use at a moment's notice without dismounting.

Horlick's Lunch Tablets contain all the valuable nutriment of full cream milk and choice malted grain in a convenient tablet form. A few dissolved in the mouth from time to time will supply the necessary nutriment to maintain strength and vigour, and restore energy when Touring or Racing and are useful at all times.

PRICES: IN GLASS FLASKS TO FIT CYCLE CASES—ONE SHILLING EACH,
and in Sterilized Glass Bottles, from which these may be refilled, 1/6, 2/6, and 11/-, at all Chemists and Stores.
Send Postal Order to—HORLICK'S MALTED MILK CO., SLOUGH, BUCKS.

PRICE NOW REDUCED TO 50/-

It is just because we do a larger World-trade in Speedometers than all other Makers combined that we are enabled to reduce the price of our popular Model 43 to £2 : 10 : 0. We can sell so cheaply because we make so many. We do not believe in keeping up prices and so keeping out a large section of the motor cycling public.
Model 43 indicates all speeds from zero up with unfailing accuracy, and can be read at a glance. Can be fitted either to top tube of bicycle for back wheel drive, or to *either side* of front wheel.



Model 43
3-inch dial. 60 mile - - Speedometer. 10,000 mile - eason Odometer.

Stewart
Motor Cycle Speedometer

Write for Booklet to
THE COOPER-STEWART ENGINEERING CO., LTD.,
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1914 STARTLERS.

Unprecedented Value!!

Two New Lightweights,
Belt Drive - - **25** Gns.
Chain Drive and Two
Gears - - - **30** Gns.

REAL HIGH-GRADE MOTOR BICYCLES.

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Agencies Granted. Unique Payment System.

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110, Wilton Road,
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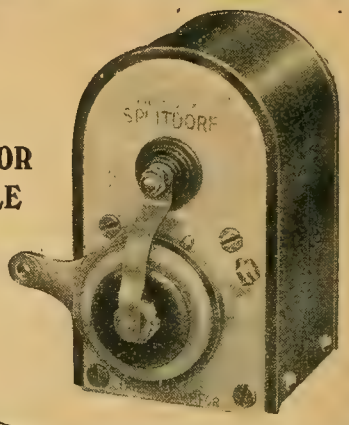
TRADE SPLITDORF MARK **SPLITDORF** TRADE SPLITDORF MARK



MOTOR CYCLE AND CYCLE CAR

TRADE SPLITDORF MARK **MAGNETO** TRADE SPLITDORF MARK

Represents the very best in design and workmanship. Its use on your motor cycle or cycle car will insure you against all ignition troubles.

WATERPROOF — DUSTPROOF — FOOLPROOF.

Built by a firm who entered the ignition field in 1858 and have been making magnetos ever since their adaptation to internal combustion engines.

Remember: Experience counts. A trial will convince.

SPLITDORF ELECTRICAL CO.,
6, CITY ROAD, LONDON, E.C.

DON'T THINK THE

HOLDTITE LOCK PATCH

is the same as any other, it is entirely different. The puncture cannot extend under the patch, as it is locked by Surridge's method, which is patented. Don't be put off others are as good; they are not. Ask your agent for Surridge's Accept no other. If you have any difficulty write direct for list. Sample free.

Do not forget the name—HOLDTITE.

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AGENTS, ETC., WRITE FOR TRADE TERMS AT ONCE. **"The Patch *par excellence*."**

THE ALL-DAY, EVERY-DAY, HARD SERVICE CHAIN IS "THE COVENTRY."

"The Coventry" Chain Co., Ltd.,
Coventry, England.

Books for Motor Cyclists

Tracing Troubles.
Motor Cycle Faults: Their identification and their remedies simply and fully explained. Written in simple language by a motor cyclist of long experience. Price 1/- net. By Post 1/2.

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Full of useful "wrinkles" with regard to the care and management of motor cycles. Fourth edition. Price 1/- net. By Post 1/2.

The Motor Cycle Route Book.
Contains best routes for the whole of the British Isles, 45 maps and speed limits. Price 1/6 net. By Post 1/9.

Obtainable (with remittance) from ILIFFE & SONS LTD., 20, Tudor Street, LONDON, E.C., also from all Booksellers.

IMITATION IS THE SINCEREST FORM OF FLATTERY.

BUT WHO THE DEUCE WANTS AN IMITATION?

When considering a Lightweight for 1914

Remember the Famous **LEVIS** The original Air-cooled Two-stroke Motor Cycle.

WITH ITS 3 YEARS' EXPERIMENTAL STAGE AND 3 SEASONS IN THE HANDS OF THE MOTOR CYCLIST, DURING WHICH TIME IT HAS SET UP

A WONDERFUL RECORD OF PERFORMANCES.

Study its results in 1913 Competitions against THE WORLD'S BEST.
Study its ABSOLUTE SIMPLICITY, marvellous hill-climbing capabilities, EASY STARTING, Flexibility, SOUND DESIGN, and Perfect Workmanship.

SO SATISFACTORY HAS THE FAMOUS LEVIS BEEN, THAT ATTEMPTS TO COPY IT ARE BEING MADE, BUT YOU MUST HAVE THE PROVED THING.

DON'T CONSIDER MUSHROOMS.

Designers and Makers:
BUTTERFIELDS, LTD., STECHFORD, B'gham.

Olympia Show
Stand 23.

N.S.U.'s
AT BARGAIN : PRICES :

We Have a Few Shop-soiled and other Machines which have been used for competition purposes, to be sold at bargain prices. Write for particulars, or call and inspect.

N.S.U. Motor Co., Ltd.,
186, Gt. Portland St., London, W.

GODDARD'S MOTOR CYCLE HOUSES

Ft.	Ft.	Ft.	£	s.	d.
6	x 4	x 6 high	1	17	6
7	x 5	x 6½ ,,	2	7	6
8	x 6	x 7 ,,	2	15	0
9	x 6	x 7½ ,,	3	2	6
10	x 7	x 8 ,,	4	5	0
12	x 8	x 8½ ,,	5	5	0

Wide double doors 2/6 extra.

Carriage paid.

These houses are made in sections to bolt together. Easily fixed. Made of well-seasoned ⅜in. T. and G. and V-jointed Matchboards, and complete with floor and window. Roof felted with Patent Vulcanite Roofing. Large Illustrated Catalogue with prices of other houses post free.

Our prices are all carriage Paid.

Testimonial.—The Waterloo Garage, Stalybridge. 21th Nov., 1912. Dear Sirs,—I received the Motor Cycle House on Saturday in good condition. It will perhaps be of interest to you to know that I had the place put together in 20 minutes. Wishing you more successes. Yours truly, ARTHUR HALL.

GODDARD'S, St. Mary's Road, Ilford, ESSEX.

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Sidecars have more good points than any other make. Strong, but light, cane body. Torpedo bow, with locker, also locker under seat. Three or four point suspension. Three-ply "C" springs. Comfort, good upholstery, warmth, body lined throughout. Accessibility to engine by undoing one nut, body can be swivelled up.

Prices from £11 11 0
Special Model to fit "Indian" Spring Frame £17 17 0

T. BROOK & SONS, Ltd.,
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Agents write for terms.

PARAGON FOLDING SIDECAR
WHEN FITTED, WILL PASS THROUGH 30 INCH SPACE.
THE WINCYCLE TRADING CO. LTD. 104, GREAT SAFFRON HILL, LONDON, E.C.

HANDLE-BAR MUFFS.

Specially improved 1914 models. Self-supporting, waterproof, warm. Keeps hands like toast. Better than any glove. Protect all controls, well made. Essential for winter riding.

Best waterproof, lined wool 5/6
" " " fur 10/6
Postage 3d.

BLEACH, Marmion Rd., SOUTHSEA.

The **'LAMBERT'**
THE IDEAL 3½ COACH-BUILT SIDECAR.
£10 15 0 Lambert, Thetford.

The Famous **EYSINK**
gained 1 first and 3 second prizes Holland-England Trial and highest awards in all other trials. Original type of motor giving utmost flexibility, and power and reliability.

Agents wanted.

EYSINK WORKS, LTD., Amersfoort (Holland).

MUDPLUGGING HAS COMMENCED

Protect your valves with a T.F. VALVE SHIELD (combined with TROUSER GUARD, 2/6 extra). Keeps oil off the clothes. Prevents road matter getting in valve gear, causing wear, noise, and inefficiency. To fit J.A.P., Triumph, New Hudson, Premier, Rover, Precision, Bradbury, Sunbeam, B.S.A., James. *Immediate delivery.*
Price, **4 9** plain; **6 6** polished, *post free.*

T. FORD, Chestergate, Macclesfield.
LONDON Service Company.

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PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To insure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry" or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., 2¾h.p., model 1913, shop-soiled; only £44.—Best Cycle Stores. [3549

A.J.S., 1913, 2¾h.p., Lucas lamp and horn, only run 300 miles, excellent condition: £45.—Banon, Sale Queen Barracks, Aldershot. [3463

A.J.S. 1912 2¼h.p. Lightweight, 2-speed, free engine, kick starter, accessories, and spares, splendid order; £28 cash, or easy terms.—Elce and Co., 16, Bishopsgate Av., Cannonb. St., E.C. 'Phone: Avenue 5548. [3651

6h.p. A.J.S., 1913, 3 speeds, Millford sidecar, Cabrio chassis, cane chair, Rom 650×65 mm. voiturette tyres, run 4,000 miles only, condition equal to new, lamps, horn, speedometer, etc.; £80.—Box No. 4,198, *The Motor Cycle* Offices, Coventry. [X1511

Alcyon.

2¾h.p. Alcyon, spring forks, mag., Amac, h.b.c., good order, 1910, bargain, 46, Eldon Rd., Wood Green. [X5487

Ariel.

ARIEL, 1913, 3-speed, sidecar machine; £40.—Harris, Kenscot, Lythalls Lane, Coventry. [X5398

ARIEL, 1912, variable gear, decompressor, good tyres; £28.—Robinson's, Green St., Cambridge. [3576

1913 Ariel and Sidecar, Armstrong Mark VI., spares, new September, chains.—65, Salusbury Rd., Kilburn, N.W. [3562

1913 Ariel, 5-6h.p., 2-speed, chain drive, sidecar, lamps, horn, speedometer, etc., run 1,800 miles only; £55.—Plastow, Grimsby. [X5736

NOW IS THE TIME OF EXCEPTIONAL BARGAINS AT

Great numbers of New and 2nd-hand machines of most famous makes to be cleared at great reductions at

WAUCHOPE'S

TO MAKE ROOM FOR 1914 MODELS. To-days List, Sent Free, Includes :

6 h.p. 1913 **CLYNO** and coach-built Sidecar, fitted with Miller's large lamp, trip speedometer, watch, horn, mirror, complete detachable wheel with tyre and tube, carrier. Their very latest production, bearing our guarantee of fitness; **£75.** Gradual Payments arranged. Write Wauchope's or call.

1913 7-9 h.p. **PREMIER** Cycle Car, complete with hood and screen, in splendid condition, thoroughly overhauled, like new, fully guaranteed, complete; **£75.** Extended Payments arranged. Write Wauchope's or call.

New Shop-soiled only 1913 8 h.p. Air-cooled **WILLIAMSON** and Williamson coach-built Sidecar, fitted with screen and luggage carrier, very latest model. Ready to be driven away. Tuition and delivery free; **70 guineas** the whole combination complete. Write Wauchope's or call.

2¾ h.p. **DOUGLAS,** 2-speed model, footboards, F.E. clutch, sound, fully guaranteed: **£29 10s.**

6 h.p. 1910 2-speed **MATCHLESS** and Millford Sidecar, toolbag, tools; guaranteed; **£42 10s.** Exchange or Easy Payments.

2¾ h.p. 1912 3-speed **HUMBER,** toolbag, tools, little used; guaranteed; **£30.** Easy Payments arranged.

7 h.p. 1911 2-speed **INDIAN,** usual tools; guaranteed; **£35.** Easy Payments arranged.

3½ h.p. 1912 F.E. **RUDGE,** toolbag, tools; guaranteed; **£30.** Easy Payments.

3½ h.p. 1909 2-speed **HUMBER,** lamp and horn; guaranteed; **£22 10s.**

5 h.p. 1912 2-speed **KERRY** and cane canoe Sidecar, smart turnout, just overhauled; guaranteed; **£50.** Exchange or Easy Payments.

3½ h.p. 1911 2-speed **ALLDAYS** and Sidecar, usual spares; guaranteed; **30 guineas.** Easy Payments arranged.

Nearly new 30 guinea **GLORIA** Projectile Sidecar; **£17 10s.**

1½ h.p. 1910 **MOTOSACOCHE,** free engine; guaranteed; **£13 10s.**

3½ h.p. **VINDEC** and Sidecar, free engine, lamp, horn, toolbag, and tools; **£20;** guaranteed.

8 h.p. 3-speed **CHATER-LEA,** chain drive, with new coach-built Sidecar; **£55;** guaranteed. Exchange or Easy Payments.

6 h.p. 2-speed **N.S.U.** and coach-built Sidecar, luggage carrier, horn, toolbag and tools; **£29;** guaranteed. Exchange or Easy Payments.

3½ h.p. 2-speed **MATCHLESS,** lamp, horn, toolbag and tools; guaranteed; **£18 10s.**

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5-6 h.p. 1911 Four-cylinder **F.N.;** guaranteed; **£23 10s.**

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6 h.p. 1911 **ZENITH** and Sidecar, Gradua gear; guaranteed; **£47.** Exchange or Easy Payments.

LARGEST STOCK OF ALL LEADING MAKES FOR LOWEST CASH PRICES, EXCHANGE, OR EASY TERMS.

Your present mount received now in part payment of any machine selected at the Show for delivery at opening of 1914 season, saving all expense of Winter storage.

9, Shoe Lane, Fleet St., LONDON, E.C.

'Phone—Holborn, 5777. Wires: "Opificer, London."

MOTOR CYCLES FOR SALE.

Ariel.

ARIEL, 1913½, 3½h.p., and sidecar, kick starter, 3 speeds, and accessories; must sell, buying car, first offer secures.—J. Yates, 683, Leytonstone Rd., E.—ex. Tel.: No. Wanstead 31. [3618

Arno.

MOTOR Cycle, Arno, 3½h.p., Bosch mag., 2-speed, countershaft gear, Druid forks, fitted with sidecar; turnout £24.—12, Bull Ring, Birmingham. [X5569

LUXURIOUS Sidecar Outfit, 3½h.p., 3-speed, and free engine, 1912 Arno, climb anything, condition as new, complete with speedometer, lamp, generator, watch, spare tyre and belt; £42/10, cost over £80; trial run anywhere; owner bought car.—W. Luff, 209, London Rd., Croydon. [3477

A.S.L.

A.S.L., 3½h.p., Precision, purchased new February, 1913, perfect; offers.—Addis, 12, Heath Rd., Hounslow. [3454

Auto-Wheels.

AUTO-WHEEL, only ridden 250 miles, perfect; £12. —Nightingale, Crawley. [X5628

AUTO-WHEELS.—Immediate delivery of Wall Auto-Wheels from A. W. Wall, Ltd., Hay Mills, Birmingham. [0359

AUTO-WHEELING Revolutionises Cycling.—Opportunity of quick delivery of Auto-Wheels.—A. W. Wall, Ltd., Hay Mills, Birmingham. [0360

Bat.

BAT, 3½h.p., 3-speed gear, special Colmore model, brand new; best offer above £40 secures; sportsman's mount.—Colmore Depot, Colmore Row, Birmingham. [X5506

BAT, 1913, 6h.p. twin J.A.P., model 2, grey, Armstrong gear, coach sidecar to match, complete outfit; cost nearly £100, bargain, £65.—Heybourn, Motors, Maidenhead. [3569

3½-4h.p. Bat, 1912, 2-speed, free engine, excellent condition, very little used, lamp and generator, horn, tools, some spares; £40.—Apply, S. R. Sandeman, 42, Kensington Sq., W. [3537

Bat-Jap.

BAT-J.A.P., 3½h.p., late 1910, little used, perfect condition, very fast; £27.—Sawtell, 78, West St., Farnham. [X5623

7-8h.p. Late 1912 Bat-Jap, complete, guaranteed perfect.—Seen at 2, Milner St., S.W., any time; Digby-Johnson. £38. [3365

BAT-J.A.P., 7 9h.p., twin-cyl., spring frame, mag., recently re-enamelled French grey, and P.M.C. coachbuilt sidecar painted to match; £28.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0647

BAT-J.A.P., 5-6h.p., Nov., 1912, 2 speeds, clutch, chain driven, run 3,000, condition perfect, also Dunhill's cane underslung sidecar (cost £11 March), stormproof apron, complete; £55.—Gale, Vigo Rd., Andover. [X5594

6h.p. Bat-Jap T.T. Tourist, new tyres and belt, lamp, horn, accessories, spares, guaranteed in new condition throughout, not done 2,000 miles; cost over £70, accept 40 gns. for immediate sale; deposit system.—Box 4,309, *The Motor Cycle* Offices, Coventry. [X3498

Bradbury.

BRADBURY, 4h.p., 2 speeds, powerful, grand condition; £30.—Palmer's Garage, Tooting. [3705

2-SPEED 1913 Bradbury and Cane Sidecar, shop-soiled only; £58.—Cross, agent, Rotherham. [X5554

BRADBURY, 1912, 2-speed, chain, £30, cost £60; Smith's speedometer, 35/-.—44, Hazlewell Rd., Putney. [3644

BRADBURY, 1912, 3½h.p., good tyres and belt, excellent order; £28.—P. J. Evans, John Bright St., Birmingham. [X5610

BRADBURY, 3½h.p., 1912, N.S.U. 2-speed gear, free engine, and sidecar, in fine order: £33/10—62, Roxboro' Rd., Harrow. [3508

BRADBURY, like new, 7 speeds, free, T.T. and touring bars, engine, belt, specially mudguarded, John Bull, Kempshall tyres, spares; £33. — Gardiner, 96, Cyprus St., Stretford. [3614

BRADBURY, 1912½, and sidecar, 2-speed, free engine, B. and B. carburetter, lamp, spare tyre, etc., splendid touring combination; £39. — Burnside, Hallkwelle Rd., Golders Green. [X3945

1913 Bradbury and Coachbuilt Sidecar, 3½h.p., counter-shaft, 2-speed, kick starter new Kempshall; 55 gns.; owner buying car.—Edwards, 3, Howard Rd., Southville, Bristol. [X5603

BRADBURY, 1913, 2-speed, free engine, 3½h.p., and torpedo shape sidecar, side door, wind screen, storm apron, tyres, etc., nearly new; cost £80, accept £45; would separate.—4, Gorringe Park Terrace, Tooting Junction Station. [3669

BARGAIN.—1912 Bradbury, free engine, and brand new 9 gn. sidecar, Comfy torpedo, perfect running condition, with all accessories, grand hill-climbing combination; must sell at once; £34, or near offer.—E. W. Cooper, 9, Elfrida Parade, Woodford, Essex. [X5451

H.P. v. L.S.D.

There is not the slightest reason why you should suffer from lack of power.

We offer a discount of 15% from New 1913 6 h.p. 2-speed Twin Rexes, and an allowance of 30 to 40 Guineas for your 1912 machine.

Send for particulars now, as this model will soon be cleared and cannot be repeated.

We are now booking orders for—

1914 DOUGLAS and **WILLIAMSON** models.
1914 G.W.K. light car **£150 0**
1914 CALTHORPE light car .. .. **160 guineas**
1914 PERRY light car .. .. .. **130 guineas**
1914 BRADBURY, 6 h.p. **£75 0**

Exchanges quoted.

LIGHTWEIGHTS.

Premier, 1912 . **£26 10** . **Motosacoche,** '11 **£19 19**
Grandex, 1912 **£25 10** . **Moto-Reve** **£15 10**
Rex, 2½ h.p. .. **£15 10** . **Singer,** 1911 ... **£19 10**
Motosacoche .. **£15 10** . **Humber** **£25 10**
Centaur, 3-sp. . **£34 10** . **New Hudson** ... **£31 10**

MISCELLANEOUS MACHINES.

LINCOLN ELK, 3½ h.p., almost as new .. **£25 10**
ARIEL, 1912, 3½ h.p. 3-speed **£39 10**
CLYNO, 1912, and special cane Sidecar .. **£49 10**
J.A.P., 6 h.p., M.O.V., tree engine **£34 10**
MINER /A, 3½ h.p., Bowden, 2-speed..... **£22 10**
ARIEL, 1911, 3½ h.p., magneto, Druids .. **£25 0**
BRADBURY, 1912, 3-speed, £10 10s. S'car **£47 10**
N.S.U., 3½ h.p., magneto **£17 10**
N.S.U., 1911, 3 h.p., 2-speed, as new **£29 10**
N.S.U., 5½ h.p., 2-speed, and Sidecar **£31 0**
M.M.C., 3 h.p., magneto..... **£15 10**
V.S., twin, h.b. control **£16 10**
TRIUMPH, 1907, 3½ h.p., specially good .. **£22 10**
TRIUMPH, 1908, 3½ h.p. **£26 0**
SIMMS, 3½ h.p., magneto, grand condition **£22 10**
WOLSELEY 4-cylinder 2-seater Car **£19 19**
F.N., lightweight, battery ignition **£9 10**

1913 **REX** and **WILLIAMSON** Machines to clear. Get our exchange quotation.

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F.N., 5-6h.p., 4-cyl., 1911, Cowey, Lucas lamp, generator, splendid condition; £20, sacrifice; getting car; trial.—Dove, Pinner Hill, Pinner. [3501

5-6h.p. 4-cyl. F.N., thorough condition, B. and B. carburetter; £20, or near offer.—Box L2,976, *The Motor Cycle* Offices, 20, Tudor St., E.C. [3025

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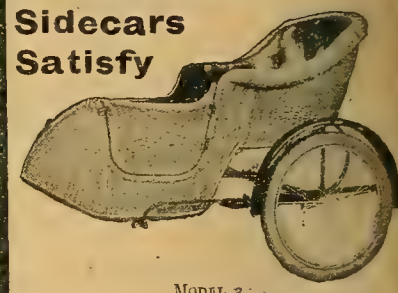

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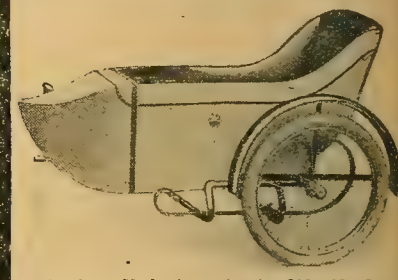

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1913 James Combination, 3½h.p. 3-speed, chain drive, new 2 weeks; owner going abroad, must sell; sacrifice £55.—Apply, Rasos, 15, Upper Bedford Place, London, W.C. [3536

J.E.S.

J.E.S. New 25 gn. Machine for £22 to clear; also shop-soiled 19 gn. machine for 16 gns.—Olympia Mart, 9, William St., Hammersmith Rd., W. [3607

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KERRY-ABINGDON, 1911, 2 speeds, 1912 side car, excellent condition; £32; weekdays only.—290, Milkwood Rd., Herne Hill. [2423

KERRY-ABINGDON, 3¾h.p., sidecar, free engine, adjustable pulley, accessories, beautiful condition; must sell this week.—A.I., 4, Savoy House, Market Sq., Bromley, Kent. [3611

KERRY-ABINGDON, 1913, 3½h.p., 3-speed gear (Armstrong), Dunlop belt, Brooks saddle, B. and B. carburetter, Coronet coachbuilt sidecar, Lucas head lamp and generator, horn, and watch, splendid condition like new; £41/15.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [3517

Levis

1912 2¼h.p. Levis, perfect; must be sold; accept £17.—Townley's Motor Mart, Lancaster. [3525

Lugton.

1913 Lugton, 3½h.p., B.S.A. 2-speed, hardly used, all accessories, underslung sidecar, cover; £46, or nearest offer.—169a, Lower Clapton Rd., N.E. [X5655

Matchless.

MATCHLESS, 1910, 3½h.p., single-cyl., good condition; £19.—Robinson's, Green St., Cambridge. [3579

4h.p. Matchless, 1912, magnificance sidecar, new tyres, fast, reliable; £26 10.—48a, Iris St., Earlsfield. [X5600

MATCHLESS, 1913, 3½h.p., 3-speed, and Swan sidecar to match; cash wanted.—Larrington, Moulton, Spalding. [X5062

MATCHLESS 3½h.p. Twin, new; cost £63; delivered too late for requirements; nearest £57.—37, Queen St., Banbury. [X5499

MATCHLESS, 1914 models.—Quick delivery from the largest Lancashire agent, Cordingley, Haslingden. Tel.: 2Y. [3723

MATCHLESS, 1913, 8h.p., 2-speed, chain drive combination, all spares; £65.—Phillips, 361, North End Rd., Fulham, S.W. [3676

MATCHLESS, 1913, 8h.p., 2 speeds, kick starter, chain drive, and sidecar; £65.—P. J. Evans, John Bright St., Birmingham. [X5609

MATCHLESS, 8h.p., 2-speed, double belt drive, special sidecar machine, £42.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0366

MATCHLESS, 1913, 8h.p., 2-speed, countershaft, chain drive, with De Luxe cane sidecar; £65.—Cass's, 5, Warren St., W. 3624 Mayfair. [3591

MATCHLESS, 1912, 2-speed, free engine, double belt drive, with Bramble sidecar, used 200 miles; £65.—Colmore Depot, 31, Colmore Row, Birmingham. [X5505

MATCHLESS, 8h.p., splendid condition, F.R.S. lamp, accessories, first cheque 30 gns. secures, P.M.C. sidecar, 5 gns. extra.—Bridge, Barrow, Suffolk [3485

MATCHLESS, 1913, 3½h.p. twin, 3 speeds, countershaft drive, perfectly new, never been on road; special price to clear, £58.—Caffyns Garage, Ltd., Eastbourne. [3320

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REX, 5 h.p., 1909, 2-speed, de luxe	£26 10
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REX, 1911, 2-speed, twin de luxe	£36 10
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2¾ h.p. 3-speed **CENTAUR**, as new	£35 10
5½ h.p. Magneto Twin **REX**	£17 10
N.S.U., 1911, 3 h.p., 2-speed, as new	£29 10
N.S.U., 5½ h.p., twin	£24 10
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31 0
REX, 3½ h.p., spring forks	£12 10
F.N., Lightweight, battery ignition	£9 10
REX, 3½ h.p., magneto, 1910	£24 10
REX, 3½ h.p., magneto, 1909	£22 10
REX, 1912, 4 h.p., only used 100 miles ..	£31 10
REX, 1908, 2-speed, twin, and Sidecar ..	£19 10
3 h.p. **HUMBER**, chain drive	£8 10
3½ h.p. Light Low **REX**, specially good ..	£10 10
MOTOSACOCHE, 1911, M.O.V.	£19 10
REX, 5½ h.p., twin, spring forks	£14 10
J.A.P., 6 h.p., M.O.V., free engine	£34 10
MOTO-REVE, twin, lightweight, runs well	£15 10
BRADBURY, 1912, 3-speed Sturmey	£42 10
REX, 3½ h.p., magneto, spring forks, 1908	£19 10
N.S.U., 3½ h.p., magneto	£17 10
3½ h.p. 1912 3-speed **BRADBURY**	£45 10
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5-6 h.p. Twin **J.A.P.**, magneto spring forks	£29 10
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MOTOR CYCLES FOR SALE.

Matchless.

1913 8h.p. 2-speed Single Belt Drive Matchless and large Canoelet sidecar, painted to match; cost £100, accept £65, or near offer.—Dickinson, 1, Little St. Mary's Lane, Cambridge. [X5537

MATCHLESS, 8h.p., 1913, excellent condition, 2 speeds, kick starter, £15 sidecar, lamp, horn, speedometer, tools, spare inner tube and tyre; cost £100, sell £59.—Wooten's Garage, 55, High St., Oxford. [3609

8h.p. Matchless, 1912, 2-speed, just returned from makers, completely overhauled, Cowey, King of the Road, 20 gn. Gloria sidecar, new 70/- tyre, and many spares; £65.—Shorthouse, Hampton. 'Phone: 247 Molesey. [0365

MATCHLESS, brand new, 1913 models; 3½h.p. twin, 6h.p. twin, 8h.p. twin, 2 speeds, chain drive; clearing out at 15% off list; no exchanges; all models for immediate delivery.—Cordingley, The Motor Cycle Mart, Haslingden. Tel.: 2Y. [3216

MATCHLESS, November, 1912, 8-10h.p. twin, belt, Canoelet sidecar, delivered last June, colour matched, speedometer, carriage grid, new spare belt, all accessories; £60.—Seen and tried, Messrs. Broadbent-Ellis, Wilmslow Rd., Didsbury, Manchester. [3592

MATCHLESS, 1913, 8h.p., 2-speed, kick starter, chain drive, lamps, Cowey speedometer, all accessories, with Millford art cane family sidecar, loose seat for child, beautifully upholstered in red; £70.—Hall, 8, Fir Grove, Levenshulme, Manchester. [X5583

1912 6h.p. Matchless, new 3-speed Armstrong clutch, Senspray carburetter, speedometer, 2 spare tyres and tubes, and all accessories, canoe shaped car, with wind shield, head lights, and luggage carrier; cost £14; owner going abroad; bargain, £52. — J. Chapman Huttoft, Alford, Lincs. [X5454

1912 3½h.p. Matchless, free engine, new Kempshall tyres, Cowey speedometer, Bosch mag., Amac carburetter, F.R.S. large lamp and generator, Lucas horn, plating and enamel exceptionally good, spare tyre, valves, and Whittle belt, the whole in perfect order, very little used; £30.—Laurel House, Tyldesley, near Manchester. [X5052

Minerva.

£4/15.—2¾h.p. Minerva, m.o.v., 26×2¼ nearly new tyres.—Speechley, 45, Church Rd., Acton. [3557

3½h.p. Minerva, new engine, accumulator, spares; £6/10.—31, Haslemere Av., Bridlington. [X5515

MINERVA, 2¾h.p., good condition; £13, or nearest offer.—Ellis, Terrington St. Clement, King's Lynn [X5677

4½h.p. Minerva, twin, 1909, N.S.U. gear, mag., B.B., canoe sidecar, fine combination; £26, offers.—155, Ladbroke Grove, W. [3649

MINERVA, 3½h.p., m.o.v., Bosch, B. and B., Xl'all, re-bushed, fine condition, £11/10; light cane sidecar, for above, £2/5.—Brown, 40, Hawstead Rd., Catford, S.E. [3670

3½h.p. Minerva, mag., Binks carburetter, Druids, thoroughly overhauled, enamelled and plated; also 3½h.p. J.A.P. cylinder and piston, complete.—99, Pellatt Grove, Wood Green, N. [3550

Motosacoche.

BRAND New 1913 2h.p. Motosacoche, 2 speeds; £34.—Palmer's Garage, Tooting. [3703

1911 Lady's Motosacoche Cycle; what offers?—Johnston, 28, East Bridge St., Enniskillen. [X5342

MOTOSACOCHE Lightweight, 1911 model, in very good condition; £12.—Holland, Earlsdon, Coventry. [X5738

MOTOSACOCHE, single-cyl., Bosch mag., excellent condition; £10, lowest.—Philips, Sunnyside, Greatham, Liss, Hants. [X5400

2½h.p. Motosacoche, perfect condition, £5 worth accessories; £17, or exchange.—50, Arden Rd., Birchfields, Birmingham. [X5556

MOTOSACOCHE, 1¾h.p., perfect condition, Whittle belt; £12, or exchange for 3½h.p., cash adjustment.—94, Adelaide Rd., Leyton, N.E. [X5654

Moto-Reve.

MOTO-REVE, 2h.p., single-cyl., mag., fine reliable machine; £8.—Holland, Earlsdon, Coventry. [X5739

MOTO-REVE, Twin, good order, and cash, for good 3½h.p., or sell £15.—Coffin, Holwell, Sherborne [X5676

MOTO-REVE, 2¾h.p., 1911 model, new mag., numerous accessories and spares, just tuned up; £18, or nearest offer.—Cunningham, Somerton Court, Somerset. [X5634

MOTO-REVE 2½h.p. Twin, 3-speed, 1911¾, specially built machine, overhead valves, T.T. bars, fast, excellent condition, overhauled makers recently; approval, deposit; photos; sacrifice £20, nearest.—55, Victoria Rd., Scarborough. [X5343

New Hudson.

NEW Hudson, 1913, 3 speeds, kick starter, and coach sidecar; £48.—P. J. Evans, John Bright St., Birmingham. [X5612

NEW Hudson, 1912, 2¾h.p., 3 speeds, spares, excellent order; £30.—P. J. Evans, John Bright St., Birmingham. [X5611

NEW Hudson, 1912, 3-speed, with Canoelet sidecar; cost £75, going for £45.—Colmore Depot, Colmore Row, Birmingham. [X5504

4h.p. VII.a, 1913 New Hudson, 3 speeds, countershaft, Canoelet sidecar, all accessories, new tyres; bargain, £55.—S. H. Clarke, Etwall, Derby. [X5587

WE all know it; the elusive patch that curls up and clings to everything but the tube. Hard to find if you put it down; hard to stick when you put it on. Reliance Stiff-Back Patches will not curl up. Their stiff backing enables them to be affixed easily and securely without imprisoning air, then the backing can be removed and thrown away. Reliance Stiff-Back Patches make real, permanent mends, and are unaffected by heat.

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THE MOTOR CYCLE
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The Future of Passenger Machines.

IN spite of the competition of the cycle car, which has now had a clear year in which to assert its rivalry, there is not the slightest falling off in the popularity of the sidecar, and from the indications and portents around us, 1914 will prove even more a sidecar year than has the past season. And there are not wanting signs that a very considerable number of motor cyclists are quite ready to put their hands in their pockets to the tune of £100 or even more for a sidecar outfit, so fine and luxurious are many of the latest productions. And all this in face of the old parrot cry that the sidecar was doomed because it was an unmechanical "contraption!" Well, unmechanical or not, the sidecar is very much alive, and, in point of fact, was never in a more healthy condition.

Much care and thought has been lavished by designers on motor cycles prepared especially for sidecar work, and a reflection of this skill is discernible in the sidecar attachments themselves, the best of which are now a credit to the finest machine imaginable. And it is not only in the combination itself that the industry has "spread itself," but also in its *accoutrements*. In this issue of *The Motor Cycle* we have devoted a large space to passenger outfits and their appurtenances, and a perusal of these pages will show that a number of cunningly devised little fitments for the general comfort and convenience of sidecar users are now provided by the big accessory houses. Indeed, this form of travel has now claimed almost as much attention from such firms as have light cars themselves.

With regard to the trend of design of passenger machines for 1914, we are very pleased to record that there is a general adoption of three speeds. A multiplicity of gears has been consistently urged in *The Motor Cycle* for years, and we are quite prepared to go further and urge the production of infinitely variable speed-changing devices giving ratios from zero to, say, 20 to 1, if such a desirable state can be arrived at by workable mechanical means. Anyway, three speeds are better than two, when a load has to be carried in hilly countries, though admittedly, a two-speed gear is simpler, usually lighter, and less costly.

Manufacturers evidently are fully alive to the fact that nowadays sidecars are serious touring vehicles, and much larger space is now being provided for fuel, and the better sidecars are being admirably equipped with neat little cupboards and drawers snugly fitted in scuttle dashboards, or behind the body out of the way of the passenger. Chassisless sidecars, which are easy to clean and have few external parts to break or rust, are coming into popularity, while the methods of attachment to the machine have been greatly improved, and the better designed connections are now absolutely safe, and at the same time easy of detachment, when required. Altogether, next year promises some very comfortable travelling *à deux*.

Coming to cycle cars, it must be confessed that the cycle car proper is still in rather a transition state. Some have been transformed into light cars proper, while certain makers are still undecided as to whether to adopt air or water-cooling, belt, chain, or shaft drive, or how to settle a hundred and one other details, so easy to decide in one's head, so difficult when worked out on the drawing board when a 7 cwt. vehicle is desired.

We believe that there is a great market awaiting the designer who can put a light, simple, and smooth running cycle car on the market which above all is absolutely reliable, but it will have to be sold at a price competitive with sidecars. The latter have now obtained such a firm hold in the affections of motor cyclists that the fight for the cycle car designer is hard. But struggles stimulate genius, and we have no doubt that one of these days a cycle car on simple lines will come along which will seize the rather fickle fancy of the public, and then this form of motoring will come into its own.

There is one point which we feel we ought to touch upon. There seems to be a feeling abroad in some quarters that motor cycles are in the near future to be considerably reduced in price. As a matter of fact there is no foundation for this rumour. It is true that some firms are marketing very serviceable machines at a popular figure, but no cheaper than was the case for similar types even six years ago, and the best-known makers are still asking and obtaining equal prices for their products to what they have obtained during the last two or three years. Indeed, in many cases, so numerous are the refinements added, higher prices will be the vogue than have obtained during 1913.

Lighting Dynamos for Motor Cycles.

It was no daring prophecy of the editor a month or two ago to hope that the motor cycle should only be a year behind the motor car in the matter of electric dynamos. Now such a system has been standardised. I have already seen a few machines so fitted, but the devices were either cumbrous or unsatisfactory. Good as the present day acetylene generator is, a little experience with dissolved acetylene has taught me the delights of a lighting system that is absolutely reliable and needs no cleaning. An electric lighting dynamo may be slightly less reliable than a cylinder of dissolved acetylene, at least for several years to come; but it is not a great deal more complex than a magneto, and within the short space of four or five years we have come to regard the magneto as the most reliable item in our specifications. A friend of mine uses a lighting dynamo of German origin on his push-bicycle; he is ignorant of its name, for he procured it as an odd traveller's sample, and fortunately he has never required any spares in three years' regular use. It is mounted in front of the forks over the front tyre, and in the daytime it folds back clear of the tyre; as night draws on, a touch of the finger or toe throws the hinged portion forward, and illumination instantly begins. It is difficult to imagine a more ideal lighting system; and there is this advantage, the power can also be applied for engine starting on heavy machines de luxe, and so enable the maker to dispense with kick-starters.

The Rear Light Question.

To my mind it is quite incredible that the authorities will not abolish this incubus at the earliest possible moment; I do not believe for one moment that the decision will go unrepealed for longer than the inevitable period demanded by the cumbrous machinery of the law. The decision may be good law, but it is too wildly illogical to appeal to anybody but a lawyer; and though we are so largely governed by lawyers nowadays, they are mostly men who have partially abandoned their original professions, and have learnt to dilute three fingers of law with a tumblerful of commonsense. In this instance, the old illogicality of imposing rear lights on the vehicles which are least often overtaken and most visible by night has been extended a step further. There would be much more to say in favour of compelling all pedestrians to wear phosphorescent hats after sunset, and every beast allowed on the roads after dark to have a Klaxon strapped to its brow, operated by wires leading to a switchboard breast-plate worn by the driver.

Perhaps the most extraordinary thing in the rear light controversy is the fierce hatred many cyclists, including a few veteran journalists, show towards th red reflex mirror. This hatred is one more examp of unreasoning prejudice. It is unfortunately true th motoring has grossly impaired the pleasures of cyclin There was a time when I thought no holiday bett spent than in eighty or a hundred miles pedalling *p diem*, and I visited all the hilly districts, such North Devon, or Lakeland, or the Highlands, whic still make me a little anxious about engine tune whe I revisit them on a motor bicycle. But such trips a largely spoilt nowadays—one feels less safe wit motorists about. One gets choked with dust, whic penetrates the best cycling garbs, and imparts a horribl gritty feel to the skin within ten miles of breakfas So, while one knows that the old must give place t the new, and that cycling must decrease until we g universally dustless roads, one can feel a profoun sympathy with the people who still cling lovingly t the push bicycle, and with the journalists who cater f them, and one can understand the occasional bitte ness of their resentment. But it is a thousand pitie when that resentment takes the perverse form of di couraging the red reflex mirror. No decent motori wants cyclists to use these mirrors in order that h may drive faster—most of us are as nervous as ol women in our night work. We want cyclists to us these mirrors in order that they themselves may b safer—we should drive no faster if the mirrors we legally compulsory and used by everybody. Selfish ness only enters into our motives in so far that w intensely dislike the risks of committing manslaughte that we have to run at present; for the simple fac is that in many conditions of the atmosphere a cyclis protected only by a small oil lamp on his front bracke is practically invisible till the motor car or moto cycle is within a yard or two of him. Every sensibl cyclist should do his best to extend the use of thes invaluable mirrors.

If the Worst comes to the Worst!

Supposing my sanguine optimism is hopelessly mis placed—and all our Governments have committed som dreadful *faux pas* in their time—I should opine tha electric lighting must boom rapidly. It is possible— under this supposition—that a device on the lines o the Miller rear light might be legalised, and migh become popular; readers are probably aware that i takes the form of a tiny acetylene lamp on the righ handle-bar grip, with a red lens facing backwards gas being supplied by a Y piece and a flexible tub from the main generator. But tiny items are not too promising when subjected to the vibration of a handle bar. Their dimensions scarcely permit of sufficiently staunch construction. The presence of a bulky self contained lamp at the tail of the carrier is hardly

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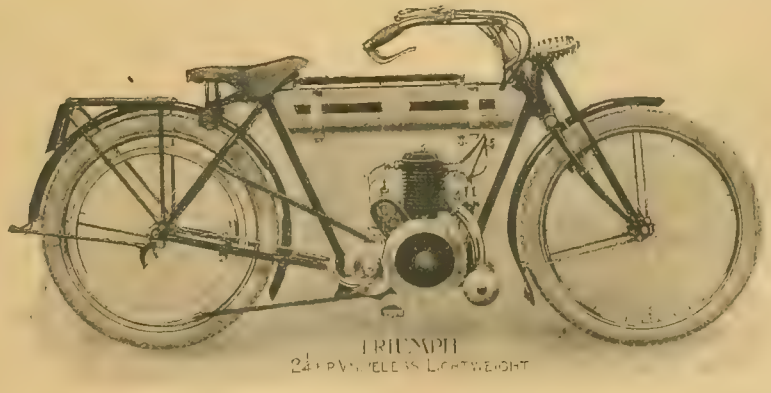

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Occasional Comments.—

thinkable—what a boon it would be to the makers of waterproof overalls—there would be more rips in the first week than there are now, and many a costly suit has met its Waterloo within seven days, as things are. I think a wee electrical tail lamp, mounted in the gap between the flat of the carrier and the tail of the mudguard would fill the bill best; and this, too, would almost need to be made of armour plate, for vibration is at its worst just there. If things come to this pass, the same source of illuminant might be applied to light transparent numbers with a red disc in the centre. A device of this kind was made for me by C. A. Vandervell and Co. as long ago as 1903, when the number-lighting law first came in. Owing to the fact that I used accumulators, it proved too bulky for my perseverance; but I should view it very differently if it were fed by a little dynamo.

Petrol Gauges.

Mr. Davison is, of course, perfectly correct in stating that the sunk-in type of gauge registers accurately. Its main defects are its invisibility (with all deference to him, I never managed to read mine from the saddle, though I have often tried), and the risk of losing the cut-off rod if it is not screwed tightly down, balanced by the risk of being deceived if the rod is tight home when one fancies it is loose, so that one learns how much petrol was in the tank perhaps an hour ago instead of the actual amount remaining. In other words, this gauge will suit a careful and methodical owner, but may be an innocent cause of annoyance to the happy-go-lucky. I agree with him that the "warning tap" is excellent; in fact, I prefer it to any gauge I have yet sampled, and as it is the cheapest expedient, I wonder it has not been more generally adopted.

"Jock" Outshone.

Mr. Eastburn's bull pup is not the only inhuman mechanic in the world. As long ago as 1901 I used to store an Excelsior tricar in a stable frequented by a tame cockatoo, and for a week or two I was extremely puzzled by the fact that the caps of my tyre valves used to vanish into thin air, and that I frequently found the machine with one or more tyres flat, and nothing remaining of the valve except the bare tube, which is, of course, secured to the tube. Breathing out threatenings and slaughter I kept a watchful eye on the small boys of the neighbourhood, only to discover that cocky was the real culprit, and that he used to chew the small parts off with his ingenious beak.

[Next please! One would not be surprised to hear that this interfering cockatoo drank the petrol and drained the crank case.—ED.]

Some Accessory Criticisms.

My eulogy of certain accessories brought me a crop of letters, confirmatory and otherwise. A reader in far Newfoundland objects to my statement that "Forward fasteners never break," and to show me "that there is nothing perfect under the sun," he enclosed a Forward link which had parted at one end. Actually his sample link was a magnificent testimonial, for, comparing it with my own long-enduring Forward links I should estimate that the link has not broken so much as worn through, after a probable distance of about 10,000 miles. Another reader disagrees with my praise of the Garner exhaust whistle. All I can say is, that if he has had trouble with a Garner, he would have trouble with any of them, for the Garner is most cunningly designed and exceedingly staunchly made.

The first two-stroke Triumph is for Miss Muriel Schulte, daughter of the managing director of the Triumph Co. Mr. Schulte rode the new model to his home at Kenilworth and soon his daughters were trying the machine, and manipulating it with the greatest ease. Mr. Schulte returned to the works that day a very happy man, for the first order for this type of Triumph was in his pocket!

Autumn 'Midst the Welsh Crags

BY GEORGE D ABRAHAM

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WITH workaday England far behind and holiday Wales ahead, we sped forth from Chester. The wonderful summer had given way to a perfect autumn. Thus, with a splendid road under-wheel and the wayside an avenue of russet and golden glory, enthusiasm for the joys of autumn touring was easily roused. Lightheartedly we set out, and light of petrol, too, it proved ere Ruabon was reached. Speedy flight gave place to a gentle but unmistakable halt. Visions of magneto troubles or internal engine disorders came to mind, but the lack of motive power was soon discovered. Close by was a petrol filling and distributing station, where the landscape was almost blotted out by familiar red tins. Yet for us it was not a land of plenty, for a youngster in charge tendered the information that under stringent rules they were not allowed to sell petrol to passers-by. Under the circumstances we were certainly not included in the latter category, and after judicious interviews with officials the needful fluid was forthcoming, on the understanding that payment was credited at the nearest garage.

In due course we swung down into the valley of the Dee, and the beauties of Llangollen demanded a halt. The landscape is here referred to, but one of the ladies of the place supplied information pleasantly. The view from the bridge, with the dark green water wandering lazily 'midst huge brown rocks, was delightful. Barber's Hill seemed an appropriate name for the confronting mountain with its stubbly growth of pines, but the name came from a decidedly less picturesque source. Long ago a Deeside barber killed his wife on the mountains.

"Via Dolorosa."

Then, after crossing the bridge with its curious buttresses, we sped through pine woods and up past Corwen, with road surfaces steadily deteriorating. Nearer Cerrig-y-Druidion the running conditions became unspeakable in polite company—in fact, the worst encountered on any highway in twelve years of motoring. The road resembled a choppy sea suddenly petrified, macadamised, and covered with three inches of mud. However, we went muddling through successfully though nervously for five miles, mostly on the middle gear. Exciting moments occurred when traffic was met, and we slid bodily aside into the deeper quagmire on the side of the fairway through the mud. It was often a struggle to gain the road centre. The real trial came on the final curve, when a large car swung suddenly and skiddingly down upon us, flinging lumps of mire in all directions. Our spokesman, usually so voluble on such occasions, had just time to open his mouth when it was closed effectually by a flying fragment. Curiously enough, the fearful road surface, evidently caused through heavy traction engine traffic, changed hereabouts with surprising suddenness. Thus we whirled merrily upwards, almost thankful for a passing shower and its cleansing effects.

The long "straights" over the lofty moors to Pentre Voelas called for speed, and soon in front the great blue mountains stretched in wide array. There, on the left, was shapely old Snowdon, unmistakable amongst a host of giants rendered big and bulky by their contiguity. Then the Glyders led the eye around to the wonderful central dome of Tryfaen, with the long purple ranges of the Carnedds swerving away to the right and downward to the valley of the Conway.

Surely this is the grandest of all approaches to North Wales. The sight stirred the driver of the Clyno, a type of adventurous Briton who is only happy

The Clyno and its passengers in the shadow of Snowdon

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in a fierce speed draught or on a steep crag with open heaven above and little else below. Down from the 750 feet levels we flew, the speedometer readings being such that one was sorely tempted to break the old rule "never speak to the driver!" Then swiftly the pine trees came up to meet us, and we entered the mountain gateway, where gaunt grey rocks hung overhead, and far below us the Conway glistened amidst the tree-girt gorges. A glimpse up the Lledr Valley on the left reminded us that a slight detour would have led to the famous Fairy Glen; but wilder scenes had more attraction, and even familiar Bettws-y-Coed with its pretty bridge scenes at Pont-y-Pair only called for a slackening of speed to conform with the new and much enforced ten-mile limit.

Ogwen—The Best Mountain Centre.

The long climb upwards towards Capel Curig, the mountains led us past the Swallow Falls, even yet the grandest sight of the kind in Wales, despite the spread of sandwich papers, bottles, and other fragments which signalise the approval of tripperdom. We were glad to leave the carriage-crowded haunt and breathe the sweeter mountain air, though it were flavoured with the dense yet healthy exhaust of a large car which made the pace ahead merrily. The shapely peak of Moel Siabod now towered in front with the river Llugwy soon making noisy echoes in the gorge by Capel Curig. When Snowdon appeared ahead, we swung up to the right clinging still to the Holyhead Road, and making for the gap between Tryfuen and the Carnedds, wherein lies Ogwen Lake and its little cottage—the grandest mountain centre in all Wales. It is scarcely necessary to mention how we spent the next few days there clambering up innumerable crags and feeding on inexhaustible Welsh mutton. The words of a writer in the visitors' book were true enough.

"The dose you'll more or less repeat on each successive day
Till when you meet a mountain sheep you'll turn the other way."

However, it may be mentioned for those who go to Wales for mountaineering and motoring that Ogwen is the very best place to stay. It stands practically 1,000 feet above sea level, and so gradual is the approach thereto that its loftiness is scarcely realised. Even the steepest side of the Nant Ffrancon Pass from Bethesda needed little else than top gear from the well-tuned though over-loaded Clyno.

Numerous motor travellers are beginning to realise that from Ogwen Cottage, the Glyders, which afford the grandest mountain views in the Principality, may be most conveniently ascended by any ordinary pedestrian. The peaks themselves are most interesting from this side, with their huge ridges enclosing tiny tarns, glistening like silver gems in crag-girt hollows. Tryfaen should also be climbed from Ogwen as well as the two masses of Carnedd Dafydd and Carnedd Llewellyn, the latter only a few feet lower than Snowdon, and until the railway finally settled the argument, often considered loftier than the Queen of Cymric peaks. Thousands of motorists pass by Ogwen Cottage without realising that the romantic hollow of Llyn Idwal, with its frowning bastions of the Devil's Kitchen rising above the blue waters, is scarcely ten minutes' walk away from the main road. It is the most beautiful bit of wild lake and mountain scenery in Wales, if not in all Britain. The fact that venturesome cragsmen have been flung to their doom in fruitless efforts to climb the Devil's Kitchen adds to the impressiveness of the scene.

These details and many others we had learned on previous visits, for this district is the rock-climber's paradise. Thus, after a few days of energetic sojourn, we turned the Clyno towards the south-westerly side of Snowdon. It was a glorious run over the wild moors, now dark crimson, mantled with the fading heather, and aflame with the ruddy glow of the dying bracken's colour splendour. Then from Capel Curig to Pen-y-gwryd the purple heights drew ever nearer and nearer, until at Pen-y-Pass, the *gorphwys fa*, or resting place, at the top of the Llanberis Pass, the heart of Snowdonia was regained. The dangerously hidden corners on the approach to the top of the famous pass were at last receiving attention. Great masses of rock had been cleared and by next season there will be no further need for rash motor cyclists to perform aerial flights over the wall to alight providentially on soft mountain slopes. In the way of narrow escapes records have been broken here—next time something more vital may be shattered.

The driver of the Clyno on a gradient of 1 in 1.

We found at Pen-y-Pass that on account of the copper mines being now closed permission may be obtained to ride over the fell road. This runs up to the shores of Llyn Llydaw, into the heart of the mountain solitudes within an hour's walk of the top of Snowdon. Who would now go up the peak by the railway which runs up the dullest, ugliest side? Rather let them come by motor and afoot from the Llydaw side—'midst all of the greatest interest and beauty that Snowdon can offer.

After renewing the acquaintance of mountains and mortals thereabouts we returned to Pen-y-gwryd, and thence down that wonderful road to Lake Gwynant, with Yr Aran, Llrwedd, and the other great peaks playing hide and seek with us amidst masses of sunlit vapour. Silver birches, now golden, drooped over the roadway, and only the song of the mountain streams broke the stillness as we skimmed valleywards with engine at rest. But suddenly the drowsy peace of mind was broken. At the first sharp corner a sidecar machine was encountered with small space to spare for our passing, and its passengers dismounted. The cry—"a broken spindle"—was wafted to us as we flew past, but trusty brakes soon stopped progress.

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Then we learnt that the unlucky, or lucky, travellers, as the case may be, were hung up 800 feet high and five miles from anywhere with a broken front wheel spindle. By marvellous good fortune they had just pulled up to enjoy the wonderful view when the wheel collapsed; otherwise there would have been serious work for the doctors. A temporary spindle was fitted out of toolbag fragments, and finally, we left the two adventurers determined to push their machine to Beddgelert. Incidentally, it seemed to us that stronger spindles are required for the front wheels of sidecar machines, which travel these mountain roads. On such places the strain on the front wheel bearings is excessive. An anxious inspection of the Clyno front wheel details added to peace of mind once more.

At the crest of the Nant Ffrancon Pass. Ogwen Cottage is seen nestling under Tryfaen, with the Glyders on the extreme right.

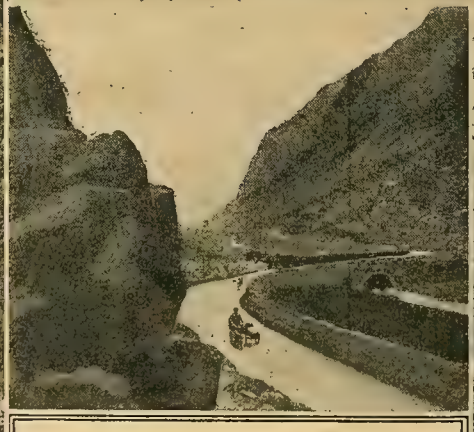
On the shores of Llyn Ogwen, with the many peaked mass of Tryfaen behind.

Mountain Trips.

Then down by the shores of Gwynant we threaded through tawny groves of elm, beech, and chestnut to Llyn Dinas, undoubtedly the most beautiful of the two lakes, for the motor way skirts close to its open shore line with Moel Hebog bulkily lofty in front. At Beddgelert, with its pretty scenery on the Gwynant River and the bridge so favoured in poem and picture, we turned off to the right. Five miles of gradual ascent on the Carnarvon highway brought Rhyd ddu within sight. There we found a delightful abiding place for the exploration of the mountains 'twixt Snowdon and the sea.

On one day a delightful trip was made through the beautiful Nantlle Valley towards the coast. Nazareth, a typically quaintly named Welsh village, attracted attention as a halting place from which to visit the adjacent heights. The roads were excellent in this region, and seemed practically unknown to motor folk. Shortly after leaving Rhyd ddu there was one mile-long hill leading down into Drws-y-Coed which would commend itself to tyre makers especially. Of the three gates thereon

(1) In the pass of Aberglaslyn. In the Autumn time, the mountain girt gorge is a wonderful scene of colour splendour. (2) Into the mountain gateway of the Llanberis Pass. The bridge is known as Pont-y-Cromlech.



(3) Through the narrow jaws of the Nant Ffrancon Pass. A peak of Carnedd Dafydd rises 2,000 feet.

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one occurred with startling suddenness on the steepest section, and only a strongly braked wheel saved its disreputable appearance from further aggravation. The upkeep of that gate is said to be heavy.

"Spitty Evan."

Another typical day was spent in a run up the Festiniog Valley to visit the rugged crags of Moel Wyn. The way lay through Beddgelert to Aberglaslyn Pass. An aureate array of larches clung perilously to the steeps which rose to bare grey crags overhead, whilst a hundred feet below the roadway the torrent echoed noisily. But louder still during our halt there came a small car up the pass, its big engine misfiring, spluttering and spitting lustily. The driver, nodding ahead, asked: "Is this Spytty Evan?" The obvious answer was, "Yes! You're sitting on it." However, we pointed out the proper way to the curiously named village, Yspytty Evan, pronounced Usputty Efan, and away went the noisy interlude back down the pass to take the left-hand turn over Aberglaslyn Bridge. We followed later, avoiding the rough mountain road by Tan-y-Bwlch, passing through Penrhyndeudraeth and Mæntwrog *en route*. During the scramble up Moel Wyn our machine was left in the village of Tanygrisiau, much to the interest and amusement of the natives, one of whom mounted guard over it with a serviceable "shillalegh," and no machine could be "garaged" more securely!

The return journey to Rhyd ddu was made through Portmadoc, where a 9d. toll was gladly paid for the crossing of the estuary. Thence the splendid highway between the mountains and the sea was followed by Dolbenmaen, Pen-y-Groes, and Nantlle.

The Homeward Journey.

For the homeward run to Chester the Llanberis Pass was the first objective. With thick clouds filling the wild valley and hiding the rugged head of Mynydd Mawr—or elephant mountain—we hurried along by the reedy shores of Quellyn Lake to Carnarvon. Thence, away up past the lakes of Padarn and Peris, with their slaty turmoil, we sped forward into the narrow jaws of the dark pass. The Clyno seemed to feel the breath of the coming storm, which finally chased us up the steep road into finer weather on the easterly side. The surface on the famous pass was excellent. With heavy luggage and passengers to match the Clyno climbed the pass with its heavy load grandly on the second gear

Then soon the great mountains sank behind as we whirled swiftly down to Bettws-y-Coed and seaward along the valley of the Conway, missing the toll-less bridge at Llanrwst, and finally crossing the river at Tal-y Cafn. By Colwyn Bay and a glorious coast road, Chester was reached in the grey evening light. Next day came the farewell to the trusty Clyno, whose speedometer reading bespoke nearly 500 miles of faithful service. No better companion could be wanted on any mountain wanderings. The detachable wheels of the Clyno make is particularly suitable for work on roads that are likely to cause tyre trouble, for it is literally the work of a moment to substitute the spare wheel and have the puncture repaired on arrival at the end of the day's run.

(1) The long gate-barred hill leading down into the Nantlle Valley from Rhyd ddu. Bwlch-y-Drws-y-Coed—the pass of the gate way into the wood—is the name of the hill.

(2) In the Nantlle Valley. A splendid road runs along this beautiful mountain enclosed valley, which more motor cyclists should visit.

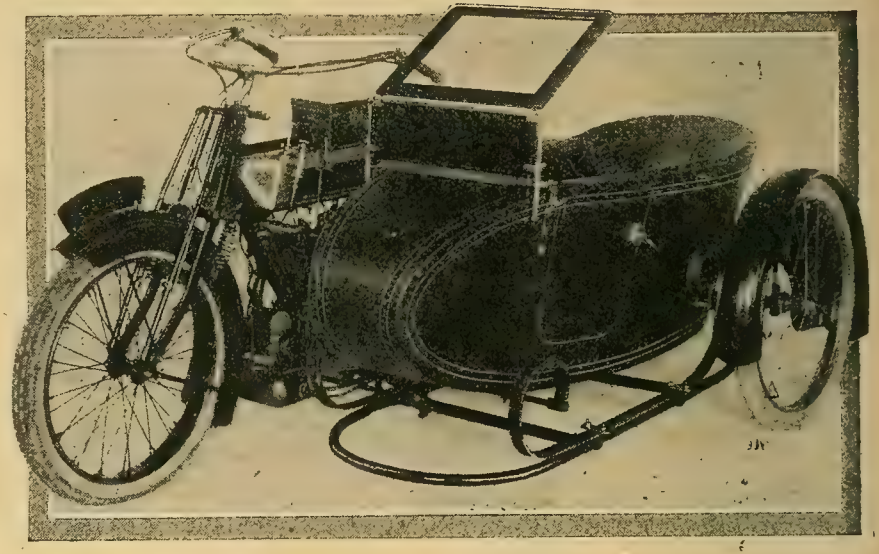
(3) On the shores of Llyn Dinas. Moel Hebog rises above the lakes further-shore line.

PASSENGER MACHINES OF ALL TYPES.

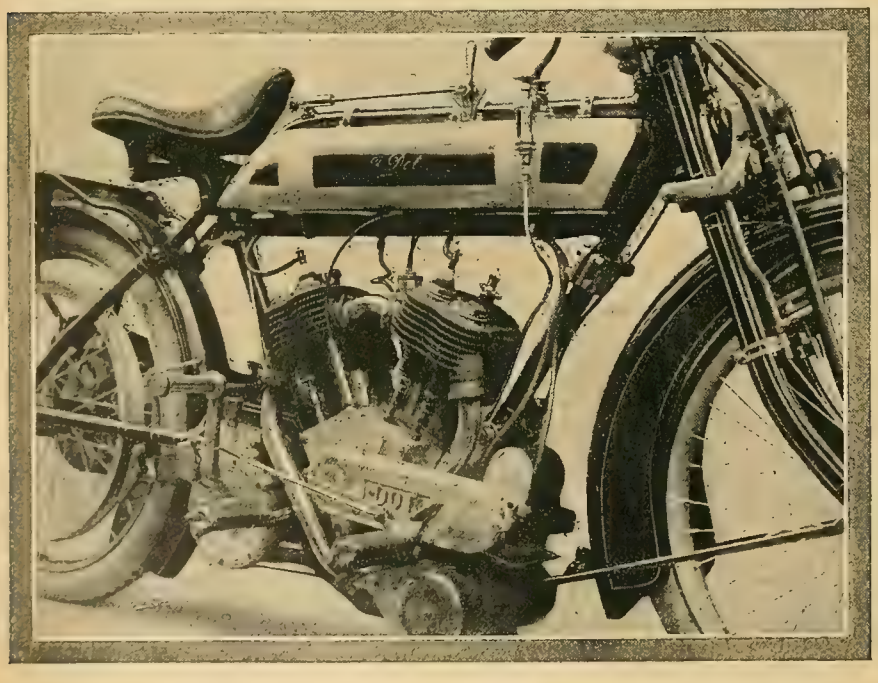
In the following pages we give particulars and illustrations of a number of 1914 passenger models of all types. All of these will not be exhibited at Olympia, but none the less possess considerable interest. Further new designs of motor cycles, sidecars, and cycle cars, will be illustrated and described in our next two numbers, which will be mainly devoted to the Olympia Show exhibits.

THE DOT SIDECAR MODEL.

One of the most successful twin-cylinder machines in competitions has been the Dot, made by H. Reed and Co., Ellesmere Road, Hulme, Manchester. The power plant is either a 6 or 8 h.p. twin-cylinder J.A.P., and the transmission is by chain throughout, a Jardine G.H. three-speed gear being fitted on the counter-shaft principle, a kick starter being provided on the gear-shaft. Another new feature for 1914 is the provision of a long exhaust pipe from the silencer to the rear of the machine and the fitting of a very neat internal exhaust lifter to the engine. Saxon spring forks are fitted, and other features of this admirable machine are an Xl-All saddle, a very large wedge-shaped brake acting inside the V of a dummy belt rim, and a very large carrier of particularly strong design. A drip-feed lubricator is also used, and the turnout should make a magnificent sidecar machine capable of taking a heavy touring load anywhere the wheels will grip.



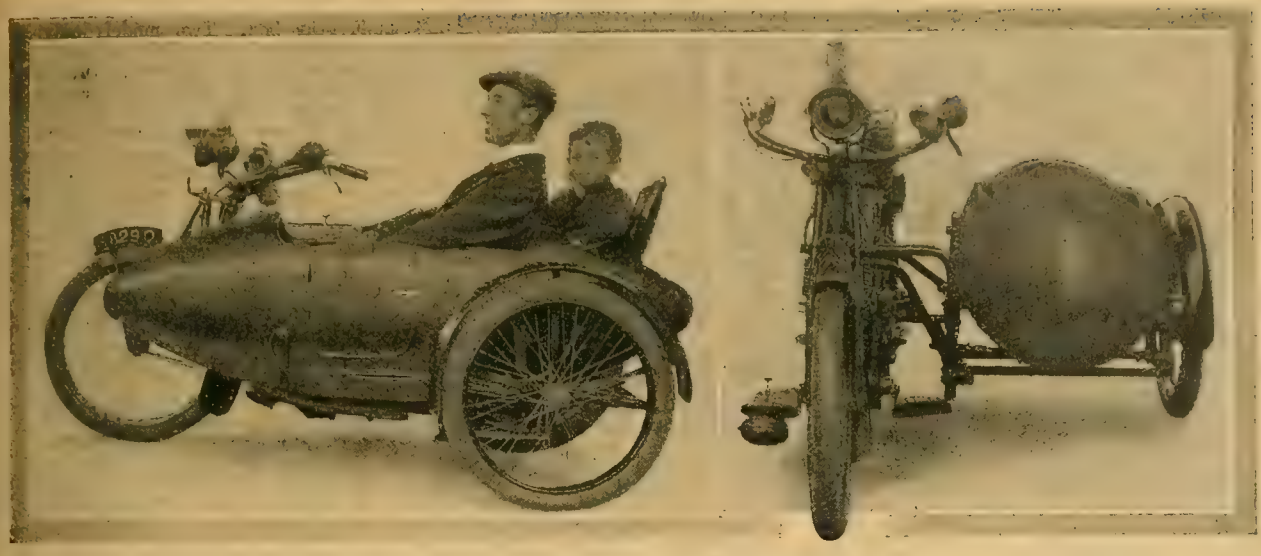
The 1914 6 h.p. three-speed Bradbury sidecar combination.



Showing the power unit, counter-shaft gear, and kick-starter on the 1914 model 8 h.p. Dot-Jap.

6 h.p. TWIN BRADBURY.

Wonderful as has been the success of the 3½ h.p. single-cylinder Bradbury when fitted with sidecars in competitions and in the hands of private owners this year, this firm evidently recognise that there is a large demand for a more powerful type of passenger machine, and are therefore marketing for 1914 a special sidecar outfit equipped with their new 6 h.p. twin-cylinder motor, which we have previously described. A three-speed counter-shaft type gear box embodying a large clutch is employed, and the drive throughout is by chain. The sidecar fitted is an extremely handsome and well designed turnout, with ample leg room and an excellent large door. A great feature is made of proper mudguarding of the sidecar wheel, and this has been so well carried out that the passenger should not suffer in the least from mud or wet being thrown by the wheel. The chassis is underslung and long C springs are employed fore and aft. Altogether, this is a most taking turnout, and should go far to enhance the already excellent reputation of this firm's products. For those who require a less powerful machine for passenger work, Messrs. Bradbury are



A novel design of sidecar is that made by Mr. S. B. Killin, and illustrated above. The addition of a dickey seat at the rear will be observed.

marketing a 3½ h.p. single-cylinder model with a two-speed counter-shaft gear box and belt-cum-chain drive, a kick starter being embodied with the gear box. Features of this machine are the long comfortable footboards and the very long lever on the side of the tank for changing the gear.

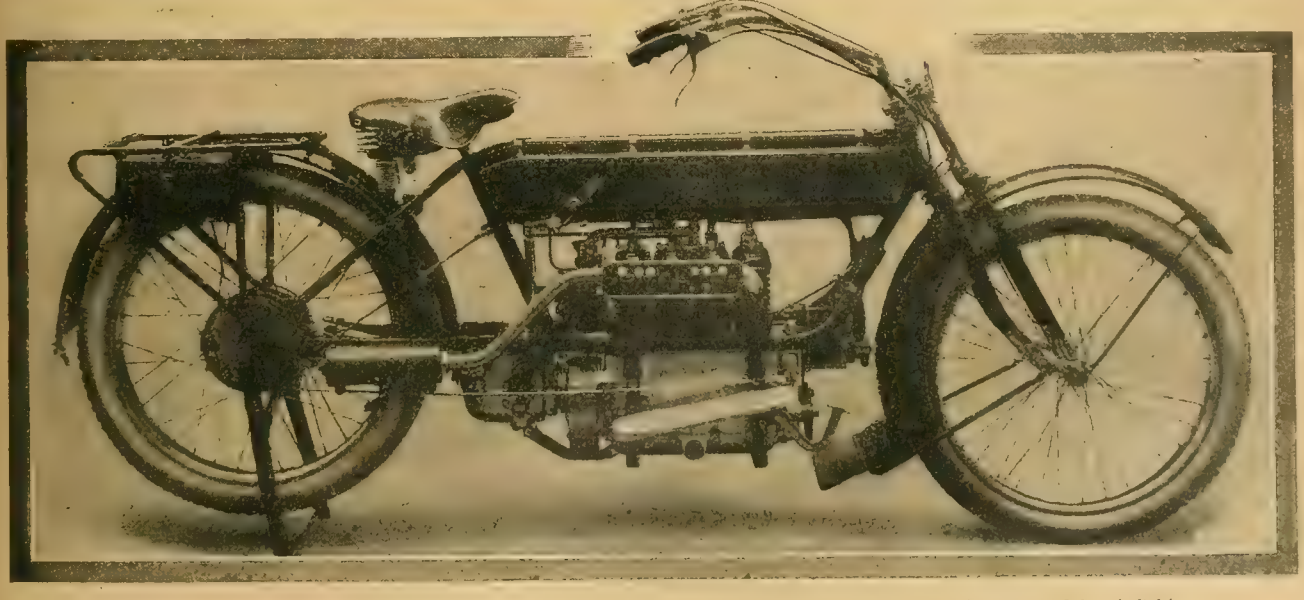
A STREAMLINE SIDECAR.

There is no limit to the ingenuity of sidecar manufacturers. The present boom in passenger machines has evidently stimulated makers to devise many, and strangely shaped sidecars, the "freakiest" being on view at a B.M.C.R.C. meeting at Brooklands. But it is quite possible to make a wind-cutting attachment of very distinctive design, without in any way coming into the "freak" category, and this desirable state has been attained by Mr. S. B. Killin, 261, High Street, Hounslow, with the New Torpedo sidecar. A perfect stream line effect has been gained, and also a dicky seat, large enough for a good sized child, is incorporated in the design. Also there is ample leg room without giving undue length to the coachwork. An excellent feature is the very long springs on which the sidecar is suspended. The coachwork is of sheet metal, and the dimensions are 6ft. 6in. long and 2ft. across the centre. An excellent feature of the dickey seat is that it is practically impossible for a child to fall out, as the folding well-padded back reaches up to the shoulders of the occupant. When empty, the back folds down. The price is £16 16s., and a wind screen can be fitted for 30s. extra.

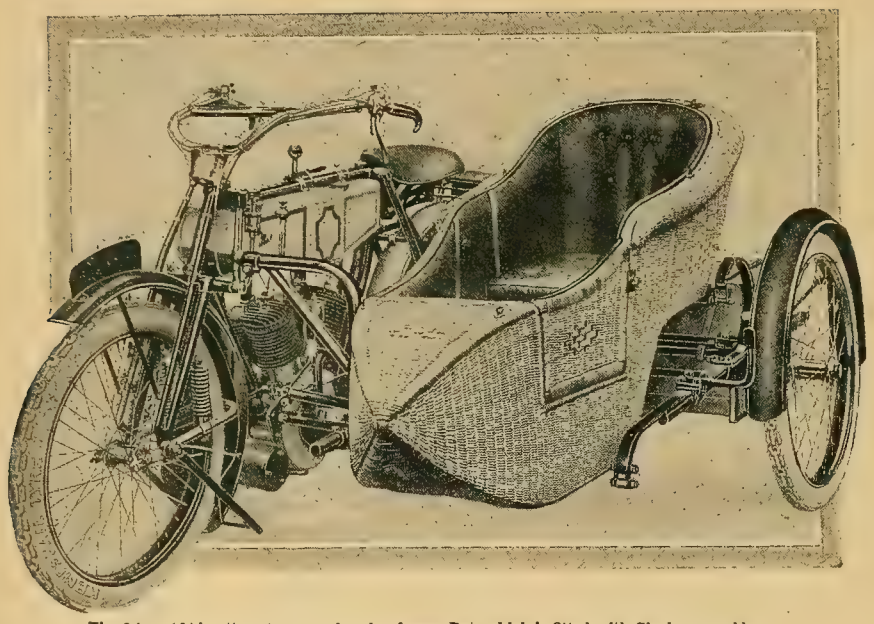
F.N.'s AS SIDECAR MACHINES.

In these days of luxurious sidecars, which demand considerable power from the motor for comfortable use, it is unusual to come across sidecars attached to quite light machines. Yet Messrs. F.N., Ltd., inform us that the 2½ h.p. F.N. is frequently used for sidecar work and, carefully driven in reasonable country, can perform quite good service in this way. Indeed, such a combination has been driven through the London-Edinburgh Run with success. Of course, no great speed or hill-climbing power can be expected from so low a power when loaded in this manner, but for ordinary use the machine is capable of giving good service in this direction. It is a tribute to the excellence of the F.N. workmanship that the frames of these little machines are strong enough for such work.

A sidecar machine *par excellence* is the latest four-cylinder F.N. of 7 h.p., bore and stroke 52 × 88 mm. It has a car type three-speed gear box and clutch, and shaft drive, and will make its first public appearance in England at Olympia.



Quite one of the most taking designs of passenger machines for 1914 is the four-cylinder, three-speed F.N. of 7 h.p. illustrated. It has shaft drive.



The 8 h.p. 1914 pattern two-speed spring frame Bat, which is fitted with Gloria cane sidecar.

BAT TOURING COMBINATION.

The combination of a two-cylinder Bat with a Gloria sidecar provides one of the most admirable touring passenger outfits imaginable. This machine is in no way a solo mount, but is specially designed for drawing sidecars of the heaviest and most luxurious type. The main alteration for the 1914 model will be the fitting of a three-speed gear box instead of the two-speed as has hitherto been the custom. This is a car type gear box, and is situated on the counter-shaft, the drive being by chain, a kick-starter being provided, acting on the gear box shaft. A clutch is incorporated with the gear, and next year practically double the friction surface will be provided. The whole construction of this mechanism is of the most robust description, and great rigidity throughout is noticeable. The motors fitted are either a 5-6 h.p. or a 7-8 h.p. J.A.P., gas being supplied by an Amac carburetter, and Kempshall tyres will be fitted. A minor but noticeable alteration for next year will be newly designed hubs fitted with journal ball bearings, which is a move in the right direction, as with these powerful sidecar combinations there is apt to be some considerable wear on the front wheel bearings unless these are fully up to their work owing to the drag and pressure of a heavy sidecar at corners. The whole outfit is most luxuriously equipped, and no pains have been spared in order to make this machine a thoroughly serviceable go-anywhere mount. It is capable of climbing any hill on which the wheels can gain a grip. The well-known Bat suspension type front forks are, of course, retained.

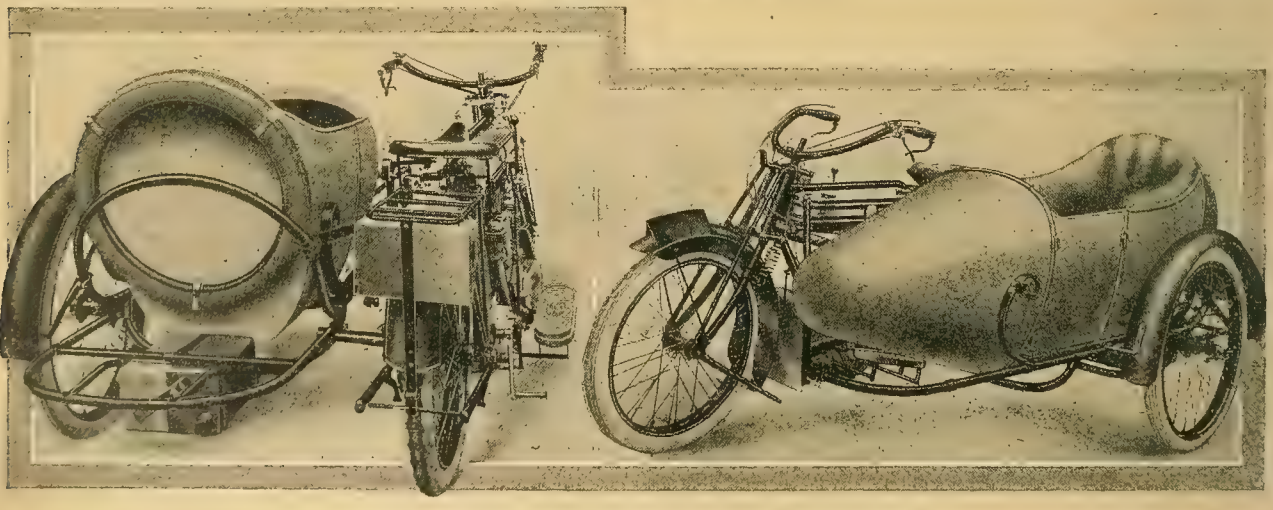
THE CHAIN-DRIVEN REX-JAP.

A new move has been made by the Premier Motor Co., Birmingham, who will in future produce the Rex-Jap machines at their own works in Great Brook Street. The greatest departure from their present model is the adoption of enclosed chain drive and a three-speed counter-shaft gear box. Two models only will be made, a 6 h.p. 76 × 85 mm. twin and an 8 h.p. 85 × 85 mm. twin. Both these models will be identical except for the engine. The engine is carried in a sturdy frame, which incorporates all four sidecar lugs. The magneto is directly over the large silencer and just in front of the engin and a large metal shield protects it from mud and water.

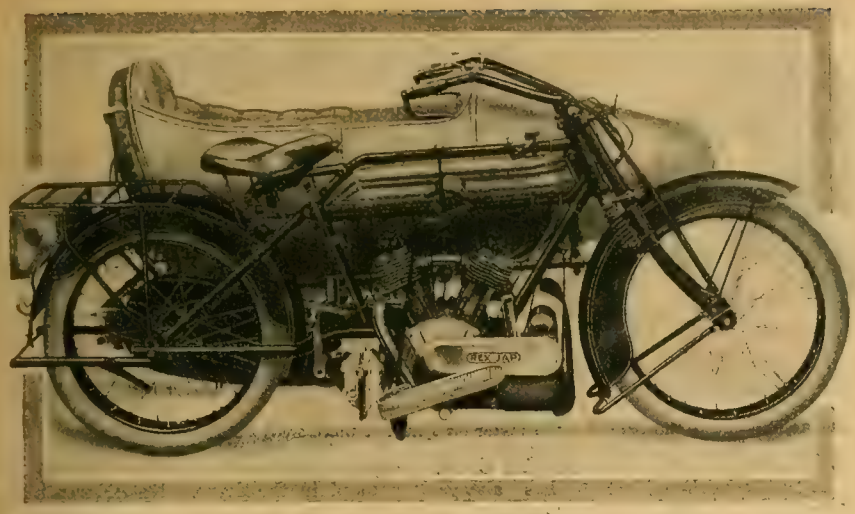
Immediately behind the seat post a three-speed sliding gear box is mounted, the clutch, which is of the cork insert type, being carried on the primary shaft. Gear ratios of $4\frac{3}{4}$, $7\frac{1}{2}$, and $12\frac{1}{4}$ to 1 are

Rex-Jap kick starter showing method of adjusting rear chain.

supplied, and the gears are changed in a gate. Both driven and driving chains and the quadrant and pinion kick-starter gear are entirely enclosed in substantial casings made of stamped sheet steel, and provision has been made for simplifying the detachment of the rear wheel. The rear hub incorporates a large internal expanding brake, which is operated by pedal through the medium of a Bowden cable. The front hub has been considerably enlarged and has been rendered waterproof. 650 × 65 tyres are fitted all round and the rims are of the flat base type, with countersunk spoke nipples. The rubber-covered footboards have deep heel pieces and are sprung at the front end, which, combined with a sprung saddle pillar and adjustable position handle-bars, should provide a comfortable riding position for a driver of any height. The heaviest type Druid spring forks, ample (5in.) guards, and a metal-covered



Two aspects of the latest model twin-cylinder Rex-Jap and coach built sidecar.



Valve side of an entirely new pattern 8 h.p. Rex-Jap, with three-speed counter-shaft gear, and all chain drive.

tool case at the rear end of the carrier, complete an excellent specification, and the lubrication is by an adjustable sight feed drip. Brampton Bi-flex forks are fitted.

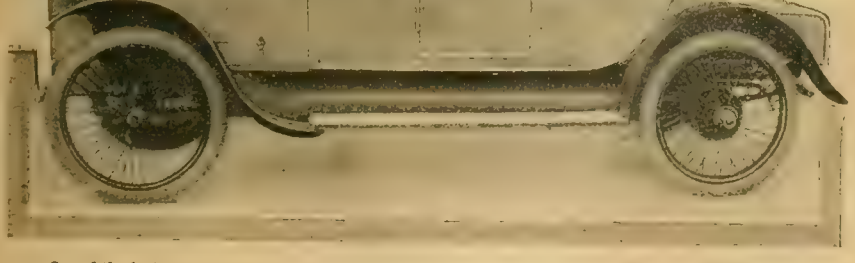
A Comfortable Sidecar.

A well carried out sidecar is made specially to suit the machine and can be supplied with or without the Premier Motor Co.'s special quick-fit coupling. The chassis of this sidecar has been carefully thought out and is extraordinarily strong, the mudguard particularly being stayed to prevent rattle. A large luggage carrier can be obtained as an extra, and is fitted to carry a petrol can underneath. The body is light and roomy, being long enough to suit the tallest passenger, and having a distinctive torpedo nose. A special sidecar chassis will be made by this company to suit the new Indian models, the body for which will carry a large electric lamp built into the nose.

THE WOODROW CYCLE CAR.

This excellently designed cycle car called after its makers, Messrs. Woodrow and Co., Stockport, has a number of features calling for favourable comment. The engine is a 9 h.p. air-cooled J.A.P., set across the frame, and the drive is transmitted through a friction-coned clutch to a three-speed and reverse gear box situated in the centre of the chassis, the gears being changed by means of a gate. Thereafter the drive is taken through a propeller-shaft fitted with two universal joints to the worm-driven back axle, the worm being situated on the top of the wheel. The front axle is underhung, and the springs, front and back, are of the semi-elliptic car type. A feature of the chassis is the strong manner in which the pressed steel side members are brazed together by cross tubes. The wire wheels are 650×65 mm. detachable and interchangeable, an excellent feature.

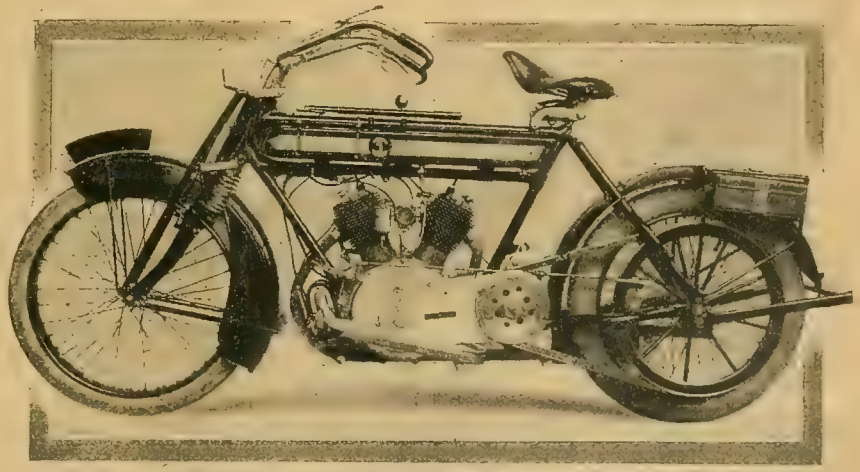
Rack and pinion steering is fitted with ball steering heads, while two sets of internal expanding brakes are placed in the back wheels. The whole car bears evidence of very careful design, and it is claimed that running costs are very low, about 50 to 60 miles to a gallon being obtained, while the car on top gear is capable of speeds up to nearly 50 miles per hour, although owing, largely, to the use of a good sized external flywheel the motor is flexible enough to allow it to fire regularly at practically a walking pace on top gear.



One of the features of the latest pattern Woodrow cycle car is its clean lines and pointed front, thereby affording less wind resistance.

A SPECIAL PREMIER.

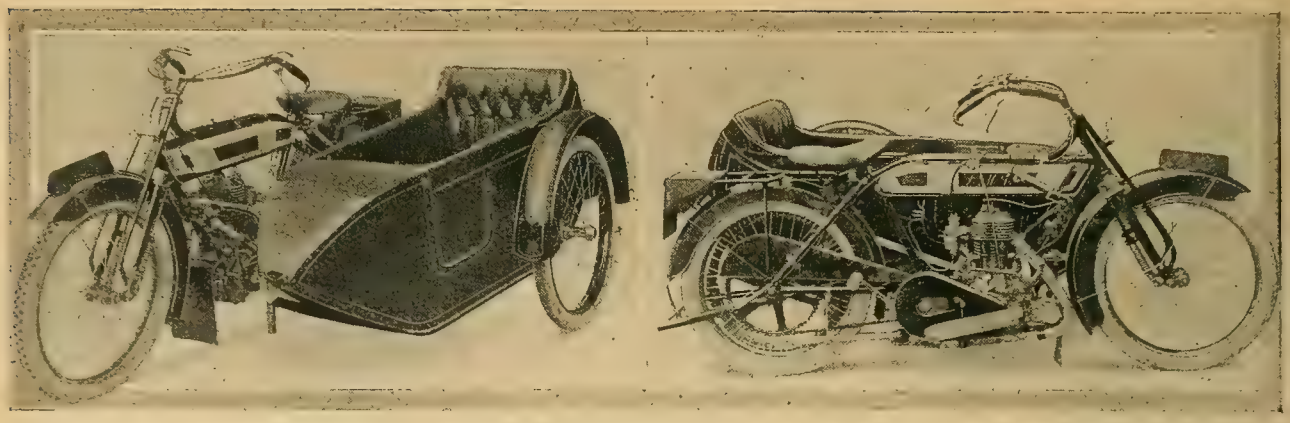
The 7-9 h.p. Premier which we illustrate has been supplied by the Premier Cycle Co., Ltd., Coventry, to the order of a South African rider. It will be noticed that the frame and saddle position are very high, as the rider is over 6ft. 3in. in height. The height of the XI'All saddle from the ground is 40in., and the machine is remarkable for the large size tyres fitted—765×65 mm. in front and 700×80 mm. on the back wheel. The engine is a standard 7-9 h.p. Premier, and the Premier counter-shaft gear with enclosed chain or belt drive is fitted, a noticeable point being the very large belt pulley. The machine, of course, is very heavy, but, as it is intended for use in the Orange Free State, where comfort and strength are essential, it should prove thoroughly up to the most exacting work. As an example of a special Colonial model, the machine is highly interesting.



A Special Colonial model 7-9 Premier. This machine has been built to the order of a very tall rider in the Orange Free State, and the size of the rear tyre is a notable feature.

THE INTERESTING LLOYD TRANSMISSION.

The L.M.C. is a machine which has gained an admirable reputation in a comparatively short space of time, but the designer, Mr. Lloyd, has had years of experience behind him, as he was the designer of the original Quadrants which obtained such a wonderful reputation in the early days of motor cycling. The L.M.C. designer is one of the growing

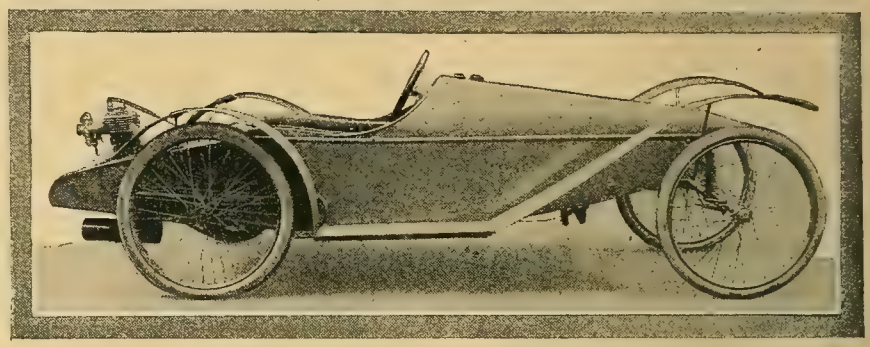


The latest two-speed L.M.C. machine, to which is attached a Bramble sidecar the springs of which are invisible.

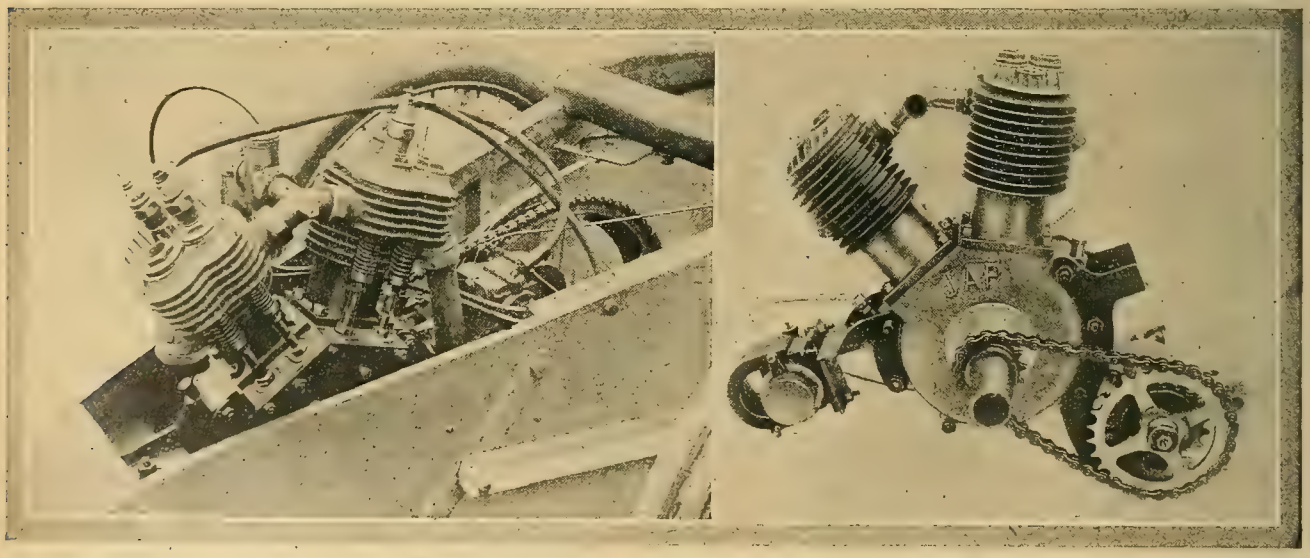
band who pin their faith largely in a big single cylinder, and for 1914 are marketing a special sidecar mount with a motor of 89 mm. bore and 92 mm. stroke, which gives a cubic capacity of 572. The outstanding feature of this machine is the system of transmission employed, a belt transmitting the power on high gear and a chain on low. This has a great many features to recommend it, chiefly as it ensures the smooth drive of a belt for ordinary work, while for low gear there is no possibility of slipping. The whole design is very neatly carried out, and the total extra weight involved by this gear is slight. The motor is rated at 4 h.p., and a kick starter, spring footboards, special large silencer, L.M.C. spring forks, and a mechanically-operated half compression device are features of an interesting machine, and an excellent idea is the fitting of 2½in. tyres. The price is reasonable for the sidecar combination, which sells at £75. Messrs. L.M.C. also manufacture a wide range of 3½ h.p. solo models, and although sidecars for the above are supplied, the company recommend the use of their 4 h.p. motor for passenger work.

A FEATHERWEIGHT CYCLE CAR.

A little vehicle which has always attracted a great amount of attention whenever seen in public is the Carden cycle car. A feature of this machine is that the body is practically a cigar shape, and the engine is situated behind the back axle, and transmits the drive through a short chain to the axle, a multiple-disc clutch being fitted to the engine and a spring shock absorber incorporated in the drive. No differential is fitted, and although up to the present this machine has only been made with a 3½ h.p. J.A.P. single-cylinder engine, it is now proposed by the Carden Engineering Co., Ltd., Farnham, Surrey, to market three models for 1914, viz., the simple single-cylinder single-speed model, the same type fitted with a 5 h.p. twin,

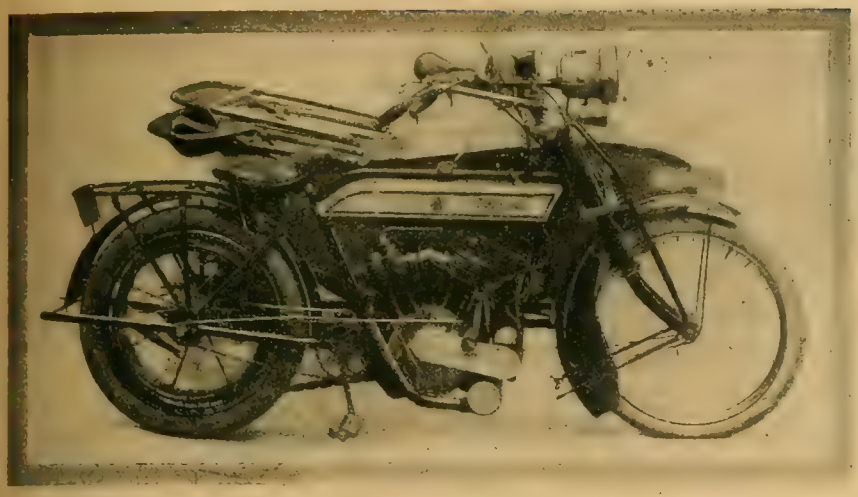


Side view of the novel 3½ h.p. four-wheeled Carden cycle car.



Rear view of the twin-cylinder Carden showing engine, magneto position, and chain drive.

4 h.p. twin Jap engine with change speed gear box on Carden cycle car.



Side view of the twin-cylinder Hercules, fitted with Sturmey-Archer three-speed gear and 6 h.p. J.A.P. engine.

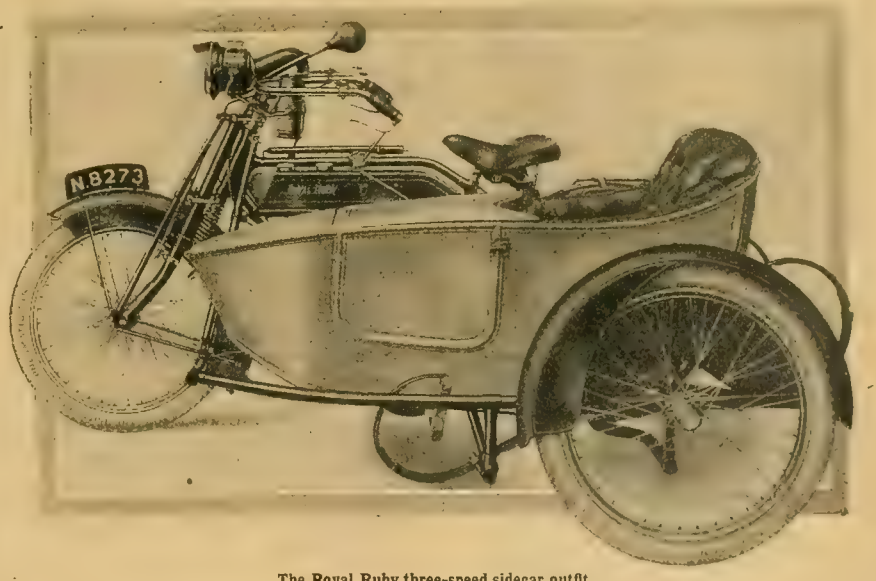
and a 4 h.p. twin fitted with a two-speed gear. The prices of these little vehicles are exceedingly moderate, in fact they cost little more than a high-class motor cycle, and as they only seat one person they may best be described as a motor cycle on four wheels, but at the same time it is claimed that the Carden suspension, which is a combination of levers and spiral springs, renders the machine exceedingly comfortable, and the driver is certainly afforded excellent protection against the weather by the deep scuttle dash provided, and if desired a small wind screen can be fitted at a slight extra cost.

THE GORDON CYCLE CAR.

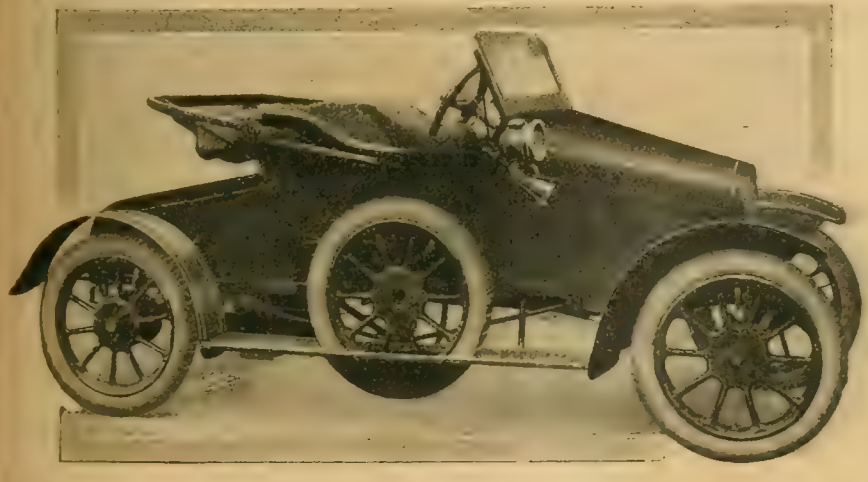
This distinctive cycle car, made by the East Riding Engineering Works, Beverley, Yorkshire, will remain unaltered for 1914, the model marketed being exactly the same as the one which performed so successfully in the Scottish Six Days Trials this year—probably one of the severest tests which any machine could be put to. The speed of this little vehicle over the tremendous gradients in Scotland was really remarkable. It is fitted with a 90° 9 h.p. J.A.P. engine, either air or water-cooled, ten guineas extra being charged for water cooling. The price of the air-cooled model with hood, screen, and lamps is 110 guineas. The gear employed is the two-speed epicyclic type, a reverse also being fitted. Probably part of the efficiency of this machine is accounted for by the transmission, which is by single chain drive from the engine to the back axle. The carburetter is especially designed for running on benzole, though, of course, petrol may be used if required, a special feature of the machine being the exceedingly neat detachable wheels.

ROYAL RUBY SIDECAR OUTFIT

A fine sidecar outfit is that manufactured by the Royal Ruby Cycle Co., Manchester. The engine fitted is a 6 h.p. J.A.P., and the transmission is by belt to a three-speed Sturmey-Archer hub. The sidecar supplied with this machine is noticeable for the extreme length of the springing, which should provide great comfort even over bad roads, especially as the upholstery of the sidecar is on the most generous scale. The outline is graceful, and the passenger is admirably protected by a cover which can be raised in order to get in or out. The company also market a cheaper and simpler form of sidecar, which may be attached to their twin or single-cylinder machines, but the "Special" Royal Ruby combination described above is the most noticeable of this firm's productions.



The Royal Ruby three-speed sidecar outfit.



The 8 h.p. air-cooled Gordon cycle car.

HERCULES PASSENGER OUTFIT.

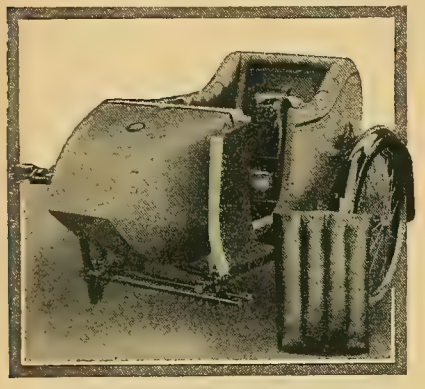
The Hercules Cycle and Motor Co., Ltd., besides building for the home market, have a considerable trade in the colonies and specialise in export work. The motor cycle models are fitted with J.A.P and Precision engines. We illustrate a 6 h.p. J.A.P. engined model fitted with a Sturmey-Archer three-speed gear, and attached to one of the firm's own sidecars. The sidecar is a fine piece of work and is beautifully finished. The chassis is up swept at the rear and has

Passenger Machines of all Types.—

four points of attachment: springing has received much attention, and the latest type springs are wider and have an additional leaf. A folding luggage carrier and a sidecar stand are both fitted, and the attachments are easily detachable. The body provides plenty of leg room, and the hood and wind screen form a useful protection for the passenger.

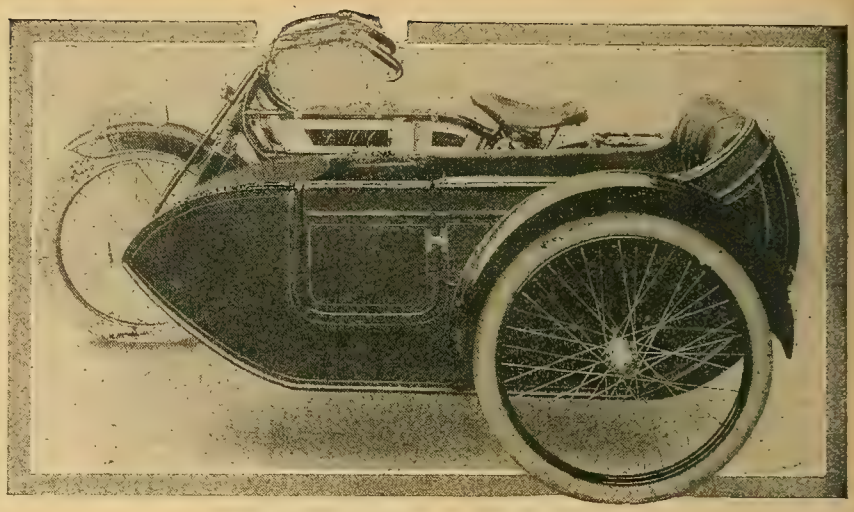
GLORIA SIDECARS.

Since the days when sidecars began to gain their popularity the Gloria sidecar has always been one of the most popular on the road, which can be accounted for by reason of the many novel features incorporated, and the sound design and construction of this sidecar, which affords so much comfort to the passenger. The patent spring wheel suspension, the excellent luggage-carrying facilities, and



The Swan coach-built sidecar has a compartment for a spare can of petrol at the rear, and the body is mounted on combined C and coil springs. Four-point attachment is employed.

the patent double tube attachment have long been features of this make, and will be continued for next season, when an entirely new model will be introduced which is provided with a dropped chassis, boat-shaped cane body, luggage grid, four-point attachment, spring wheel suspension, which will be sold at a popular figure. At the other end of the scale is the "Projectile." Every conceivable luxury is embodied in this attachment, and certain improvements have been



A 1914 model two-speed L.M.C., with Bramble sidecar.

made for 1914, the body being more roomy with deeper upholstery, and Cee springs are now used throughout in place of the coil springs hitherto fitted. A collapsible luggage grid is fitted to the back of the chassis large enough to carry a considerable sized trunk. Everything throughout is of the best, and this sidecar, turned out fitted with footboards, stand, apron, side lamp, and reflex light, and superbly finished, sells at £30. Quite a feature of the latest model Gloria coachbuilt sidecar is the provision at the back, embodied in the coachwork, of a boot to carry parcels or tool rolls. It is exceedingly neatly constructed, and, if anything, adds to the appearance of the complete outfit. In addition to the touring models, this company also makes a range of commercial sidecars which can be used as light delivery vans.

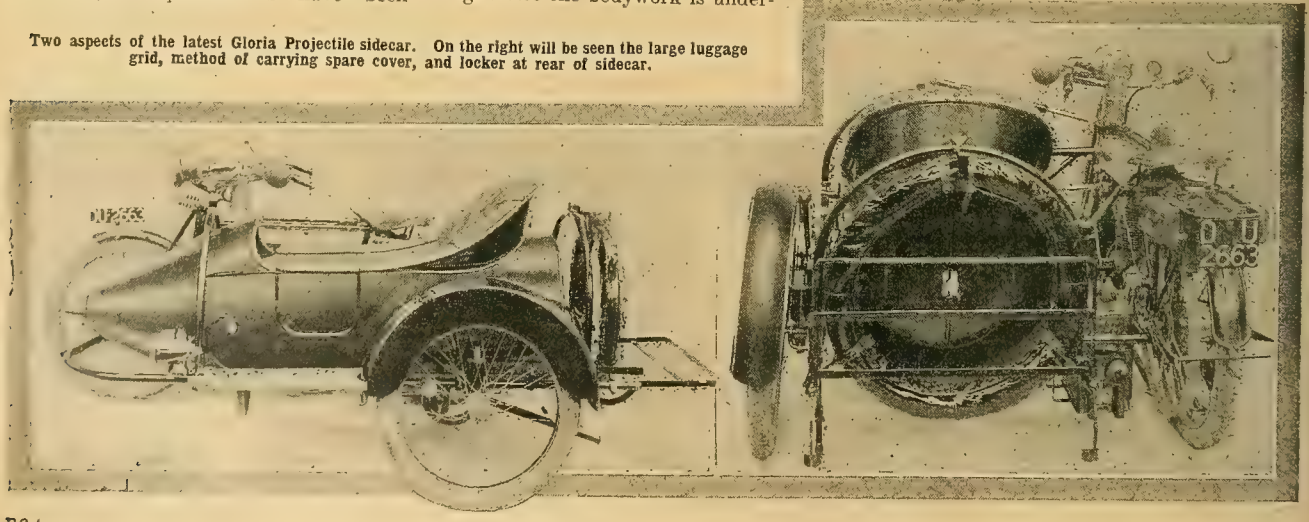
THE LATEST BRAMBLE SIDECAR.

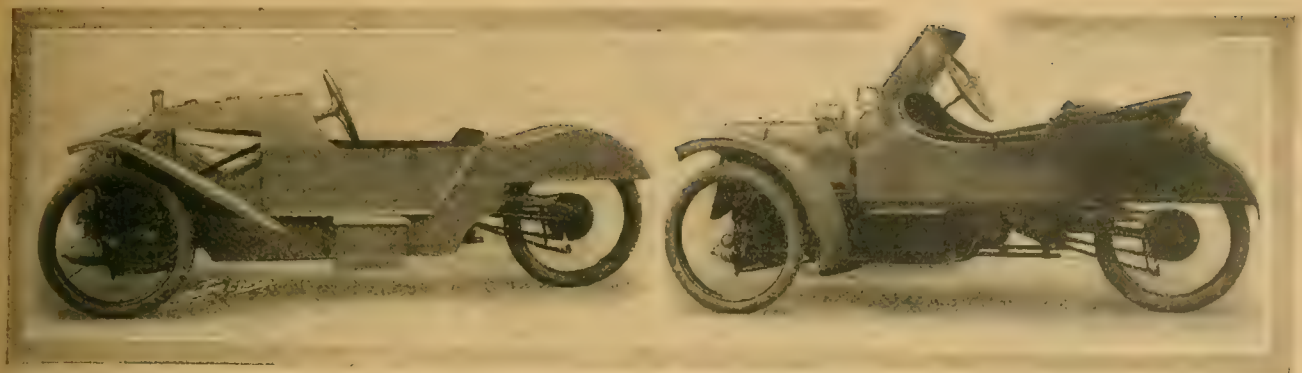
The Bramble Manufacturing Co., Ltd., Coventry, have produced for 1914 a new patent sidecar, which is coachbuilt on an angle steel frame. The whole structure is complete in itself and is not composed, as is usually the case, of a separate body and chassis. By a clever springing device the bodywork is underslung on the axle, thereby adding greatly to the comfort of riding. Neither the framework nor the springing is exposed, and long wear, due to absence of rusting, is thereby assured. The springing arrangements and all connections are bolted directly on to the steel frame, making the sidecar extremely strong and at the same time keeping down the weight. The Bramble sidecar is beautifully finished and comfortably upholstered, and is fitted with a spring seat and a back rest. The attachments, which are four point, are of the quick detachable type. The Bramble is a sidecar which has sprung into great popularity during the past season, and everything points to an exceptional demand for it in 1914.

SIDECAR WITH NOVEL FEATURES.

The Swan sidecar manufactured by the Midland Motor and Cycle Co., Cowley Road, Oxford, is remarkable for a number of ingenious refinements making for comfort. The suspension is unique, inasmuch as the body is hung upon coil springs, something after the system employed on large motor cycle saddles.

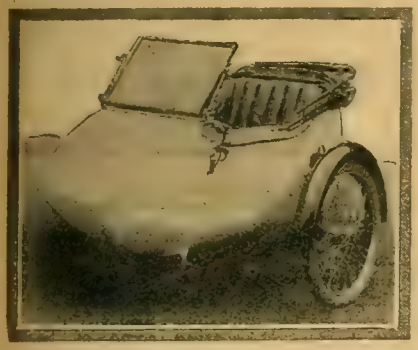
Two aspects of the latest Gloria Projectile sidecar. On the right will be seen the large luggage grid, method of carrying spare cover, and locker at rear of sidecar.





TWO TYPES OF 8 H.P. MORGAN RUNABOUTS.
On the left is the sporting model, while that on the right is the water-cooled Grand Prix type.

The coachwork is so arranged that the back cushion is detachable, and when removed discloses a large locker capable of carrying a two-gallon petrol can and other smaller articles. An exceedingly neat hood and screen are fitted, and a special model will be shown at Olympia,



The Swan coach-built sidecar with hood and wind-screen.

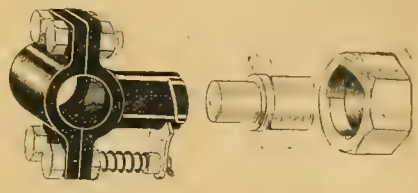
constructed to be suitable for motor cycles fitted with spring frames, the one shown being specially adapted for an Indian and painted red to match, and the firm will also show a model enamelled to match the well-known khaki colour of the Matchless machines. The whole design of this sidecar is excellently carried out.

THE MORGAN RUNABOUT.

The 1914 Morgan three-wheelers will vary little from this year's models. They comprise the Standard, Sporting, and De Luxe models. In the two former a tail forms the mudguard, and the luggage carrier is fitted over the driving wheel. The chassis has been considerably strengthened, and many improvements in detail have been made. The prices remain unchanged namely, 85 guineas, £91, and £100 respectively. Owing to the success in the Grand Prix race, the Grand Prix model has been added to the catalogue. This has a water-cooled engine, thermo-syphon circulation, with radiator behind the engine, and will be exhibited in three forms—one with side-by-side J.A.P. engine, 85×85 mm.; the same model with a wider body, and built for touring; and still another with the overhead valve J.A.P. engine, 90×77½ mm. The last is recommended for racing only. The touring Grand Prix models are intended for those who desire speed alone. The chassis of this is identical with that of other types, except that it is a few inches longer. The price of Nos. 1 and 2 is £105, and of No. 3 £115.

The Morgan Motor Co. pointed out to us that for all ordinary purposes air-cooling has been satisfactory.

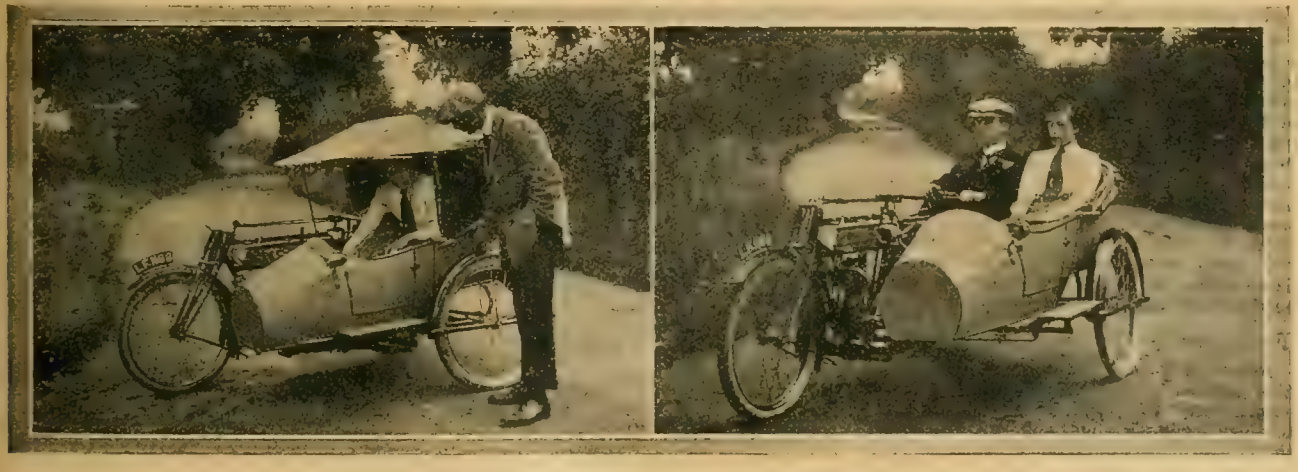
The firm are specialising for 1914 in a commercial vehicle for the conveyance of small parcels. A twin-cylinder air-cooled J.A.P. or Precision engine is fitted. This type affords seating accommodation for two, and has a carrier fitted at the rear of the seats, which is built to support a weight of about 1 cwt. The carrier hinges up to give access to the rear wheel. It can also be removed bodily by unscrewing eight nuts, and a standard passenger body can be substituted in a few moments. The cost, ready for the road, is £95, with £3 extra for the alternative body.



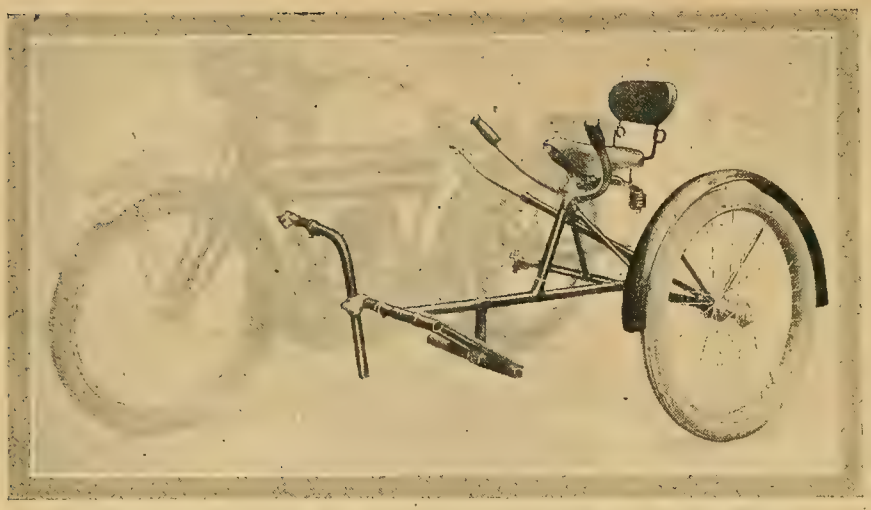
The Norman Barrett sidecar couplings.

A SIDECAR FOR TWO.

Mr. Norman Barrett, who for some considerable time was associated with the Repair Department of Messrs Rudge-Whitworth, Ltd., is now engaged in manufacturing the "U and I" sidecar. This is a miniature motor car body, with side entrance, scuttle dash and hood, which is attached to a motor cycle, and the steering is from the body of the sidecar by means of a special steering



The U and I double-seated sidecar, attached to 3½ h.p. Rudge-Multi.



The "Sports" sidecar attachment which, as may be seen, is fitted with a saddle in place of the sidecar body for lightness.

column to the head of the motor cycle, in place of the usual handle-bars. The advantages of this system are, of course, that the driver as well as the passenger is protected and conversation is far easier, while it is claimed that the effort to draw it is no more severe for the motor cycle than with the usual disposition of rider and passenger, as the sidecar is built so close to the motor cycle that the weight on the back wheel is approximately the same as if the driver were on the saddle. Full particulars of this fitment may be obtained from Mr. A. N. Barrett, 56, Rathbone Place, Oxford Street, W. The control of the machine is by pedals operating the clutch and brakes respectively, and these are mounted on a tilted board under the scuttle dash. The handle of the steering tiller is hinged to facilitate the driver getting up from his seat without disturbing the passenger. All the carburetter controls are mounted on the tiller, and the exhaust lifter on the tube of the machine near the saddle. The front brake can be fitted on the tiller or any other convenient place, and is worked by Bowden wire in the usual manner. Nearly all the machines now have the change speed lever high up on the tank, and such types of lever are quite accessible to the driver. Altogether the whole outfit has a very workmanlike appearance. A special feature is made of the attachment of the "U and I" sidecar to the machine, the principle of the joints used being that of a union nut, only instead of screwing up the joint it is pressed up to the desired position and secured by means of a bayonet joint, the locking device being a small spring operated catch, which engages on a ratchet on the large union, the great point about this method of fixing being the speed with which it can be attached and detached.

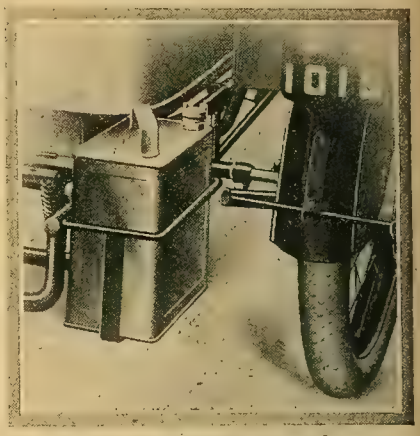
Featherweight Sidecar Attachment.

Recognising that there are a considerable number of riders who do not wish permanently to attach a heavy sidecar to their machines, but who require some simple and light method of carrying a passenger on short journeys in fine weather, the Tennant Engineering Co., Pershore Street, Birmingham, have evolved an attachment known as the "Sports" sidecar, which we illustrate. This consists of a very light skeleton sidecar chassis with an ordinary motor cycle saddle fitted with a backrest as a seat, the rider obtaining support by the pair of handle-bars on either side of him, and resting his feet on footboards or footrests as desired. For surveyors and other professional men who find it convenient occasionally to carry a passenger about for short journeys, this attachment should prove useful.

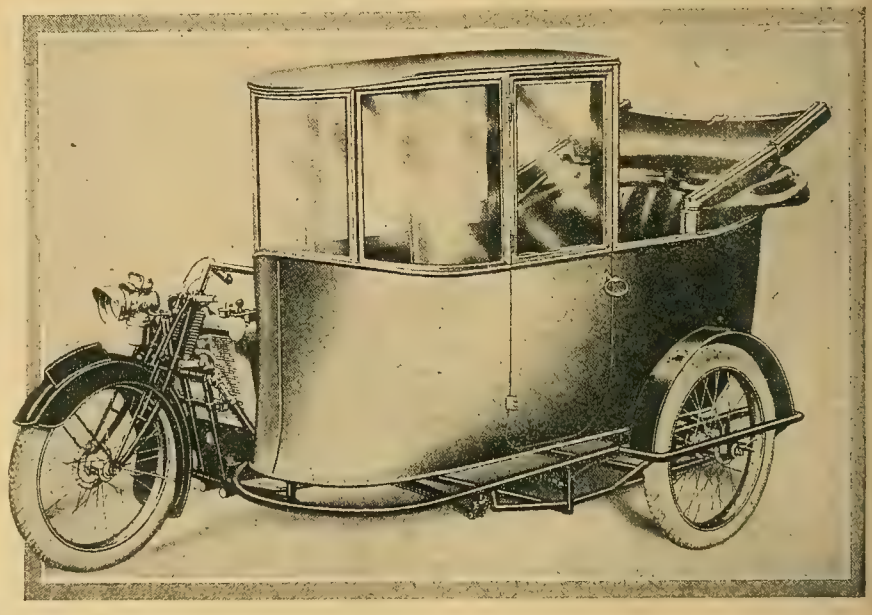
A neat sidecar body constructed by the Light Car Body and Fittings Co., of Grey Friars Lane, Coventry. Note the sound method of attaching the wind screen.

A LANDAULET SIDECAR.

Unique sidecars are quite a speciality of Mr. W. Williamson, and his latest creation to be fitted to the well-known water-cooled 8 h.p. Williamson motor cycle is a landaulet which seats no less than three passengers. Of course, the weight is fairly heavy, but the Williamson machine is specially constructed to pull a big load, and although it may appear a little cumbrous at first sight, it is exceedingly comfortable. Indeed, it has been suggested putting some of these combinations on the streets to ply as taxicabs, the fares suggested being about half those ruling for taxicabs. This sidecar is interesting as showing what can be done in this direction.



Method of carrying spare tin of petrol at the rear of the Williamson sidecar.



One of the Williamson Co.'s productions is the three-seater landaulette sidecar machine, as shown above.

Passenger Machines of all Types.—

THE 1914 SPARKBROOK SIDECARRIAGE.

The production of sidecar machines only is the policy of the Sparkbrook Manufacturing Company, Coventry, and this specialising has led to the appearance for 1914 of a very finely designed and constructed outfit. The Sparkbrook sidecar machine is replete with clever points of design, and we are glad to see the care that has evidently been exercised in securing proper accessibility to all working parts.

The power plant is a 6 h.p. or 8 h.p. J.A.P. twin-cylinder to order, and the features of these engines are so well known that it is unnecessary to dwell upon them. Gas is supplied by either

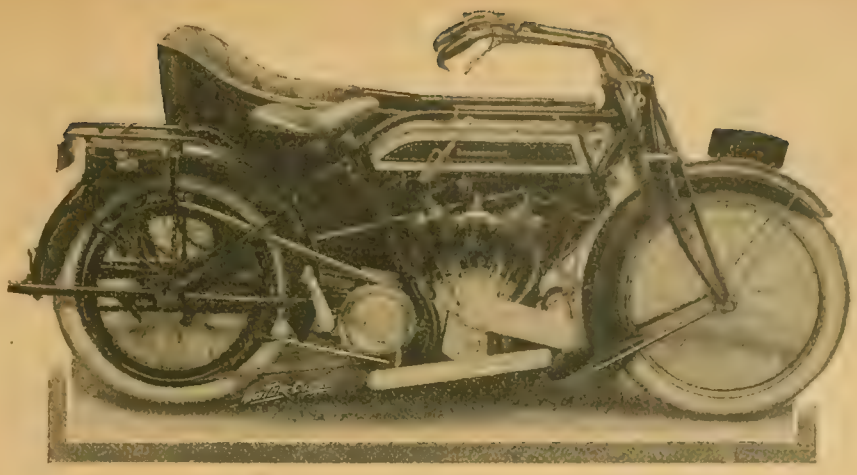
Showing how the spindle may be withdrawn and the back wheel of the Sparkbrook models easily detached.

a Senspray or B. and B. carburetter, according to the fancy of the purchaser. The front forks are of the Druid type and exceedingly substantial. But the most interesting feature of the machine is the transmission.

The Gear Box and Drive.

The gear box is neatly attached to the bottom bracket, and the gears are driven by a Hans Renold chain from the engine, the final drive being by belt to the rear wheel, the belt running over an 8in. diameter pulley fitted to the right-hand side of the gear box. The makers state that so confident are they in the ability of the belt to perform its

Details of the Sparkbrook two-speed countershaft gear box.



Valve side of the chain and belt-driven Sparkbrook.

task satisfactorily that they are prepared to guarantee 5,000 miles from a belt. This arrangement of drive leaves access to the rear wheel easy for purposes of removal, and in the Sparkbrook it is a particularly simple job, as the wheel is fitted with a detachable spindle. The light rear wheel thus obtained also makes tyre wear light and assures comfort, due to absence of bouncing.

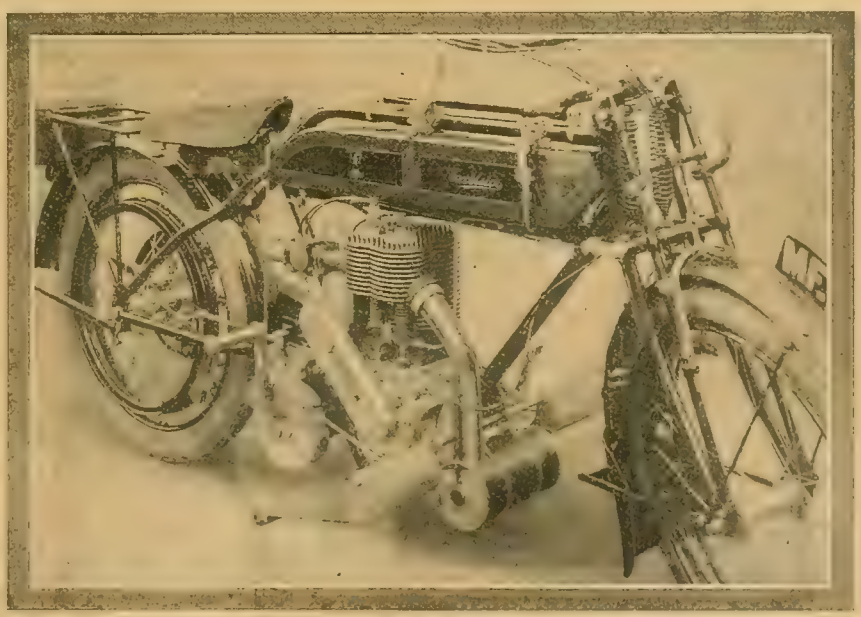
For Colonial riders, and those at home who prefer it, 28in. wheels can be fitted in conjunction with an 8 h.p. engine. On rough country this should prove an admirable mount.

With regard to the gear box, this is neatly designed, and provides two speeds by means of a dog clutch, and the gear wheels are carried on shafts running on gun-metal lined bearings. Quite a feature of the machine is the exceedingly neat and simple change-speed lever, fitted to the top tube and operated by the right hand. It is fitted with three undercut notches, the central one giving neutral position. All that it is necessary to do when changing gear is to depress lightly the knob at the top of the lever and gently move the lever to the desired position, when releasing, the knob allows the catch to lock the gear. A kick starter is fitted on the gear box working through the neutral.

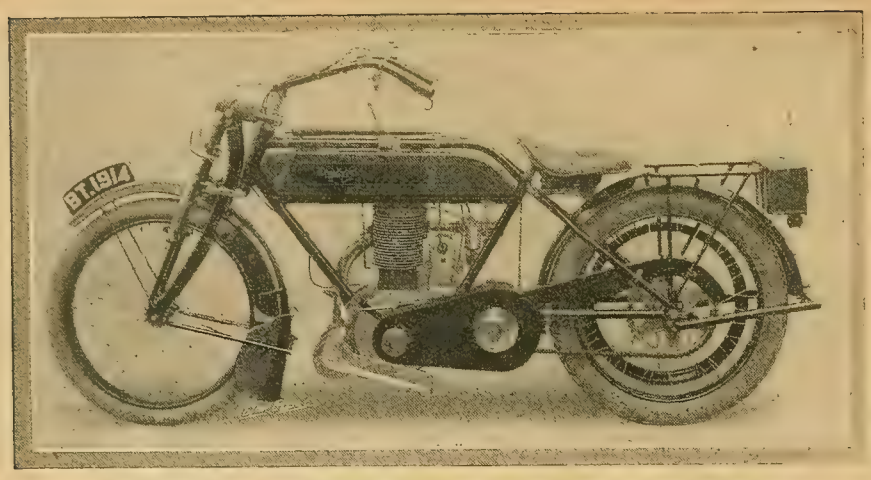
The Sparkbrook Sidecar.

The chassis of the sidecar is constructed of straight tubes throughout, and the axle is strong and well designed. The wheel is fitted with a 2½in. section tyre, and a stand is fitted to facilitate tyre repairs.

The coachwork is most graceful and also exceedingly comfortable, and the top part of the sidecar hinges upward and is curved into a sort of scuttle dash. A large draw is fitted under the passenger's seat, and provision for luggage carrying is made on a large grid fitted at the rear.



Power unit of the 5-6 h.p. single-cylinder Excelsior, also showing kick-starter, counter-shaft gear, footboards, and large silencer. Brampton forks are fitted. (See pages 1488-1489.)



The latest model 5-6 h.p. three-speed Excelsior. Observe chain drive and 3in. rear tyre.

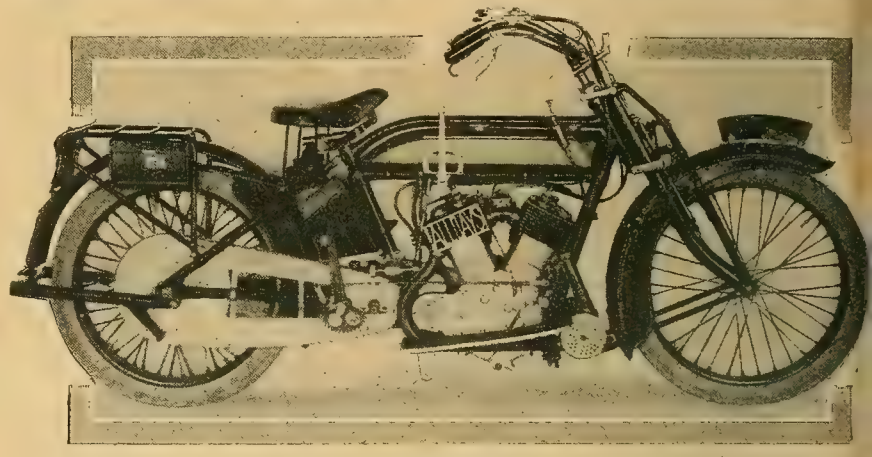
THE ALLDAYS-MATCHLESS PROGRAMME.

The alterations for 1914 to the Alldays-Matchless machines, though not immediately noticeable, are of some importance. The chief of these is the strengthening of the primary gearshaft and sliding key mechanism, by which the three-speed counter-shaft gear is operated. The change enables the sliding key and striking-shaft to be made from a single forging with consequent increased rigidity. Besides this improvement, a considerable change has been made in the actuating lever mechanism which now works on a quadrant fixed on an aluminium bracket at the off side of the tank. The connections are well carried out, and ball joints are employed wherever necessary. The front driving chain is enclosed in an oil-tight case, and the rear chain is almost entirely enclosed, and an internal brake on the rear hub serves to check the machine. The engine is of unusual design, for it is not generally realised that, though the engine is of the V-type, the two cylinders are arranged to fire at 180°, or the same interval as that of a horizontal twin. This arrangement gives the most perfect torque obtainable from a two-cylinder engine, and the result is obtained by a two-throw crank, the cylinders being slightly staggered. The valve springs and tappets are enclosed by aluminium covers, and the magneto, which lies behind the engine, has been rendered more accessible by the fact that the gear case has been split vertically, so that the rear part may be removed without disturbing the rest of the timing gear. The bore and stroke of both 3½ single and 6-8 twin are 85 × 88 mm. respectively, and large valves and valve chests are a striking feature of the design.

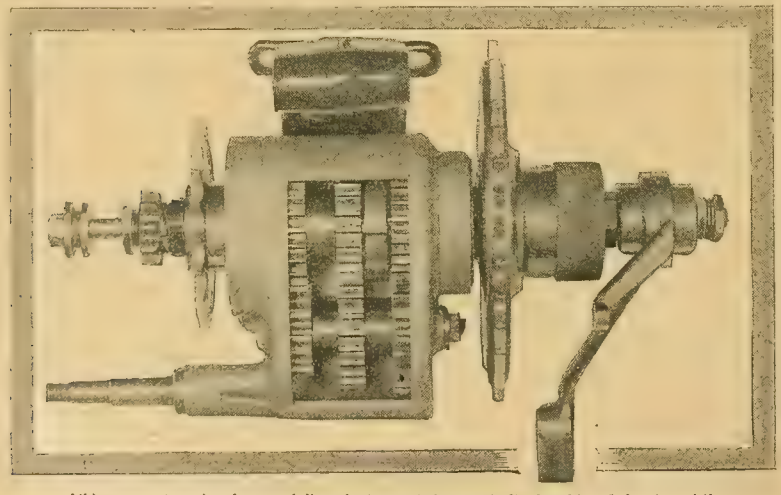
Saxon forks, large mudguards, and Best and Lloyd semi-automatic lubrication are all fitted. 650 × 65 tyres are to be standard on the 6-8 h.p. model, and 26×2¼ on the 3½. The large footboards on both types will be sprung at the front end.

A New Silencer.

A 3½ h.p. belt-driven model will also be listed, but the only alterations from last year will consist of a larger big end bearing and improved rear forks, which will no longer be cranked. A new silencer is to be fitted, which consists of a large expansion chamber into which two inverted cones are fitted; the gas passes from the central chamber, through the small end of the cones, and then, on expanding, through holes in both end plates, thus giving a gentle final outlet.



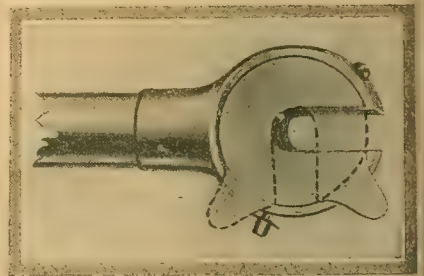
Valve side of the 6-8 h.p. twin Alldays, showing kick-starter, chain cases, valve spring covers, and counter-shaft gear.



Alldays gear box showing specially spigoted and riveted shaft, the object being to get the key and shaft in one stamping, thus making replacement easier.

A Large Choice of Sidecars.

No less than seventeen different models of sidecars are marketed by the Godiva Sidecar Co., Ltd., Little Park Street, Coventry, ranging from the feather-weight to large touring models. The chassis on which the bodies are mounted is of strong and simple design, and great strength



Quickly detachable joint on the Godiva sidecar.

combined with simplicity is claimed for the attachment to the motor cycle. A special line of models is listed for the driver who requires as little weight as

Passenger Machines of all Types.—

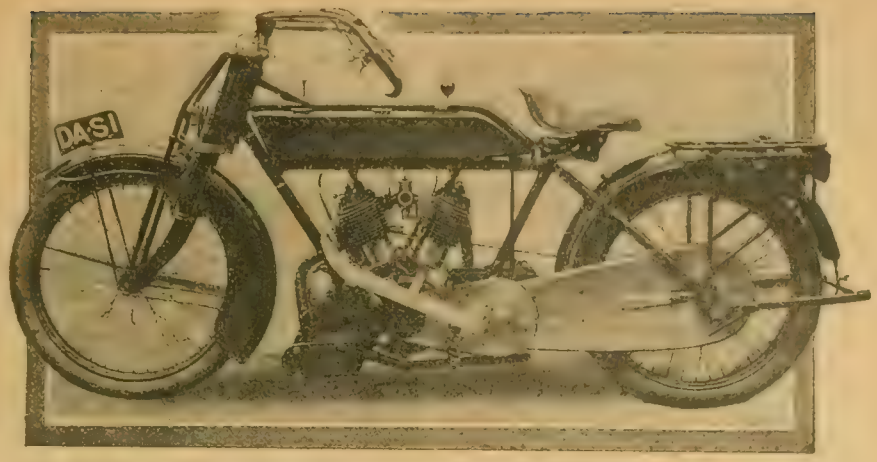
possible, and some of the coachbuilt models weigh as little as 40 lbs., though, of course, these are not of the most luxurious patterns and are built primarily for speed purposes, being fitted with pointed fronts. Wicker, cane, or coachbuilt bodies and a model with an extra seat for a child are all marketed, and it would be difficult, among this range of models, not to be able to find one suitable for almost any type of machine.

The Godiva coach-built sidecar.

1914 STAR MODELS.

A machine that created great interest at the last Olympia Show was the single-cylinder 4½ h.p. Star, made by the Star Cycle Co., Wolverhampton. During the past season a great many minor alterations and improvements have been embodied in this model, and the result is now a very striking and workmanlike model, embodying several novel but well-tried features, the most noticeable of which is the method of lubrication, which is a system of pressure feed by centrifugal force, thereby ensuring a sufficient supply of oil to all working parts. The cylinder head is of the detachable type, held down by four bolts, and in the timing gear only one gear and pinion is used. Accessibility of all parts has been specially studied, and great attention has been paid to ensuring an absolutely oil-tight engine. To this machine a new design of coach-built sidecar with a chassis sprung on novel lines will be attached, and the company is also marketing a specially designed tradesman's side carrier, suitable for attachment to this machine.

In addition to the single-cylinder, the range of Star motor cycles will be augmented next year by a model fitted with a 6 h.p. twin-cylinder J.A.P. engine. On both models the same transmission is used, viz., totally enclosed chains, a free engine clutch being mounted on the engine-shaft of the leather-to-metal cone type operated by a pedal. The three-speed gear box is of the sliding gear type, with direct drive on top speed, and is bolted to the bottom bracket, allowance being made for chain adjustment. The gears are changed by a lever situated on the side of the tank, working in a quadrant. A kick starter is also attached to the gear box. The designers of these machines have followed car practice throughout as far as is possible in the construction of motor cycles.



An entirely new model twin-cylinder Star which has two-speed counter-shaft gear and enclosed chain drive.

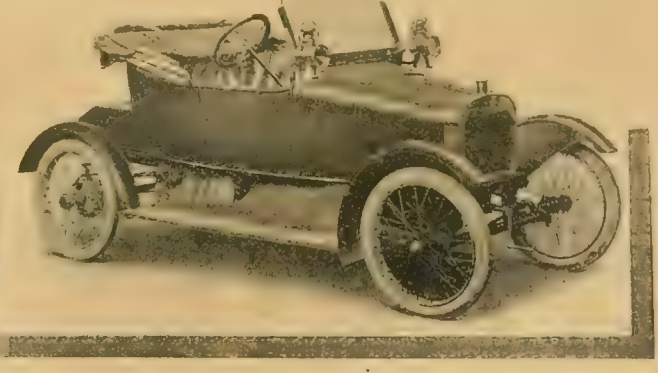
THE RANGER CYCLE CAR.

This ingenious little runabout is designed and manufactured by Mr. E. J. West, who has been well-known as the designer of cars and voiturettes for many years. It is sold by Messrs. Polyrhoë Carburetters, Ltd., 144, Great Portland Street, W., and has a number of ingenious features embodied in its design. The engine is an 8 h.p. Precision twin, and the drive is taken through a shaft to the gear box situated amidships, and thence the final drive is by single chain to a solid rear axle. There is no differential, but a slipping device is incorporated which allows one rear wheel to slip when rounding corners by means of a friction plate. The frame is of armoured wood, the engine and gear box being carried on a separate tubular under frame. The springing is by quarter elliptics on all four wheels, and a very taking and comfortable body, hood and screen, and domed mudguards, together with side footboards and valances, are fitted. This cycle car may be obtained with either air or water cooled engine.

NEW L.M. WATER-COOLED CYCLE CAR.

Mr. W. M. Cunningham, of Clitheroe, has introduced many improvements into his cycle car for 1914. The engine is a water-cooled twin J.A.P. of 8 h.p., 85 ×85 mm., 964 c.c., with extra heavy flywheels, forced feed lubrication to the big-ends and thermo-syphon cooling. The gear box is of the sliding type and contains three forward speeds and reverse. The transmission is by Renold chains, each chain being provided with means of adjustment. The foot brake operates on the counter-shaft; 18in. rim brakes are provided on the back wheel, worked by a side lever. The torpedo body contains ample room for two persons and boxes for tools, etc. The weight is approximately 6 cwt. The body can be finished in red, blue, green or grey, according to the taste of the purchaser. The petrol tank, which holds about 4½ gallons, is placed under the scuttle dash. The complete car with lamps, hood, screen, horn and tools sells at 135 guineas. The little vehicle is quite comfortable and an excellent example of the cycle car class.

The latest model 8 h.p. L.M. which has water-cooling.



The 8 h.p. water-cooled Ranger.

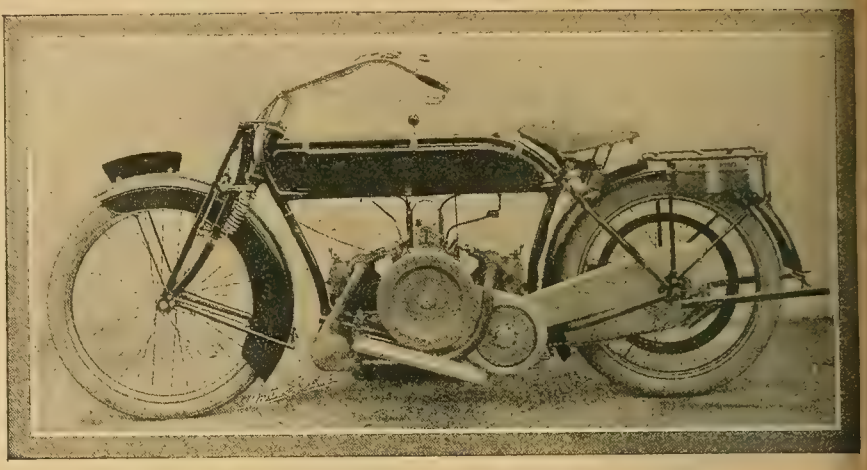
Three-cylinder 6 h.p. Humber.

A Novel Horizontal Engine giving Excellent Balance; Three-speed Countershaft Gear.

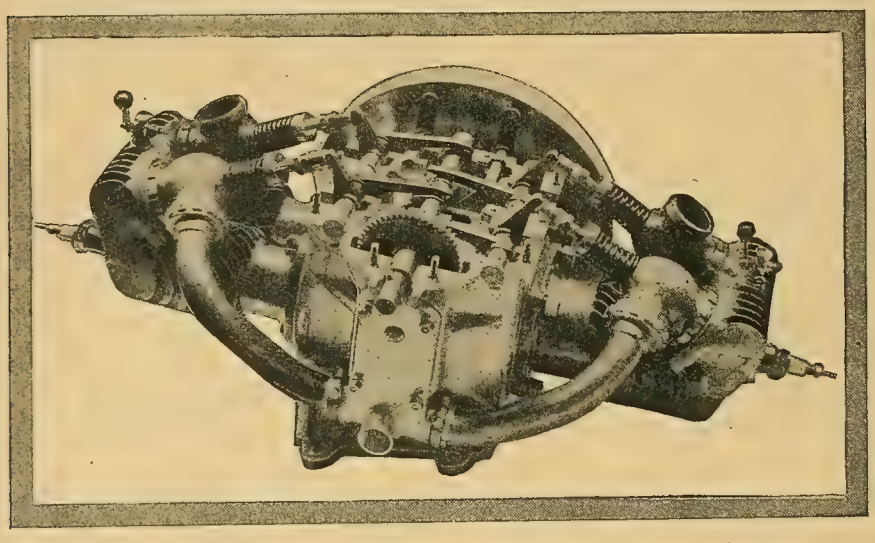
ONE of the most original designs seen for a very long time in motor cycle engines is the new 6 h.p. Humber for 1914, particulars of which we are able to give. It is an engine which will probably create some sensation when shown at Olympia.

The outstanding feature is the adoption by the Humber firm of three cylinders in this motor. The engine is of the horizontal type, with the cylinders at 180°. The front cylinder has a bore and stroke of 78 × 78 mm, while the two rear cylinders, which have a common combustion head, have a bore of 55 mm. and a stroke of 78 mm. This double rear cylinder has, of course, two pistons and connecting rods which work on concentric cranks set one on each side of the main crank and at 180° to it.

The radiating fins are arranged in a most ingenious manner, and in every case slope forwards to catch the air rush due to the passage of the machine.



Flywheel side of the 6 h.p. three-cylinder horizontal engined Humber.



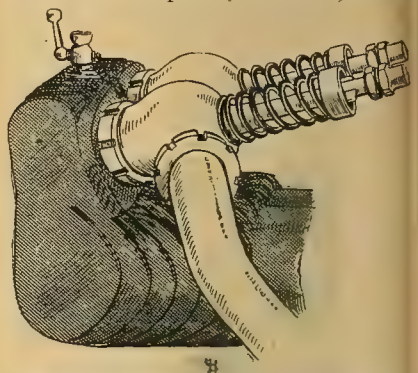
The engine of the new Humber. Observe the two-cylinders (cast in one piece with common combustion head) at the left.

Smooth Transmission Assured.

The whole *raison d'être* of this novel design is to obtain perfect thrust balance along the axis of the crankshaft, and obtain thereby as perfect a torque as possible, with consequent smoothness of propulsive effort and the natural sequence of light tyre wear and long life to the mechanism. This desirable feature will be greatly aided by the provision of a large outside flywheel.

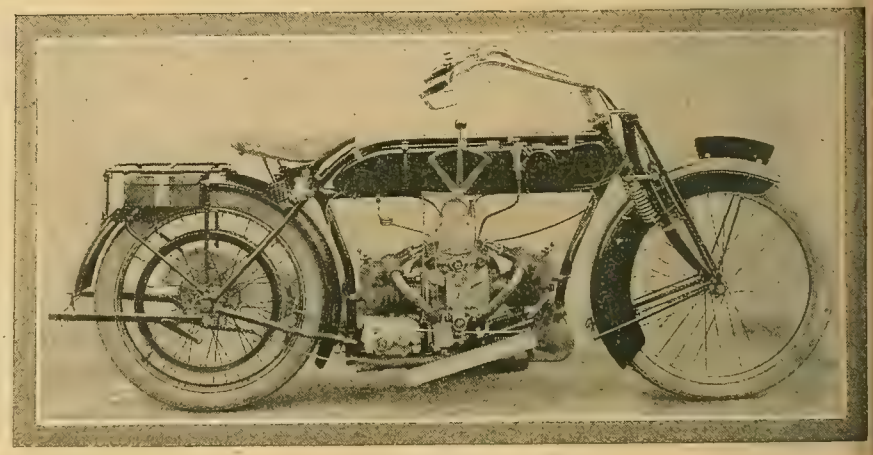
The valves are situated on the top side of the cylinders and are actuated by a single camshaft. The machine to which this three-cylinder engine is fitted has a car type gear box affording three speeds, and the transmission throughout is by chains, any harshness in the drive being softened by the fitting of a shock absorbing device in the rear wheel. Two and a half inch tyres will be fitted, and large petrol and oil capacity is provided in the tank.

We understand that the bench tests, both in power given off and revolutions obtained, have proved thoroughly satisfactory, and on the road last week end on its initial trip the machine is said to have climbed a hill of 1 in 6 on middle speed with a passenger in the sidecar.



The rear cylinders with common combustion head and detachable valve seatings on the new Humber.

(Continued on page 1487.)



A REALLY NOVEL MACHINE.
The 6 h.p. three-cylinder Humber showing gear control and position of carburetter

With the CYCLE CARS on the AUTUMN TRIAL

HAVING disposed of our cycle car in anticipation of a new model, we gladly accepted the offer of Mr. Sydney Tessier to pilot us round the A.C.U. cycle car trial course on the 29th ult. on a sidecar. We met by appointment at Redhill, the starting point, the sidecar placed at our disposal being attached to one of the latest 8 h.p. Bat-Japs with two-speed counter-shaft gear and chain drive.

For our particular requirements a fast machine is a necessity, that is if each test hill is to be observed, for in the intervening space time has to be made up; and it is the pace at which hills are ascended that renders a good average possible. Practically any machine nowadays will travel fast enough for all reasonable requirements on the level, but few will take hills at the same speed when called upon to do so. The Bat, however, is one of the exceptions, for the way our driver tore up quite appreciable gradients on top gear of 4¾ to 1 was a real eye-opener. Undoubtedly one of the attractions of a sidecar is its speed in hill-climbing and general nippiness. Fitted with an 8 h.p. engine similar to 50% of cycle cars, and scaling little more than half the weight of a cycle car, the secret of its liveliness is not very obscure.

The Desirability of Secrecy.

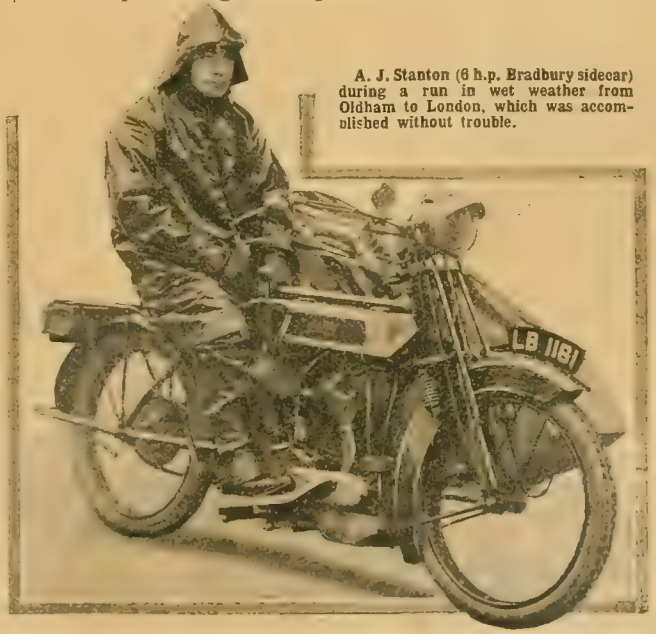
Seldom was the low gear needed, and as for speed on the level, well, when the Rev. G. P. Greenhill, driving a Bayard car with Mr. Glynn Rowden as passenger, tooted his horn in the rear, we simply had to let our sidecar go. Nor could we seem to shake the judge's car off, though we noticed through our goggles tears streaming down Tessier's cheeks. Perhaps we had better not divulge any idea of the speed, for Mr. Chiozza Money has admitted in Parliament that he has been taking note of the admitted speeds of motorists in the press! What a delightful run it was over Hindhead on that glorious autumn morning, the engine purring away and simply revelling in its work.

After witnessing the ascents of Haste Hill, Haslemere, we commenced the homeward run, which promised to be less interesting owing to the absence of test hills. We had bowled along merrily for some distance, and were among the vanguard, when, nearing Guildford, we heard the roar of an engine, and glancing round recognised George Griffiths on his Grand Prix Morgan, which he is tuning up for record. It has a single-seater body and streamline tail. Like a shot our pilot at one fell swoop opened the throttle wide, and the big Bat leaped forward in an attempt to lead the Morgan. Not being the most contented of passengers in a sidecar at speed we endeavoured to exercise a restraining influence upon the driver, but no entreaties of ours would cause the throttle to be closed, and by this time the speed had increased alarmingly, though the Morgan gradually crept up. Soon it was on a level, and slowly forging ahead. Suddenly there was another roar, and the chain of the Morgan was seen on the road wriggling after the owner at a good 40 m.p.h. What joy to the Bat driver on the victory! What a relief to the writer! A few minutes later, when the rain came down in torrents, we thought of Griffiths and his broken chain.

Storm Aprons v. Hoods.

For many miles the rain fell pitilessly, and crouched under a storm apron we could not help but think that in the matter of weatherproofness the hooded cycle car could claim at least one victory that day. The sidecar, however, kept going splendidly without a misfire, the heavy roads making no difference to its speed. We reached the finishing point in time to witness the competitors arrive, and should have earned a non-stop certificate if there had been one to gain.

Finally, we should like again to draw attention to the comfort of Bat machines. The spring frame, or to be more correct, the sprung seat and footboards, are much to be preferred to the ordinary rigid frame, and on rough surfaces when a reduction of speed is usually necessary, both driver and passenger float along without experiencing the slightest discomfort.



A. J. Stanton (6 h.p. Bradbury sidecar) during a run in wet weather from Oldham to London, which was accomplished without trouble.

TIME TO LIGHT LAMPS.

Nov.	13th	...	5.11 p.m.
,,	15th	...	5.8 ,,
,,	17th	...	5.5 ,,
,,	19th	...	5.3 ,,

Half and Half.

There are a number of light cars at Olympia this week having engines within the cycle car limit of 1,100 c.c. but are over the chassis weight.

Show Stand Attendants.

On several occasions we have directed attention to the desirability of stand attendants at Olympia wearing some distinctive badge, so that visitors to the Show who desire to make enquiries may do so without hesitation. Each year more firms adopt our recommendation, and we again throw out this timely hint for the convenience of buyers.

Next Week's Guide to the Show.

In our issue of Thursday next will appear *The Motor Cycle* Buyers' Guide of 1914 models—an invaluable work of reference introduced in this journal in 1906. The issue being the second of our Special Show Numbers will be considerably enlarged, and will contain further descriptions and illustrations of new designs for 1914, and an article outlining progress of the past year, in addition to the usual features.

Club Secretaries Meeting during the Show.

A meeting of secretaries of motor cycling clubs will be held at Olympia on Wednesday, November 26th, at 4 p.m. in the Princes Rooms. This is to be an informal meeting, and has been called with the object of enabling secretaries of clubs desirous of holding open competitions during 1914 so to arrange the dates for these events in order, so far as is possible, to avoid clashing.

New Records.

Last week we hinted in a paragraph on this page that records were bound to go before Show time, and this week we publish new figures for a number of motor cycle and sidecar records, the most noteworthy of which are the long distance figures set up by R. O. Clark on a F.N. lightweight.

C. G. Pullin is still waiting with his Rudge for a favourable opportunity to attempt G. E. Stanley's hour record of 67 miles 782 yards. It is questionable, however, if Stanley would let his Singer rest long supposing the record were wrested from him.

Streamline Sidecars.

In view of the interest being taken in streamline sidecars and the number to be shown at Olympia next week, it is worthy of note that the original suggestion for this form of sidecar body was published in *The Motor Cycle* nearly two years ago.

Two-stroke Engines.

The increase in the number of two-stroke engines (mainly of the lightweight type) is one of the most striking features of 1914 models. Those readers who are not thoroughly acquainted with the working principles of a two-stroke motor should read the chapter on this subject in "Motor Cycles and How to Manage Them."

Medal Winners in the Streatham Trial.

We regret that in our list of provisonal awards of the Streatham open touring trial we omitted the following names from the list of medalists: L. Martin (10 Singer c.c.) and C. R. Collier (7 Matchless sc.); both provisionally obtained gold medals, and R. E. Guest (7 Matchless sc.) should have been mentioned as a silver medallist in place of R. G. Charlesworth, who had already been mentioned in the list of those who obtained gold medals. The Matchless machines behaved particularly well in the trial, and C. R. Collier went through the strenuous test with absolutely no trouble.

SPECIAL FEATURES:

PASSENGER MACHINES OF ALL TYPES.

AUTUMN 'MIDST THE WELSH CRAGS.

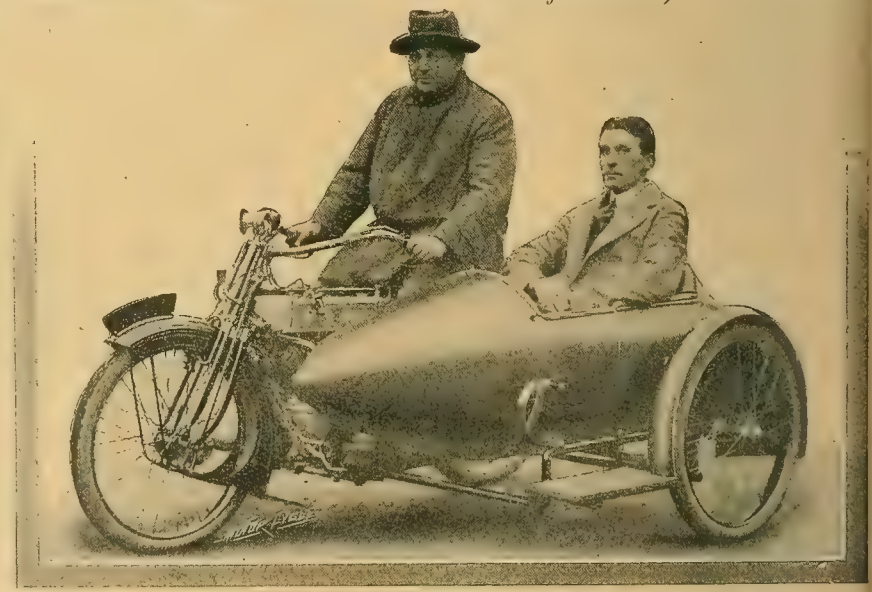
THE EQUIPMENT OF SIDECARS AND CYCLE CARS.

A.C.U. and Olympia.

The Auto Cycle Union has made arrangements for members visiting the forthcoming Cycle and Motor Cycle Show at Olympia to have the free use of the Princes Rooms (ground floor).

The Robialac Competition.

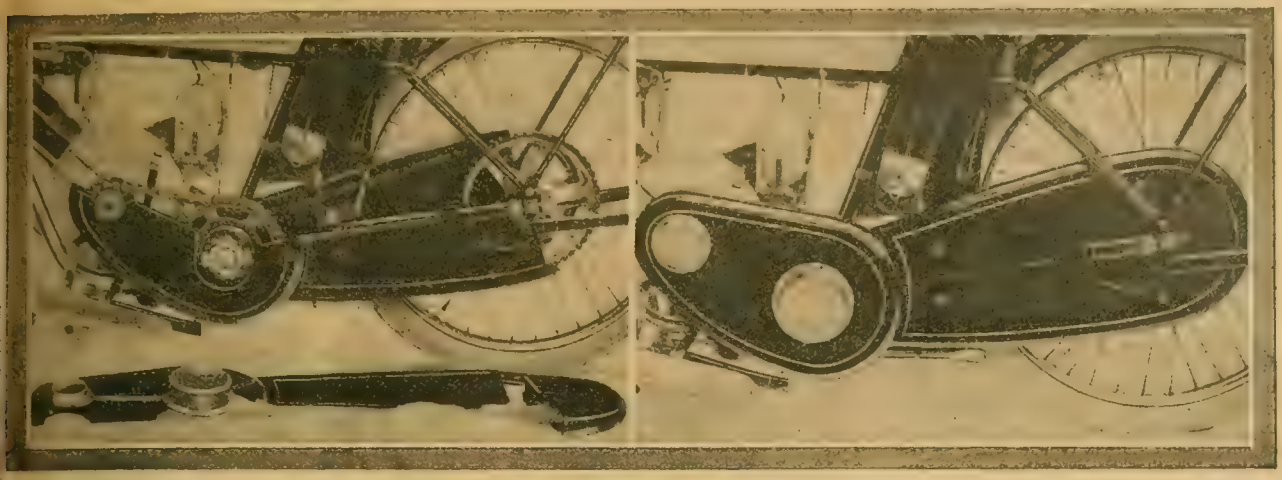
The judging in connection with the above competition was duly carried out last week in Birmingham from among the scores of articles sent in to the County Chemical Co. The winners of the ten Clyno motor cycles offered in connection with the event will be made known after the usual enquiries have been made in respect of the validity of the entrants. The many and varied articles submitted showed that great pains had been taken by the participants, and the work on the whole was exceedingly good, and the finish of certain samples really excellent. The work of judging occupied over two hours, and was performed by Mr. Geoffrey Smith *(The Motor Cycle)* and Mr. T. McKenzie, jun. *(The Cycle and Motor Cycle Trader)*.



A special sidecar built by Messrs. Phelon and Moore to the order of Mr. T. G. Bullus, a Bradford motor cyclist (who is seen in the saddle). The body is built entirely of wood and is finished a dark purple. Mr. Moore is the passenger in the sidecar.

The New P. and M.

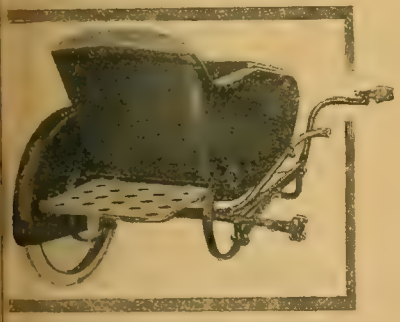
FEATURES: Entirely Enclosed Chains; Improved Engine Lubrication; A Smart Sidecar.



Chain guard on the new P. and M. removed in three sections to show the chain drive and gears.

Clean design of chain covers.

EXCEPT for the addition of oil-retaining, dust-excluding chain cases, the external appearance of the P. and M. motor cycles for ext year has not been materially ltered. So satisfactory is the service iven by these machines that alterations or the mere sake of change are not to e looked for, and, wherever any little etail alteration has been effected, it is provide some further comfort to the der in the way of longer service and eater immunity from trouble. The ell-known P. and M. gear has only been tered in minor details, in order to



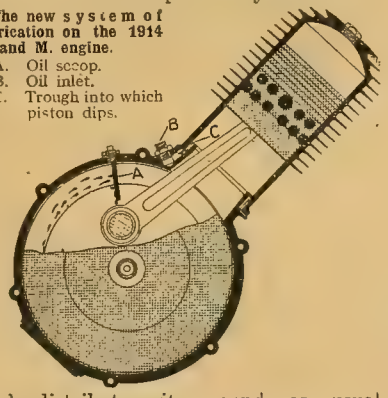
New design luggage grid for sidecars made by Phelon and Moore. It folds up out of the way.

tain greater gripping power and to cilitate lubrication, which will, it is lieved, add considerably to the life of e gear.

But the makers have felt that the brication system offered a field for provement, and they have tackled this portant matter with great skill. We ustrate the system, which may be best scribed as a distributed splash system, e piston being used as the distributer, ter, of course, first seeing to its own eds.

The New Lubrication System.

Instead of the ordinary method of jecting oil into the crank case, a annel has been provided in the case hich communicates directly with the cylinder, and in such a position that, with the use of the system of drip-feed as fitted to the P. and M. machines, the piston on descending comes in contact with the oil being admitted, and both carries it up the cylinder walls

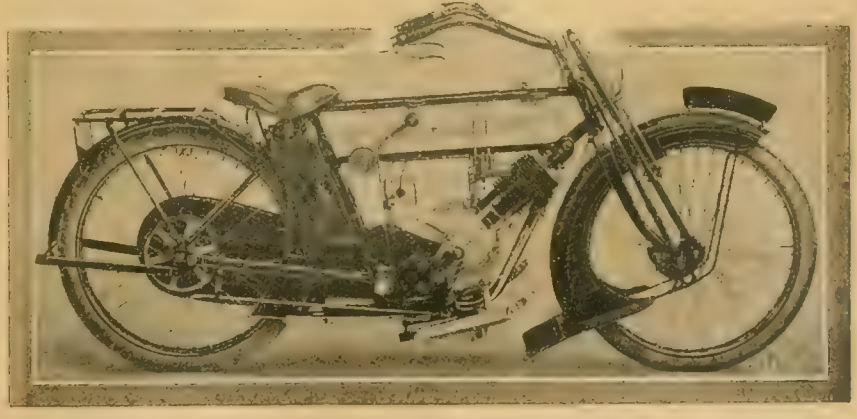


The new system of lubrication on the 1914 P. and M. engine.
A. Oil scoop.
B. Oil inlet.
C. Trough into which piston dips.

and distributes it around as usual. Any excess of oil drains back to the base chamber in the ordinary manner. A scoop is also provided, which is fitted through the top of the crank case directly between the flywheels. This scoop catches a certain amount of oil thrown off from the sides of the flywheels, and directs it downwards on to the connecting rod every time it passes the lead. A three-ringed piston is now being fitted. Great care is taken to make the base chamber absolutely oil-tight.

The New Chain Cases.

The most striking point in design of the new models is the provision of chain cases, which, as the illustration shows, are extremely neat, and quite add to the appearance of the machine. They are so constructed that there is not the slightest difficulty in getting at any of the chains or in removing the back wheel. The cover is made in five sections, four of which may be detached as required. The two front chains are automatically lubricated by means of a hollow engine-shaft, while the rear chain has a pipe from the half-time gear box directed upon it. Thus it will be seen that, with chains completely enclosed and constantly lubricated, very small wear and tear should take place in the transmission system. Indeed, the makers estimate that 10,000 miles is on the low side to be obtained from a set of chains.



Valve side of the 1914 3½ h.p. P. and M. with improved counter-shaft gear, kick-starter, and entirely enclosed chain drive.

The New P. and M.—

The mudguarding has been remodelled, tyre accessibility having been studied.

A minor improvement is the provision of a larger petrol tank—1½ gallons can now be carried, and a quart of oil. Large diameter filler caps are provided, and tank gauges are done away with. Aluminium footboards also greatly add to the appearance of the machine. Although not shown in the illustration, a new method of fitting the control wires will be adopted, by which they will be practically hidden. The makers of the P. and M. have always studied appearance very closely, and it must be said that their latest designs are some of the prettiest we have inspected.

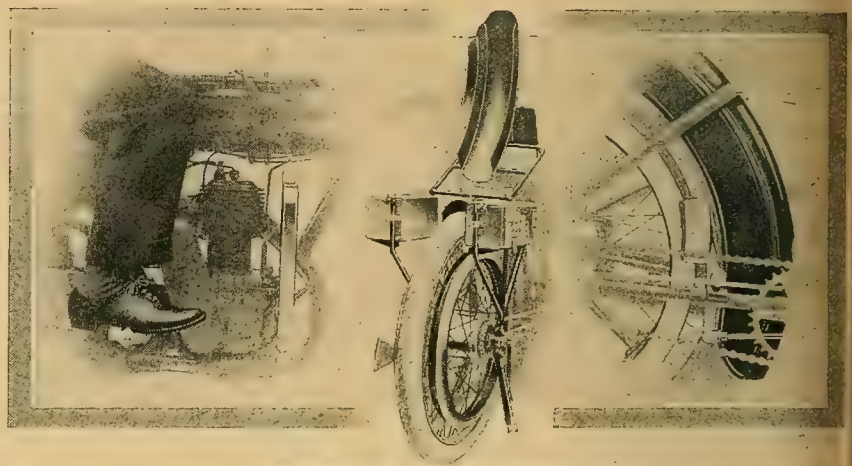
The Sidecar Design.

A very sporting-looking sidecar will be marketed for next season by Messrs. Phelon and Moore. It has a pointed front and scuttle dash, while at the rear is a large cupboard, a tyre carrier, and luggage grid. The design is exceedingly neat, and it is specially made to fit these machines. A good-sized footboard step is fitted, and the body is most luxuriously upholstered. The torpedo-shaped body is carried fore and aft on shackled Cee springs, the axle being deeply stepped and the body slung low. Altogether, the 1914 P. and M. and sidecar is a highly distinctive and beautifully finished passenger carrying outfit.

1914 ROVER MOTOR CYCLES.

FEATURES: New Gear Change, New Type Forks, Hinged Footboards and Rear Mudguard.

QUITE a number of detail refinements are incorporated in the 3½ h.p. Rover for 1914, all tending to add to the convenience and comfort of the driver and render the machine even more reliable, if possible, than in the past. As far as the engine goes this is substantially the same as the 1913 type, but a new method of manufacturing the crank case has been adopted, giving it a cleaner external appearance and enabling a harder metal to be used. The case is also made slightly larger to provide greater freedom for the flywheels in their passage through the oil. Easier starting will also be a result of this change. Ignition remains unaltered, by Bosch magneto driven by a silent chain, but a choice of two types of B. and B. carburetters is given, either the two-lever type, which is recommended for sidecar work, as the air can be entirely closed, or the new semi-automatic carburetter. Recognising that nearly all multi-speed machines are eventually used with sidecars, and, indeed, the Rover Co., Ltd., manufacture an exceedingly fine sidecar for use with these machines, the frames have been strengthened to withstand the hardest wear, and the front forks have been widened, thus giving greater bearing surfaces for the pins and at the same time providing ample space for a 2½in. tyre. Additional coil springs are fitted at the top of the fork in a horizontal position to take shocks thrown back on the steering head. This is neatly carried out, and should provide a real advance in comfort.



FEATURES OF THE 1914 ROVER.

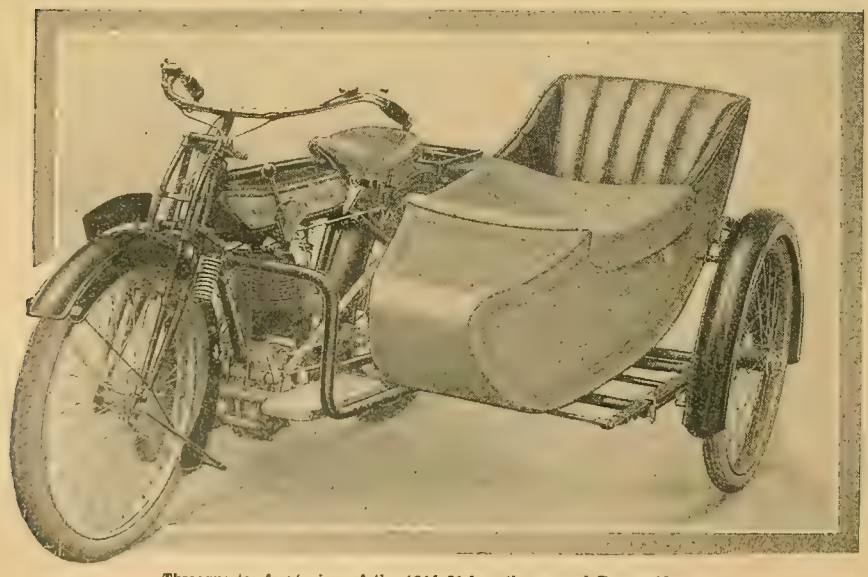
(1) Swing footboards in position for pedalling. (2) Back mudguard and carrier top swung up to facilitate tyre repairs and the removal of rear wheel. (3) New type mudguard and back brake acting on a reversed brake rim.

New Gear-changing Method.

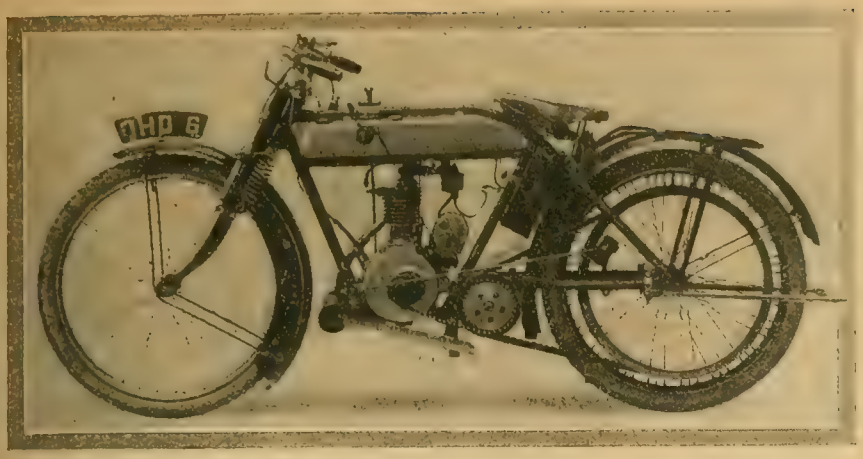
Quite a noticeable feature is the device by which the latest pattern Sturmey Archer three-speed gear is changed. It is at once neat and efficient. A little protected gate is fitted on the left side of the tank, and the striking rod is taken thence to a bell crank lever fitted to the back forks a little below the saddle, and another rod connects the other arm of the lever to the gear. The whole effect is admirable, and entirely removes the rods from the driver's legs and the possibility of bending them through their being squeezed.

The brakes have been largely re-designed, the leverage on the front brake having been increased, while the rear brake is the exact opposite in action to that hitherto employed, inasmuch as the shoe goes on in front of the dummy bel rim, which now points with its V to the outside and the hollow inside.

The clutch model is fitted with the Philipson governor pulley, controlled by a handle-bar attachment. Transmission is by rubber belt, and 2⅜in. tyres are fitted to the three-speed and clutch models. A great improvement giving accessibility to the back tyre is the hinging of the rear mudguard and hal the carrier. Comfortable footboards are fitted in place of footrests, and these hinge up at the forward end, enabling the pedalling gear to be used for engine starting. The finish of the machine is superb.



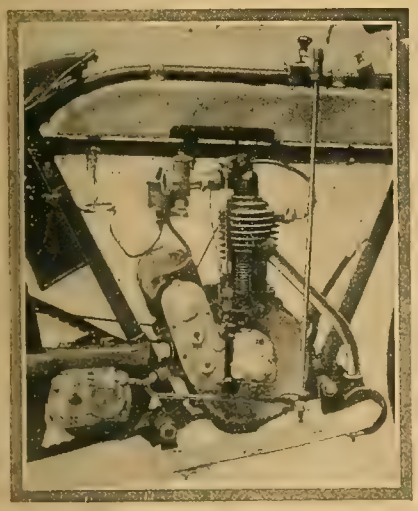
Threequarter front view of the 1914 3½ h.p. three-speed Rover sidecar



A new departure for Messrs. Humphries and Dawes is the marketing of the single-cylinder O.K. Junior fitted with chain and belt drive and two-speed counter-shaft gear.

O.K. JUNIOR.

The O.K. Junior motor cycle made by Messrs. Humphries and Dawes, Ltd., Birmingham, is being produced for those riders who require moderate power, and, considering the specification embodied in its design, the price, viz., £30 (which includes a two-speed gear), is very moderate. The weight of the machine is 120 lbs., and a petrol consumption of 140 miles per gallon is claimed. The engine is a single-cylinder 58 × 72 mm., 190 c.c., and the two-speed gear arranged in the counter-shaft is of the dog clutch type, the ratios afforded being 6 and 12



Valve side of the two-speed O.K. Junior.

to 1 as a standard. Chain and belt drive is used, the pulleys being of large size. Druid forks, Ruthardt magneto, Dunlop tyres, Amac carburetter, and Lycett belt are among the fitments to be found on this machine, which is excellently finished and turned out. It should obtain a large measure of popularity.

We tried this handy little mount in the Birmingham traffic last week, and must say that it is as controllable and easily manipulated as one could wish. It starts immediately by a dig on the ground with one foot and one can crawl along behind motor 'buses and turn in the road with ease. It climbs Rose Hill, Rednal, with a fourteen stone rider quite easily, and will restart in the middle of the hill.

1914 BAT.

The Bat Motor Manufacturing Co., Kingswood Road, Penge, S.E., whose works are conducted in a most efficient manner by Messrs. Tessier, sen. and jun., the latter being responsible for so many excellent performances in leading competitions, will exhibit at Olympia several new models. The No. 3 remains the same as 1913, except that it will be fitted with a three-speed counter-shaft gear, and the clutch bands and drums have been doubled in diameter and width. The method of operating the internal-expanding bands remains unchanged.

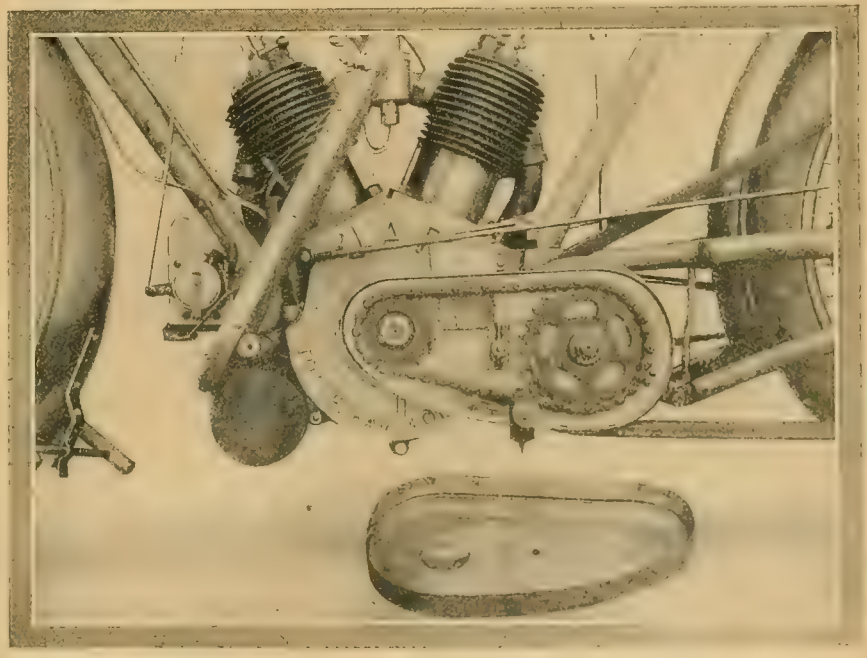
The 2a model will have an Armstrong Mark VII. hub gear, otherwise it remains unaltered. The 2b will have the Bat counter-shaft three-speed gear and combined chain and belt transmission. In this instance the same type of clutch as is fitted to the gear box of the No. 3 will be placed in the back hub. Yet another model is the 2c, which has a chain drive throughout.

We illustrate the near side view of the No. 2a with one half of the chain case removed. This case entirely encloses the chain. In the combination belt and chain model it will be noted that to get at the chain connecting link, and to pass this into position, would be rather difficult from the offside unless Mr. Tessier had arranged for a small sliding window to be fitted in the case. This is shown half up, and is situated in the upper portion of the casing. An entirely new model is the No. 1. This has been introduced to enable the Bat Company to sell a twin cylinder machine of 4 h.p., Jap engine 70 × 85 mm. at the moderate price of £57. It has a two-speed counter-shaft gear box, but no clutch nor foot-starter is fitted. An illustration of this model is appended, and it will be noticed that the silencer has two short pipes extending from the rear of the box for the final exhaust, and very neatly curved exhaust pipes. These latter are nickel plated.

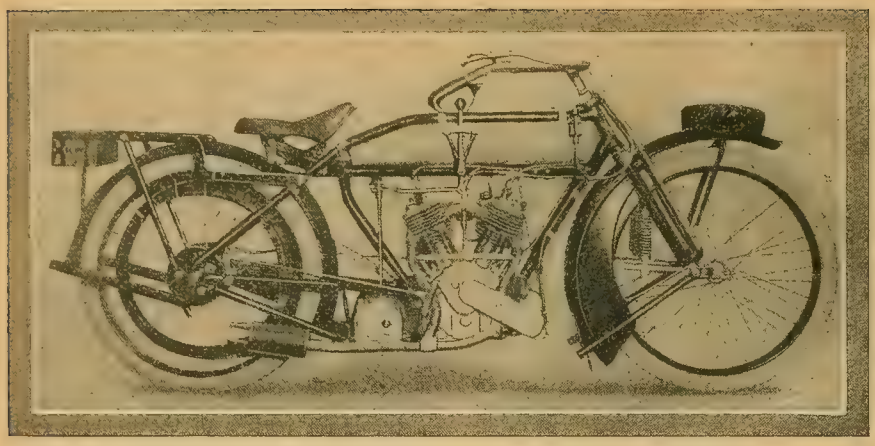
Chain and Belt Drive.

The transmission is by chain and belt, and it will be noticed that both chain and belt are on the near side. This is a feature worth mentioning as many machines are now constructed differently, having the chain on one side and the belt on the other.

Other features which are general on the Bat machines for 1914 are that the brake fittings and mudguards have been improved in detail, and the magneto chain case is now quite horizontal with



Folding footboards, chain cases, and chain and belt drive on the new Bat.

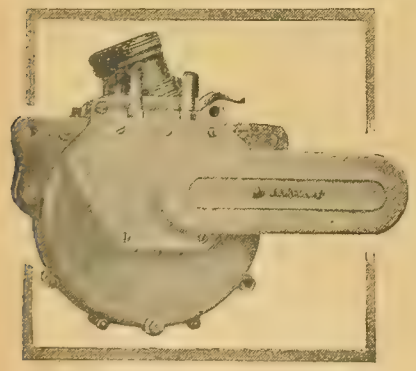


The new twin-cylinder Bat-Jap with chain and belt drive and counter-shaft gear.

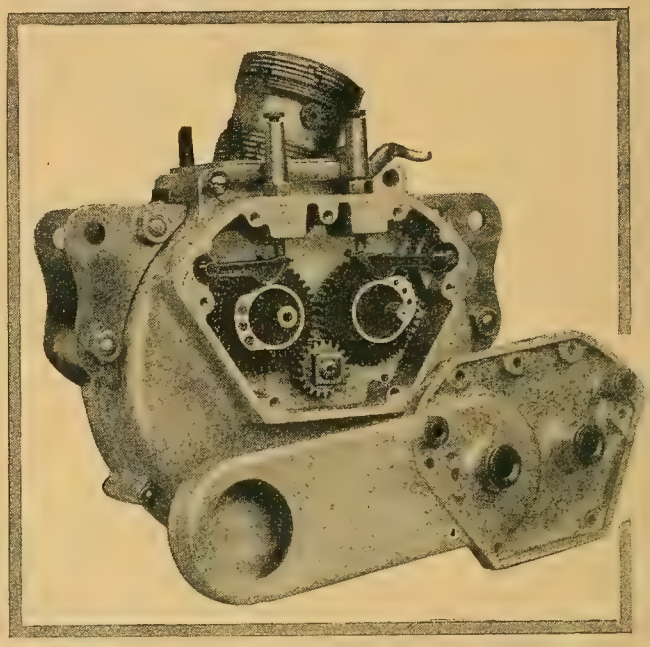
the ground. Previously, this case inclined downwards. This improvement has very much enhanced the appearance of this portion of the machine. The method of operating the three-speed gear on the re-designed Bats is similar to other types, namely, the central sliding pinion, which is in mesh on the middle gear, moves to the right and left for highest and lowest speeds, dog clutches engaging and locking the respective pinions to their shafts. A good feature which might be more generally adopted is that in the sidecar models the lugs for attaching the Millford sidecars are built into the frame in an extremely neat manner. When the sidecar is removed there are no loose parts to carry and the sidecar frame attachments are taken away with the sidecar. This is a great improvement on clips and similar attachments which Mr. Tessier pointed out have proved unsatisfactory through purchasers screwing up clips too tightly and pinching the tubing of the bicycle frame.

NORTON INNOVATIONS.

We referred to the Norton improvement in our issue for October 23rd, page 1371. We now illustrate the new cylinder, piston, and crank case relief valve, which prevents oil from blowing out at the bearings. Oil leakage on to the belt pulley is guarded against by an oil ring on the flywheel. The cam spindles are hollow, and provided with oil passages, and the cams are balanced. This will be a standard feature. At the base of the crank chamber is an oil sump, so arranged that when ascending a hill more oil will reach the flywheels and be by them thrown upon the cylinder walls.



One of the new Norton crank cases which has all bosses inside leaving a smooth exterior It is now fitted with an oil sump at the bottom.



The 1914 Norton crankcase, also showing grooved piston with single ring. drilled cams, and interior bosses on timing gear case.

Norton machines for 1914 will be provided with a three-speed countershaft gear, driven by a chain from the engine, the drive then being continued by means of a belt to the back wheel. The gear is of the dog clutch type, with one shaft in front of the other, but the middle gear is brought into play by a sliding pinion.

LIGHTWEIGHT SUN MODEL.

The Sun machines with Precision and Villiers engines have done well in competitions this year, and next year two single-cylinder models with $3\frac{3}{4}$ h.p. and $4\frac{1}{4}$ h.p. engines will be marketed for sidecar use, together with a new 4 h.p. twin model.

All these models will be fitted with Sturmey-Archer three-speed gears and Precision engines. An improved pattern of kick starter will be fitted. For those who prefer a more powerful model, a 5-6 h.p. twin-cylinder Precision-engined machine will be marketed, fitted with a sidecar made by the Sun Co. A considerable choice is thus given to purchasers. It is interesting also to note that next year a new two-speed model of about $1\frac{1}{2}$ h.p. will be marketed by this firm. The price will be in the neighbourhood of 25 guineas, and the speed attainable will be 25 to 30 m.p.h., the gear ratio being low enough to climb a 1 in 3 gradient. This little machine will doubtless appeal to a large number of riders who are anxious for a machine to take the place of a pedal cycle for running about on short journeys.

THE EDMUND SPRING FRAME SIDECAR MODELS.

Messrs. Charles Edmund and Co., Chester, whose machines are fitted with the Edmund patent adjustable spring frame, are marketing a sidecar machine for 1914 which will be equipped with a 6 h.p. M.A.G. twin-cylinder engine, an Enfield two-speed gear, kick starter, and chain drive. This company are also marketing a $3\frac{1}{2}$ h.p. twin-cylinder M.A.G. engined machine, which they state is amply strong enough and powerful enough for sidecar work if suitably geared, special reinforced tubing being used for the frame, for which great strength and light weight are claimed. Both these models will be exhibited at the Olympia Show.

Cylinder of the new design 4 h.p. big single-cylinder Norton.

CLUB NEWS.

Meet outside the headquarters of the Doncaster A.C. (Motor Cycle Section) on the occasion of the club's closing event for 1913.

Surrey M.C.C.

The annual dinner will take place this evening (November 13th) at the Angel Hotel, Guildford, the president Lt.-Gen. Sir Edmund Elles, G.C.I.E., K.C.B. in the chair.

Bristol M.C.C.

The annual dinner, followed by the presentation of prizes, took place on Saturday last. A gold watch was presented to Mr. P. Grout, the hon. secretary, as a recognition of his services to the club.

Sutton Coldfield and Mid-Warwickshire A.C.

On Saturday, December 6th, the annual reliability trial will be held over a non-stop course of about twenty miles, to be completed four times, the start and finish being made at the club's headquarters in Sutton Coldfield. The route will be kept entirely secret until the morning of the trial. On one of the hills in the circuit there will be four tests, one of these tests being undertaken on each round. (1.) Flexibility trial (slow and fast), non-stop. (2.) Slow test, non-stop. (3.) Stopping and starting test. (Engines may be stopped within the lines.) (4.) Acceleration test (from a standing start).

Mersey (Liverpool) M.C.C.

The annual general meeting will take place on the 20th inst., at St. George's Restaurant, Redcross Street, Liverpool. The annual dinner, followed by the distribution of prizes and a concert, will be held at the conclusion of the meeting.

Motor Cycling Club.

The Committee of the Motor Cycling Club invite all motor cyclists to attend their smoking concert, on Thursday, November 20th, at Holborn Resturant. Mr. Charles Jarrott, the president, will take the chair at 7.30 p.m.

Cambridge University M.C.

This newly-formed club held its opening event at Gazeley Hill, Newmarket, on the 25th ult. Results:

CLASS 1 (up to 350 c.c.)—C. O. Hayward (2¾ Douglas).

CLASS 2 (any standard touring machine up to 600 c.c.)—G. E. Cuffe (3½ Premier).

CLASS 3 (any machine up to 600 c.c.)—C. O. Hayward (2¾ Douglas).

CLASS 4 (up to 800 c.c.)—C. H. Sparks (6 Zenith).

New North-Western Automobile Association.

720 Motor Cyclists Enrolled at Liverpool.

ON Saturday last an enthusiastic meeting was held by delegates from many of the Lancashire and Cheshire clubs, at St. George's Restaurant, Liverpool. The object of the meeting was to confirm or otherwise resolutions passed at a meeting held in Liverpool on October 18th, at which the representatives of the Mersey (Liverpool), Stockport, Preston, Oldham, Chester, Blackpool, St. Helens, Liverpool Amateur M.C.C., Liverpool A.C.C., and Bury Motor Clubs considered it desirable to form a North-Western Association, in order that the clubs in this area might co-operate to their mutual advantage.

Most of the delegates at the former meeting were again present (having in the meantime consulted their respective committees) together with representatives of several of the clubs who were unable to attend on the first occasion. Amongst others present were the following well-known motorists: Messrs. Frank Whitehouse (secretary, Oldham club), chairman of the meeting; S. W. Carty, Liverpool, secretary; J. Brown and H. Bennett, Preston; W. Randolph, J. Wood, and W. D. Williamson, Liverpool Amateurs; C. J. Nevatt and W. Leather, Chester; T. Rees, Mersey; Harry Reed and C. E. Kettle, Manchester Motor Club; H. Moorhouse, H. Clough, and R. Parry, Bury; W. H. Garlick, Oldham; H. Marsden, N. Pilkington, and John Collier, Stockport; and C. Higham, of Hyde.

Considerable discussion arose out of a letter from the Secretary of the A.C.U. relative to the attitude of the new Association to that body, and although nearly half the clubs of the delegates present were not affiliated with the A.C.U., it was considered that it would be mutually advantageous to co-operate, as far as possible, with that official body, and the resolution, "That this Association has no intention of working in antagonism with the A.C.U.," was unanimously passed.

The meeting then proceeded to adopt the various rules of their constitution.

The delegates of the following clubs enrolled to form a nucleus, as it was confidently anticipated that many other North-western clubs would join after their committees had been informed of the proceedings:

	Members.
Bury and District	95
Chester	25
Stockport and District	100
Manchester Motor Club	200
Oldham	50
Liverpool Amateur	60
Mersey (Liverpool)	140
Preston	50
Total	720

Although it was decided to hold the meetings in the principal towns of the North-western area when the Management Committee gets to work, yet the first meeting of the Committee will be held in Liverpool in December, when delegates from any clubs anxious to join will be welcomed.

The usual votes of thanks and mutual congratulations concluded a most interesting night's business.

F.N. AND SINGER RECORDS.

Several records were set up at Brooklands on Thursday last. R. O. Clark, riding a 2½ h.p. F.N., 63½×86 mm., 273 c.c., made a fairly clean sweep of Class A figures. His machine ran with the greatest regularity throughout, and he had no mechanical stops. The only alterations to the machine were the removal of the mudguards and accessories and the raising of the gear. The machine carried a two-speed gear box complete and also a flywheel cover. The weight of the rider was no less than fourteen stone. His times and distances were as follow:

Hrs.	mls.	yds.	m.p.h.		Previous best by N. Slatter (Alcyon), 31/10/11. mls.	yds.	m.p.h.
1.	45	548	= 45.31		—	—	—
2.	90	1,068	= 45.30	Record. ...	84	1,575	= 42.45
3.	134	366	= 44.73	Record. ...	127	126	= 42.36
4.	179	211	= 44.78	Record. ...	163	1,622	= 40.98
5.	220	279	= 44.03	Record. ...	196	1,011	= 39.31
6.	263	1,733	= 43.99	Record. ...	223	1,494	= 37.30

Mls.	h. m. s.	m.p.h.		Previous best, Slatter, 31/10/11. h. m. s.	m.p.h.
100	2 12 25	= 45.31	Record. ...	2 21 45⅕	= 42.33
150	3 20 58	= 44.78	Record. ...	3 37 34	= 41.38
200	4 28 25⅖	= 44.70	Record. ...	5 5 12⅘	= 39.31
250	5 40 45⅗	= 44.02	Record.	—	—

J. Cocker, driving a single-cylinder Singer, 85×88 mm. = 499 c.c., with sidecar, and W. Pickering as passenger, made the following records in Class C:

	m. s.	m.p.h.	Previous best, H. Newman (Ivy-Precision), 20/10/13. m. s.	m.p.h.
5 miles flying.	5 19⅕	= 56.39 ...	5 35⅖	= 53.67
10 miles standing.	10 56⅗	= 58.84 ...	11 22⅗	= 52.74

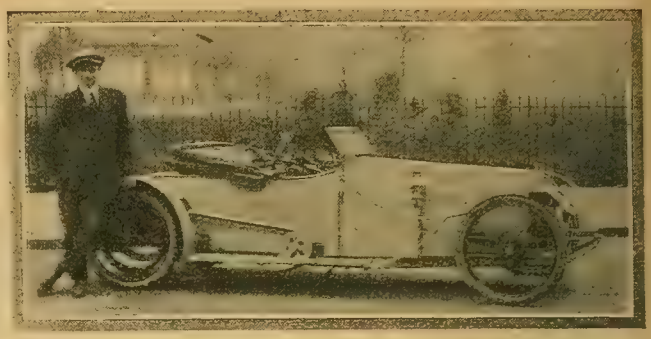
Cocker also attempted to beat the one hour sidecar record recently established by C. G. Pullin in the One-hour A.C.U. Championship Race, and, whilst lapping consistently at 55½ m.p.h., punctured and gave up.

On the following afternoon further attempts were successfully made by G. E. Stanley (single-cylinder Singer, 85×88 mm. = 499 c.c.), who beat records in Classes C and D:

	m. s.	m.p.h.	Previous best by D. R. O'Donovan, 30/9/13. m. s.	m.p.h.
5 miles flying.	4 6⅕	= 73.11 ..	4 11⅗	= 71.54
10 miles standing.	8 31⅖	= 70.39 ...	8 48⅘	= 68.08

R. O. Clark (2½ h.p. F.N.) who broke nine class records up to six hours last week.

TYRE MILEAGE COMPETITION.



The winner of the John Bull mileage competition, who has chosen an 8 h.p. Adamson cycle car as a prize.

Early in the year the Leicester Rubber Co., Ltd., makers of the John Bull tyres and belts, instituted a competition for users of their tyres, the prize for the winner being a cycle car at choice. Competitors had to purchase a T.T. John Bull cover, and this entitled them to a diary and voting card. In the former a careful record of the mileage achieved on the tyre had to be kept, and on September 30th the voting paper had to be filled up, estimating the average mileage obtained by all the entrants in the competition. The nearest estimate gained the prize. Mr. Sydney J. Tayler, hon. secretary of the Purley and District M.C.C., and Mr. D. K. Hall acted as judges, and as a result of their deliberations the winner was declared to be Mr. E. H. Gowing, White Hall, Sprowston, Norwich, who has chosen an Adamson cycle car as the prize. Mr. Gowing's estimate only varied by forty-eight miles from the total average, which, in the period allowed, January 1st to September 30th, was 2,774 miles.

HERTS. COUNTY RELIABILITY TRIAL.

The Herts County M.C.C. held a competition for the New Hudson cup during the week-end over a figure 8 course with the starting point at the approximate centre. In normal circumstances it might be described as a "tricky" but not really difficult course; but the heavy rain of the morning converted it into an almost impossible one for the competitors, who had to make a non-stop run of just over sixty miles at an average of 20 m.p.h. (watches and speedometers barred) to qualify for a silver medal. There were fifteen entrants of whom ten faced the starter.

Circuit.	Time errors. s.	Total error. m.	s.
1. Halsall (Wilton)	14.1		
2. ,, ,, ...	18		
3. ,, ,, ...	4.42 ...	19	1
1. Jarvis (Singer)	4.50		
2. ,, ,, ...	12.2		
3. ,, ,, ...	19.28 ...	36	20
1. Hare (Enfield sc.) ...	7.6		
2. ,, ,, ...	14.13		
3. ,, ,, ...	23.50 ...	45	9

Results: C. F. Halsall (Wilton), E. C. Jarvis (Singer), and A. R. Hare (Enfield sc.) qualified for silver medals.

IMPORTANT EVENTS IN 1914.

The Auto Cycle Union announce that the following fixtures have been provisionally arranged for next year:

Jan. 14th.—A.C.U. Annual Dinner.
Mar. 7th.—Spring One-day Trial.
,, 18th-25th.—Paris-Nice Trial.
May 19th-21st.—Junior and Senior Tourist Trophy Races in the Isle of Man.
June 9th-11th.—Car Tourist Trophy Race.
July 5th-11th.—English Six Days' Trial.
,, 17th-18th.—Automobile Rally, Nottingham.
,, 26th.—International Cup Race, Le Mans.
Aug. 4th-9th.—International Six Days' Trial.
Sept. 24th.—Cycle Car Tourist Trophy Race.
A.C.U. Championship Race Meeting at Brooklands.
Oct. 28th.—Autumn One-day Trial.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Difficulty with Piston Rings

Sir,—The difficulty with piston rings from which "L.H." has suffered, and which he described in your issue of the 6th inst., is very similar to the trouble which occurred to a friend of mine, who made alterations in the width of his rings. The machine being two or three years old, a slight ridge had been formed all round the cylinder at the level of the top of the piston ring. With the wider rings, the edge of the top ring came just above this ridge, and at a moderate speed the constant hammering of the ring against the ridge proved too much for the ring. My friend solved the trouble by slightly chamfering the top ring.

C. POUNTNEY WILLOUGHBY.

The Effect of Benzole on Tanks.

Sir,—You invite your readers to give their experiences of benzole on the insides of tanks. Here is mine. It has detached the baffle plates, and they lie prone on the bottom. I also think that benzole has been the reason of the Bowden wire becoming rotted away at the end in the spraying chamber of the carburetter. In fact, I am sure it is.

My machine is a 1913 Douglas R., and I have used benzole with excellent results barring those mentioned. All the same, I would rather use it than petrol, even if benzole were the higher in price.

JESSE BLISS.

A Novel Sidecar.

Sir,—If Mr. W. M. Pannett, or any other of your readers who are interested, will communicate with me, c/o Editor, I shall be pleased to give them full particulars of my sidecar—the Knut's Egg.

FRANKLIN FLETCHER.

Sir,—Replying to Mr. Fletcher's letter of October 30th, I beg to state that the style of chassis (October 9th), namely, C tubes with saddle springs, was registered by me in July, 1912, Rd. No. 603,840. As regards the type of body, I do not make any claim. Various types of bodies are fitted to my chassis with C tubes, and my springs are specially made for the purpose of suspension. Mr. Fletcher can see for himself at the Patent Office that my contention is correct.

W. E. MANNING.

The Cycle Car Trial.

Sir,—I should like to make one or two small corrections if I may be permitted to trouble you. As regard the A.C.U. one day trial for cycle cars in the measuring of petrol a level spot was chosen, but whether this was truly level or not does not matter in the least if the same place is used upon both occasions—that this was not done was due to the police, but the ground chosen was almost absolutely level and in any case each cycle car was measured on the same spot. While taking the final measurements, no one was allowed to stand on the car, while I examined the inside of the tank by an electric light, even waiting until any rock had ceased. These points are really of no importance, but in justice to the gentlemen who so kindly and effectively helped in the work, I think I ought to say that we were by no means as slow as you state. There were thirty-four machines to measure, and if this number is divided into the number of minutes taken over the whole job it will be found that the time taken was in the neighbourhood of three minutes for each. This cannot be called slow—far from it—but as a matter of fact I have designed one or two simple little pieces of apparatus which will enable such work to be done in future with infinitely greater speed and comfort.

A. M. LOW, A.C.G.I., D.Sc., ETC.

Rear Lights.

Sir,—Your article *re* rear lights for motor cycles prompts me to inform you that here in Wigtownshire horse-drawn vehicles can and do go without lights during the summer months (May, June, and July); the law permits them. It would be interesting to know why they have this privilege here. I do not know of any other county. It is very dangerous to motorists. Coming home late one summer night, I met a pony and trap on a woody part of the road—no lights, driver asleep in the bottom of the trap, and on the wrong side of the road. I had to take a toss in the ditch to avoid a nasty collision. I reported to the police next day, giving name and address of the driver, but never heard any more about it. Had the neglect been by a motorist, I have no doubt the law would have paid more attention to duty.

J.B.

National Signpost Fund.

Sir,—Being a keen motorist, I notice with a great deal of pleasure that a scheme is being set on foot for the provision, by public subscription, of a fund of £50,000 for the purpose of organising and carrying out a definite plan, viz., the erection of road signs whereby all users of the thoroughfares of the United Kingdom will be able, without enquiring of chance wayfarers, to ascertain the direction in which to proceed.

I am confident that the scheme could not be in better hands than those of the Automobile Association and Motor Union, this organisation having made rapid strides during the past few years. The patrol system has benefited my friends and myself on numerous occasions.

If this scheme is inaugurated it will confer a boon on all users of mechanically driven vehicles.

A MEMBER OF THE A.A. AND M.U.

Cycle Cars v. Light Cars.

Sir,—Is not confusion becoming worse confounded? In *The Light Car* the G.W.K. and the Humberette, both of which differ materially from standard design, are included as light cars. In *The Motor Cycle* of the same week the 10 h.p. four-cylinder A.C. is described as a cycle car. Really, "we don't know where we are." It is useless to discuss the merits and defects of the light car and the cycle car until we know precisely what is included in those terms. What do the manufacturers of the three above types say of themselves? Personally, I hold that the definition of the A.C.U., backed as it is by the authority of the R.A.C., the C. & M.C.M.T.U. and F.I.C.M., holds the field. "The public," says the writer of an interesting letter in *The Autocar*, "required to see tests under official observation, and the makers of light cars fell back on the A.C.U. for publicity." Quite so, and they will continue to fall back on the A.C.U. until trials can be organised, comparable in importance and interest with the Grand Prix, the proposed Tourist Trophy or the Six Days. I may add until they can secure a show of their own at Olympia. Meanwhile, in spite of the acknowledged authority of *The Motor Cycle*, I believe that the definition of the A.C.U. should be upheld. After all, the makers of light cars, who believe that they "lose by association with the cycle cars," can hold aloof from A.C.U. competitions and the C. & M.C.M.T.U. Show at Olympia. Whether they have gained or lost by that association I will not venture to decide, but that they have thought to gain and not to lose I am quite certain.

H. G. MORGAN.

The Liverpool A.C.C. Trial.

Sir,—As one of the correspondents whose letters have not been published with regard to the above trial, I again venture to request the favour of a space in your interesting paper.

In the first place I would mention that I am not interested in any particular make of machine or rider.

I have never had the pleasure of meeting either Mr. Sproston or Mr. Heaton, but for several years have been interested in motor cycling and have keenly followed the articles on the various trials in the motor cycling press.

In my previous letter I enquired what the cup was awarded for? If for reliability I certainly thought the club had come to an unfair decision, as Mr. Sproston's was certainly not the best performance, as he failed to make a *non-stop run* and Mr. Heaton, I believe, was the only one actually to do so.

I was astonished to note in your issue of last week, a letter from Mr. Phillpot emphatically stating that the cup was offered *not* for the best performance.

Considering that it was a *Reliance* cup and a reliability trial it is no wonder that I sign myself by the *nom-de-plume* of "Perplexed," as it was stated that Mr. Sproston won the cup by the best performance. Mr. Phillpot clearly states that Mr. Heaton's was the best performance, and under these circumstances it appears to me obviously unfair for the cup to have been awarded otherwise.

PERPLEXED.

Leaking Cylinder Heads on Scott Machines.

Sir,—In reply to "Two Years Ahead's" query, I have found Waterite quite satisfactory for sealing leaks on my machine. I put three large teaspoonfuls in my radiator in the first week and in a fortnight the leaking stopped. I add a little once a month now and find it quite satisfactory, but if I try to remove the rust from the weak spots on the heads I get a fresh outburst. If Waterite will not do, I should advise your correspondent to send the machine to the makers. Possibly he might try Caementum first; it is a waterproof cement and quite simple to use, though difficult to get in most places (the price is 6d. a tin).

Choked gauzes used to worry me till I got a sight feed lubricator fitted. I find I get much better running and use much less oil now, while I get immediate warning if anything is wrong with the crank case suction.

May I add that I have a Lukin carburetter on my machine, and that I consider a hot air jacket is a necessity if one is to get absolute satisfaction in all weathers. Since adding a jacket to mine, I have got a greater mileage per gallon, and much better running at high speeds (fifty and over). Taxibus is what I use whenever possible, it gives (on my machine) considerably more power than I. and II. petrol, and, if a trifle dirtier, 5s. worth of Cylclean sends me on my way rejoicing with a fine crisp exhaust. I can recommend Cylclean to Scottists. It saves a deal of time and is just as good as scraping. In conclusion, may I ask if there is any four-stroke (British made) machine which compares at all favourably, for comfort and ease of driving, with the Scott? I wish some practical experience of a four-stroke engine before taking to a cycle car, but I like comfort and simplicity.

I have no interest in any of the articles or process above referred to, but I like to give honour where I consider it due. NORTH BRITON.

Two-stroke Lubrication.

Sir,—With reference to the article in last week's issue of *The Motor Cycle*, describing the new Triumph two-stroke engine, we wish to protest against the way the lubrication system is described. Anyone reading your article would conclude that the method of lubrication, by mixing oil with the petrol, is quite novel, whereas it has been copied from the Connaught. We were sneered at and ridiculed at the Show last year, and everyone predicted failure for our system. We have proved its efficiency in all the big trials of the year, and feel that honour should be given where honour is due. We shall be glad if you will kindly publish this letter in your next issue.

THE BORDESLEY ENGINEERING CO.,
JOHN D. ROWLAND, Managing Director.

[We described the lubrication system as interesting, not novel. We were well acquainted with the Connaught system of lubrication, and, as a matter of fact, this method has been in use for some years in America.—ED.]

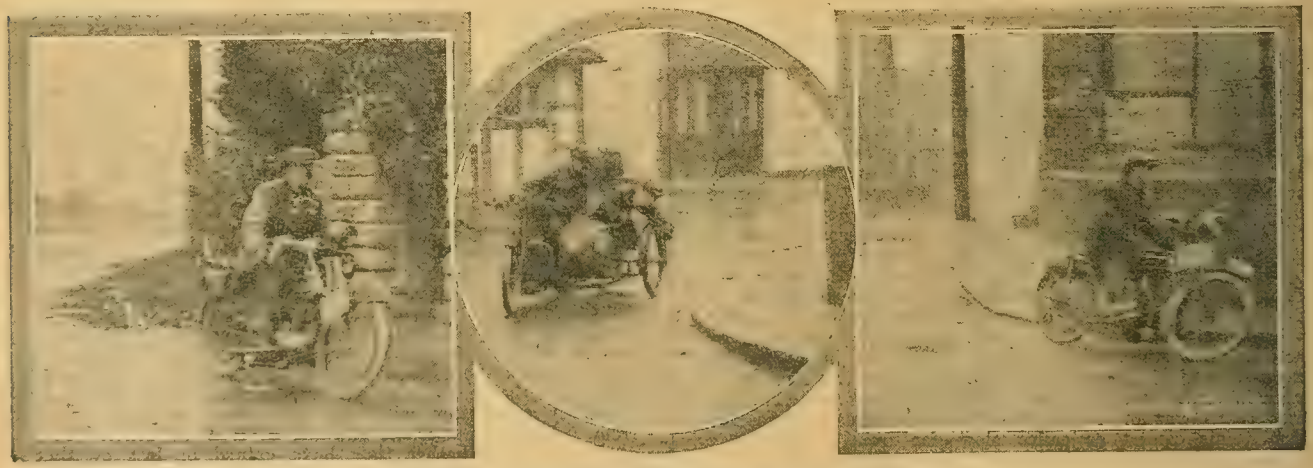
Excessive Garage Charges.

Sir,—On August 27th, owing to a breakdown I left a motor cycle with the Falcon Motor, Cycle, and General Engineering works, Totnes Road, Paignton, S. Devon, saying that I should instruct someone to call for it. Unfortunately I had to travel to the extreme North of England, and so left the machine there until October 5th. When my friend went to fetch this solo machine, garage charges of £1 14s. were made, being 1s. per day, and when the garage proprietor was told that it was a trade machine, he made a special concession of 10% discount. As a general rule, 6d. per day is the usual charge for motor cycles, and in many cases less.

Possibly I was to blame for not getting to know the charges before I left the machine. A. H. HILL.

[We submitted a proof of the above letter to the Falcon Motor, Cycle, and General Engineering Works, and publish below extracts from their reply.—ED.]

"I have not the pleasure of knowing Mr. Hill in this matter, and the bill was paid by Mr. Holmes, of Plymouth, who informed me that he owned the machine. . . . With regard to my charges, I always charge 1s. per day in the season, because space is valuable, and I gave Mr. Holmes the usual trade discount in this case. . . . I would add that Mr. Holmes offered me 3d. per day, but as I am not in business for the good of my health, I had to decline his offer.—Yours faithfully, "FALCON MOTOR WORKS,
"G. B. Wilson."



STUDIES IN CORNERING DURING THE STREATHAM TRIAL.

(1) H. V. Colver (Enfield) on the way to Westerham. (2) J. E. Greenwood (3½ h.p. Sunbeam (3) Passing through Oxted.

Touring Trials.

Sir,—As a club secretary, I feel I should refrain from passing comments on a trial promoted by a rival, although friendly club, and merely give the energetic officials of the Streatham and District Motor Club well earned credit for the efficient manner in which their very original trial held on the 1st inst. was carried out. However, as a competitor, I feel I have a grievance against the organisers for describing this event as a "touring trial," and yet allowing such racing freaks as Ware's Zenith, Holden's B.S.A., and Frank Smith's Grand Prix Clyno to compete on the same footing as genuine standard touring machines. I consider the nature of this trial which included acceleration tests, stopping and restarting on a steep gradient, and speed on Brooklands particularly favoured such freaks, and moreover gave them a distinctly unfair advantage. In my opinion, by allowing this sort of thing to continue, club officials are doing their best to tempt manufacturers, perhaps unconsciously, to mislead the public. As, undoubtedly, other clubs will follow the lead of the Streatham and District in organising what might be a very instructive trial, I take this opportunity of urging them to word their rules and conditions in such a manner that anything in the nature of a special machine (or flyweight passengers) will be barred from entering. F. J. ELLIS,

Hon. Sec. Woolwich, Plumstead, and District M.C.

Why More Air with Benzole?

Sir,—After his effort in last week's *Motor Cycle*, Mr. Cameron Gibson might well reflect. After proving, to his own satisfaction, that "Chemist" is wrong, he proceeds to prove, again to his own satisfaction, that "Chemist" is right, which is absurd.

In discussing the amount of air which a given fuel requires, we have to consider volumes, not weights. To deal with the question in the way Mr. Gibson does, we should require to know the molecular formulæ of both benzole and petrol before passing judgment. In dealing with volumes, however, we have a much easier task.

A very elementary law of physics states that equal volumes of gases under equal conditions contain equal numbers of molecules. Thus equal volumes of benzole and petrol vapour under the conditions considered would contain an equal number of molecules. But since the benzole molecule contains a greater percentage of carbon than the petrol molecule, a given volume of benzole will contain a greater number of carbon molecules (and therefore carbon atoms) than the same volume of petrol.

Now, one carbon atom requires two atoms of oxygen ($C+O_2=CO_2$) for complete combustion, whilst, to use up the same volume of oxygen by means of hydrogen, we should require four atoms of the latter ($2H_2+O_2=2H_2O$). Thus the carbon atom is equal to four hydrogen atoms in oxygen absorbing power, and consequently the greater the percentage of carbon in the fuel, the more oxygen (*i.e.*, the more air) will be required for complete combustion.

J. H. PRESTON.

Sir,—In my letter of the 9th October, I condensed my matter as much as I possibly could out of respect for your space, but as I have led Mr. Cameron Gibson into exposing his very elementary acquaintance with chemistry as well as to misunderstand me, may I ask space for reply.

I distinctly pointed out that there was about 18% more fuel in benzole than in petrol, volume for volume, and, of course, assumed that the same jet and throttle opening was used in both cases; also that the internal viscosity and external friction of the two liquids was the same, and that the amounts of liquid passing the jet in each case were equal. On the first principles, of course, more air is required. But I omitted to state a well established fact in combustion. It is that if you have a fuel which contains carbon and hydrogen, and you decrease the correct amount of air supply, the whole of the hydrogen will be burned up before any carbon is consumed, the unconsumed carbon dropping out as soot or smoke usually. This is the underlying principle of luminosity of flame, and also the cause of soot and smoke in the silencer. On this subject I do not propose to take up your space, but I cannot pass over Mr. Gibson's elementary chemistry without correction. One volume of gaseous carbon weighing twelve units combines with two volumes of oxygen weighing thirty-two units, and two volumes of hydrogen weighing two units combine with one volume of oxygen weighing sixteen units. Carbon as gas thus requires four times the volume of air that the the same volume of hydrogen requires, which supports the practical results.

Let me in conclusion urge any who wish to test benzole by distillation to use a condenser, and have a tray of sand below the retort in case of an accident—but better for an amateur not to bother about this test. CHEMIST.

On the level crossing at the bottom of Pebble Hill, Betchworth. The machine is a 7-9 h.p. Premier sidecar.

SUMMARY OF CORRESPONDENCE.

THE CARBURETTER FOR SCOTTS.—In our issue of September 11th, a letter appeared over the signature of George Bax on the subject of Lukin and Binks carburetters for Scott motor cycles. Mr. Bax's concluding sentence was: "I also, like Mr. Kelly, have no financial interest in either C. Binks or Lukin, Ltd." Later we were informed that Mr. Bax was employed in a London house dealing in carburetters, and accordingly addressed the following letter to him, to which we append the reply received:

OUR LETTER.

"Dear Sir,—Permit me to refer you to your letter of August 21st, with regard to your experience with the Scott machine fitted with Binks and Lukin carburetters. I am given to understand that you are employed in the motor trade, and are, in fact, interested in the sale of carburetters. I shall be glad if you will advise me if my informant is correct, and also the name of your employers.

Yours faithfully, THE EDITOR."

THE REPLY.

"Sir,—In reply to your favour of the 5th inst., the letter you refer to was written by me as a private owner of a Scott motor cycle. I do not acknowledge your right to any further information, and resent the inquisitorial tone of your letter.—Yours truly, GEORGE BAX."

"S.R.G." writes from Manchester: "In reference to your reply to 'R.F.' in *The Motor Cycle* of 30th October on the question of the best route from Alderley Edge to Olympia, I beg to point out that the road from Congleton to Leek is anything but good. Your correspondent would do better, after leaving Alderley, to turn left at Monk's Heath through Chestergate, Macclesfield, at the end of which turn right; it is then a straight road to Leek where the route should be followed as suggested by you. I have been this way several times, and find it quite satisfactory."

THE CYCLE CAR TRIAL.

THE JUDGES' REPORT.

THE weather conditions were good for the purpose of a motor trial; a fine morning with storms later in the day. The road surfaces were generally excellent, but were somewhat heavy and muddy under trees. The course comprised hills of moderately severe gradient, and, with the exception of Haste Hill, well metalled surfaces.

A comprehensive variety of machines was entered, as shown in the following table.

Summary of Types of Vehicles entered.

No. 5, an original and commendable type of sidecar machine, was disqualified as not being a cycle car.

Transmission.	No. of entries.	1st class certificate.
Shaft	12	8
Belt	10	4
Chain	8	4
Friction	3	3
Engine Cooling System.		
Air	17	9
Water	16	10

Seating Capacity.	No. of entries.	1st class certificate
Single	2	2
Double	31	17
Wheels.		
Three-wheeled	6	4
Four-wheeled	27	15

The performances of the machine were, on the whole, satisfactory, nineteen out of thirty-one starters successfully completing the course within schedule time. Of the failures, at least three failed from tyre troubles, and on account of arriving too early at the finish.

There was a marked improvement as regards hill-climbing and reliability, the latter due, to a great extent, to the fitting of heavier tyres.

Engine workmanship and fitting showed an improvement, the engines being more free externally from oil, and there being less noise from the timing gear. There is still much room for improvement in engine design, particularly with reference to the maintenance of torque at low speeds or alternatively, of vibration at a comparatively high rate of speed, to the further elimination of noise from valve gear, and to silencing of the exhaust, by the provision of larger expansion chambers.

The various types of transmission showed signs of careful experimenting, a differential being apparently considered as essential, except in the case of belt drive, where correctly proportioned belt pulleys appeared to work satisfactorily, allowing the necessary amount of slip on corners, without any appreciable loss of power on the straight. The absence of a reverse is a distinct handicap.

Chassis design appeared to copy very closely that of car practice The otherwise excellent design of one cycle car was spoilt by an insufficiency of road clearance. The back axles of more than one type were obviously over-stressed. Insufficiency of steering lock was noticeable in certain cases.

With regard to equipment, there was in some cases very much to be desired, particularly as regards comfortable seats, better mudguards, more substantial fitments, such as lamp brackets, more accommodation for luggage, tools, etc., and a better finish throughout. The lack of finish and smart appearance was the more noticeable, as certain of the competing cycle cars were excellently equipped and finished. The judges consider that it is most short-sighted on the part of manufacturers to send out for a public trial vehicles with makeshift bodywork. The suspension in the majority of cases was good.

Easily detachable wheels and the carrying of a spare wheel would be a material advantage.

The majority of machines only possessing two speeds, it would seem that three or even four speeds are desirable, enabling a higher top ratio to be fitted, with a consequent saving in petrol, etc.

Accessibility showed signs of marked attention, it being easier to get at carburetter, magneto, etc.

Oiling devices seemed to vary between entirely automatic and hand-controlled drip feed with plunger pump. A few makes relied on the unsatisfactory, if simple, hand pump.

Petrol and oil unions, taps, and pipes were sufficiently stable to stand the vibration, but the radiators on some machines showed signs of leaking more or less badly.

In the stopping and starting tests it was noticeable that many of the vehicles ran backwards for some distance before proceeding. This points either to brakes not holding satisfactorily when the machine commences to coast backwards, or to the difficulty in applying brakes with the discrimination needed in such a test.

E. P. Greenhill
Glynn Rowden Judges.

FIVE HUNDRED MILES IN EIGHT DAYS.

It is interesting to note the extent to which the motor cycle and sidecar is gaining favour with ladies. The lady rider above is Miss E. Aubrey, of Bristol, who a week ago toured from Bristol to Liverpool via London and Coventry and home direct, with her sister, on her 3½ h.p. Rudge-Multi sidecar outfit

OFFICIAL RESULTS.

FIRST-CLASS CERTIFICATES.

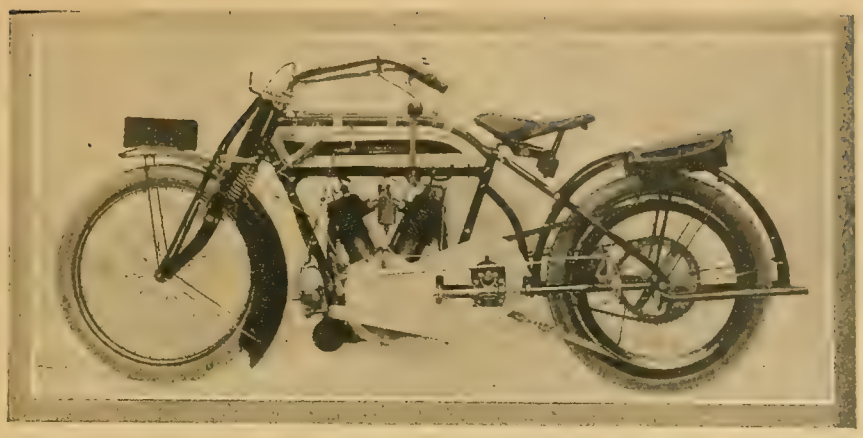
Driver, H.P., and Machine.	Consumption. M.P.G.	Remarks.
J. Munday (6 A.C.)	52	Coachwork unfinished.
W. S. Brownsort (6 A.C.)	36	Coachwork unfinished.
W. G. McMinnies (8 Morgan)	65	Little regard for appearance.
V. Busby (8 Morgan)	54	Condition fair.
H. E. Dew (8 Dew)	49	Bodywork crude.
J. T. Wood (8 G.W.K.)	49	Excellently equipped throughout.
C. M. Keiller (8 G.W.K.)	44	Appearance good.
J. G. Panling (7 Swift)	56	Appearance fair, seats too low.
P. Meers (10 A.C.)	38	Coachwork unfinished.
Albert B. Phillips (8 Warne)	29	Workmanlike job.
S. Wright (8 Humberette)	37	Efficiently mudguarded.
Lionel Martin (10 Singer)	35	Competition body, insufficiently mudguarded for touring.
R. G. Thomas (8 Pyramid)	47	Bodywork satisfactory, back axles sagging.
L. T. Payne (8 Pyramid)	42	Ditto.
J. Chater-Lea, jun. (8 Chater-Lea)	42	Back axle weak, valances needed to mudguards, body unfinished.
W. Cooper (8 Humberette)	36	General appearance fair.
Rex G. Mundy (8 Humberette)	45	Ditto.
Victor Wilberforce (8 G.W.K.)	42	Good competition body with well-designed detachable wheels.
C. F. Halsall (10 Wilton)	24	Design of chassis excellent, bodywork poor.

CERTIFICATES OF PERFORMANCE.

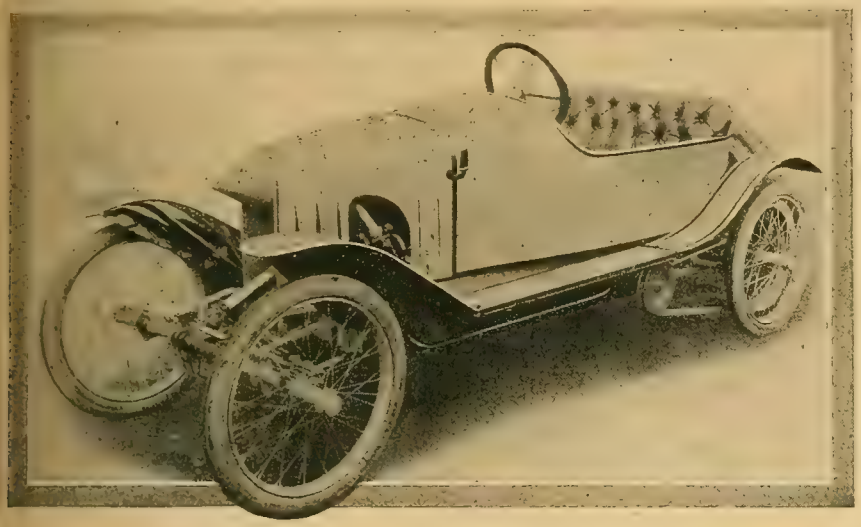
Driver, H.P. and Machine.	Consumption. M.P.G.	Remarks.
W. Skinner (8 Morgan)	42	Two stops: puncture and engine trouble, leaking radiator.
John Gibson (8 Morgan)	—	Three stops for tyre trouble: slovenly appearance.
A. Maitland (8-10 Beacon)	72	Eight stops on hills; appearance sacrificed for lightness.
M. Bryan (7-9 G.N.)	47	Failed at Wray Lane and Tanhurst Hill.
C. Pressland (8 Crouch Carette)	39	Two stops on Tanhurst Hill, and stopped on Haste Hill owing to shorting switch.
R. Barton Adamson (10 Adamson)	42	Commendable general design, but insufficient road clearance; gate broke and gears had to be unmeshed by hand; two stops owing to gear trouble.
A. Percy Bradley (8 Duo)	44	Failed on three corners and lost one belt; one exhaust pipe broke off; insufficient lock.
G. N. Higgs (10-12 G.N.)	41	Time error, otherwise clean sheet; faulty top gear: excellently equipped.

LINCOLN ELK PASSENGER MACHINES.

Mr. James Kirby, Broadgate, Lincoln, is marketing a new model 6 h.p. for passenger work. Some very interesting features are to be met with on this machine. A special patent counter-shaft two-speed gear is fitted, the drive to the back wheel being by belt on the high gear and chain on the low, a feature which has a good deal to recommend it. The rear part of the frame is of novel design and the price of the machine is exceedingly moderate, viz., £55. A kick starter is fitted and another make of sidecar can be attached as required. Mr. Kirby also makes a single-cylinder 4¼ h.p. Lincoln Elk machine with two-speed gear and with similar transmission, which is also suitable for passenger service at the moderate price of £46, as well as several solo models.



Belt side of the latest model two-speed twin-cylinder Lincoln Elk showing combined drive and counter-shaft gear.



Threequarter front view of the latest model 8 h.p. twin-cylinder G.N.

1914 G.N. CYCLE CAR.

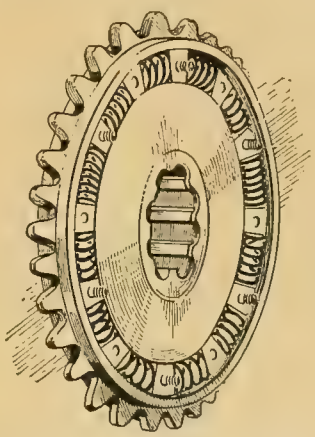
The G.N. cycle car will have no radical alterations for 1914. However, there are several improvements in detail. Instead of having open holes through which the oil must pass to the pulley-shaft bearings, a neatly fitted pipe at each end of the shaft enables the driver to lubricate the bearings from the inside of the car. This device, together with extension covers, keeps out all the dust and dirt, so considerably lessening the wear of the bearings. The lever front springs have now been replaced by radius rods.

During a recent visit to the G.N. works, Mr. Frazer-Nash gave us a demonstration of the power and speed of his own Grand Prix model. In a remarkably short distance, the engine, which pulled magnificently, had accelerated to 40 m.p.h. on second gear. When the top gear was engaged, the speedometer soon registered a speed of just over 50 m.p.h.

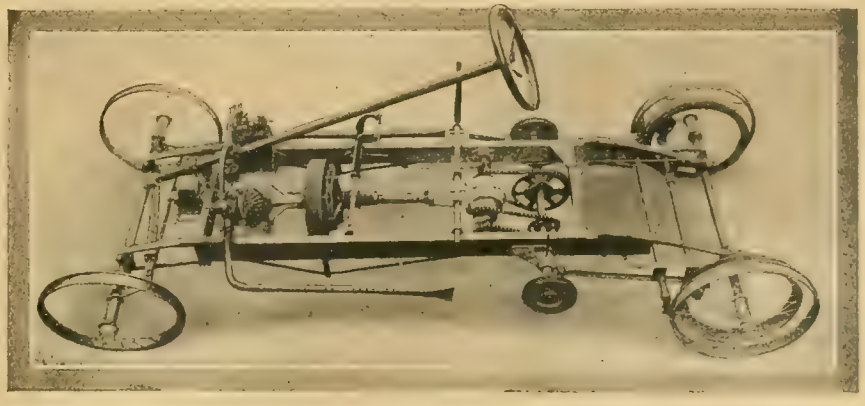
Later on we drove the machine, and were surprised at the extreme ease of handling, and particularly the delightful steering. It held the road well, and was excellently sprung, while the seating accommodation was comfortable and provided ample leg room.

A BIG SINGLE-CYLINDER.

A machine that has attained considerable fame by reason of its neat design, excellent construction, and reliability is the James. We have quite recently described the latest models in our pages, and for 1914 they are being constructed as in the past with a special view to performing sidecar work. The company are well known as exponents of the big single-cylinder principle, and the capacity of the single-cylinder James has been increased for next year to 86 bore × 103 mm. stroke, which gives a capacity

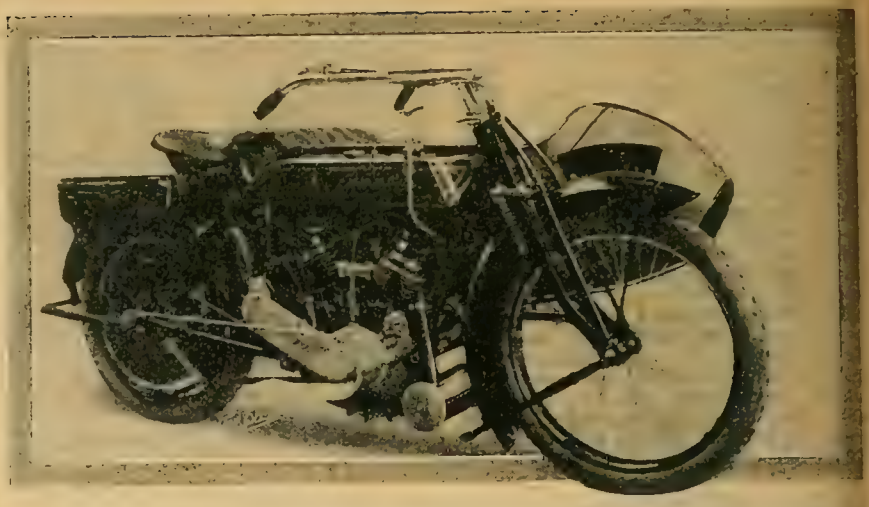


DETAILS OF JAMES SHOCK ABSORBER. The rear hub of the chain-driven James models is fitted with a neat spring shock absorber, which, it is claimed, is so efficient, that it considerably reduces tyre wear, besides, of course, saving the chain. Its design is rendered clear by the sketch.

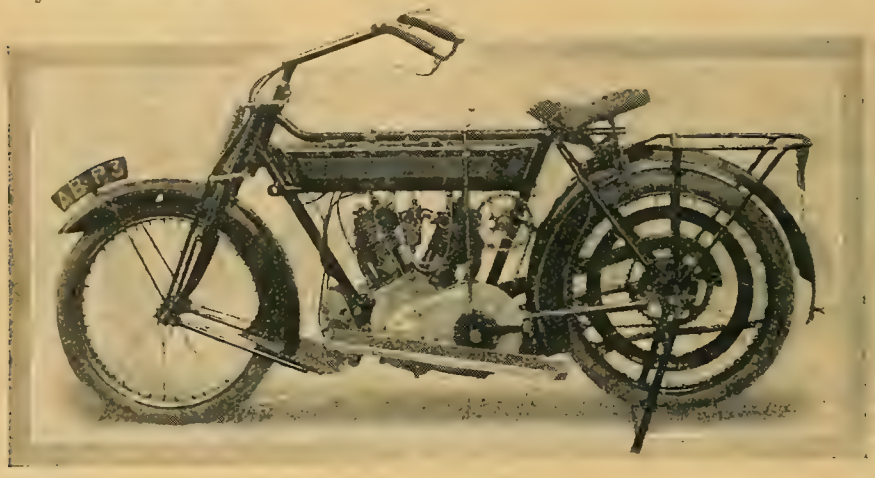


Semi-plan view of the 8 h.p. G.N. chassis, showing shaft, chain, and belt drive, position of engine, and large steering wheel

of 599 c.c. In addition to the increased capacity it is claimed that the engine is more efficiently designed than in the past, and is thoroughly up to the work of pulling a comfortable coachbuilt sidecar and full load anywhere, fitted as it is with an admirable two or three-speed counter-shaft gear at option, to which is attached the kick starter. The transmission is totally enclosed in pressed steel chain cases. A notable feature of this model is the fitting of the front hub with Timken roller bearings, which are specially designed to resist the thrust and drag of a sidecar at corners. In addition to the big single, the James Co. are marketing a 496 c.c. twin-cylinder machine designed for solo use. It is fitted with the James counter-shaft three-speed gear box and all enclosed chain drive, and is a most attractive mount and beautifully finished. For use in conjunction with the big single cylinder, the James-Canoelet sidecar is supplied by the company finished to match the machine, making a very attractive turn-out.



The latest addition to the ranks of passenger machines is the 6 h.p. New Hudson with Mark VII. Armstrong gear, and kick starter. It has a chain and belt drive.



The 6 h.p. twin-cylinder 2-speed Enfield in its latest form, showing aluminium front chain case, and chain to handle starter, mounted on the down tube from the saddle.

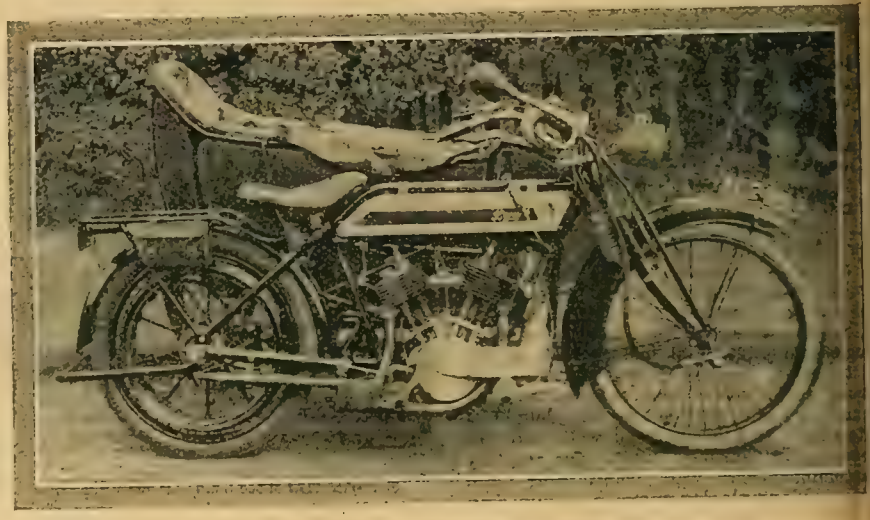
THREE EXCELSIORS IN 1914.

Single cylinders and plenty of power are the outstanding features of this make, and for next year they will be made in three models, viz., 3½ h.p., 499 c.c.; 4½ h.p., 650 c.c.; and 5-6 h.p., 800 c.c.—the latter being known as the big single. These models are specially designed and built for passenger work and are not in any way looked upon as speed models; in fact, it is for the slogging, get-anywhere tourist that Messrs. Bayliss, Thomas and Co. cater. The hill-climbing feats of this make in the hands of Mr. W. H. Carson are well known, and for those who do not object to the powerful beat of a large single-cylinder there is a great deal to recommend this type of machine, for not only is great efficiency obtained from such an engine but, as the parts are all on a fairly large scale, it is possible to construct them in an exceedingly robust manner. In fact, in the Excelsior engines there is a good deal of car practice, for three-ring pistons are fitted and the lubrication of the big end bearings is taken through a hollow

THE CANOELET SIDECAR.

The greatest interest was displayed in the Canoelet sidecars at the last Olympia Show, and so great has been the demand that the makers, Messrs. Mead and Deakin, Birmingham, have been obliged to seek more factory space during the past year. The general outline of these attachments is extremely attractive, and the suspension most comfortable: in fact, the comfort and protection provided for the passenger are quite noteworthy. The chassis itself is most simple, and at the same time very strong, being simply a single tube running completely round the body.

Chassis of the 1914 Canoelet coach



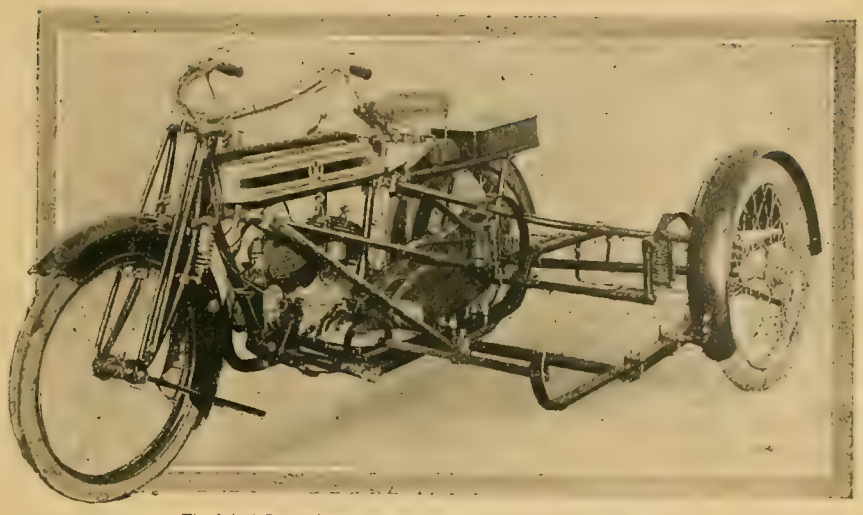
Valve side of the latest model 6 h.p. three-speed Brough and coach built sidecar

Passenger Machines of all Types.—

crank pin, the oil being fed through a Best and Lloyd sight feed lubricator to the cylinder wall opposite to the gudgeon pin at the bottom of its stroke.

A Choice of Gearing.

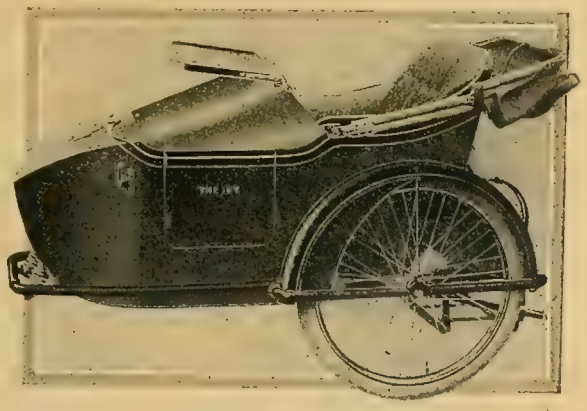
Next year the 5-6 h.p. model will be supplied either with a Sturmey-Archer three-speed hub gear or a three-speed counter-shaft gear, embodying a clutch, and both types will be fitted with a kick-starter. This will allow the pedalling gear to be dispensed with and, in its place large-sized footboards will be fitted. An excellent feature is the fitting of cycle car sized Palmer cord tyres on this model, while an XL'All saddle, Bosch magneto, Senspray carburetter, Brampton Bi-flex spring forks, and other details complete a soundly constructed machine. A really praiseworthy effort has been made to eradicate as much nickel plate as possible from next year's machine, and the handle-bar in future will be covered with black celluloid, which has the advantage of looking neat and being easy to clean.



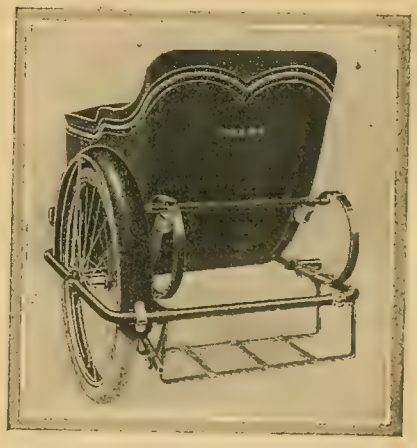
The latest Rex sidecar chassis which has four point suspension.

THE IVY SIDECAR.

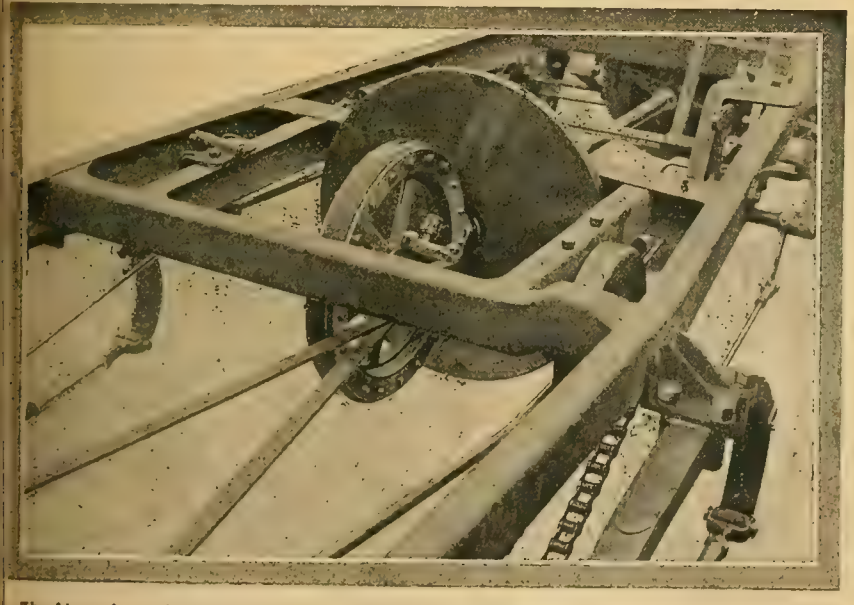
The suspension of the Ivy sidecar, which we illustrate, is improved by the addition of coiled springs connecting the rear part of the body to a crossbar joining the ends of the "C" springs. Mr. Newman is making a special feature of Ivy sidecars, painted in colours to match various machines, such as the Matchless and other models. The sidecar is a particularly well thought out attachment; the body is well made of three-ply wood, the interior being upholstered with Vegamoid, well-stuffed, and provided with springs to seat and back. The door has a concealed lock, and when fitted with hood, screen, and stormproof apron, the passenger is absolutely sheltered from the elements. The illustration shows the method of support for the wheel spindle on both sides and the efficient mudguarding of the wheel, also the neat lamp bracket fastened to the body.



Side view of the new Ivy sidecar, which, as will be noticed, has a scuttle dash, hood and screen.



Rear view of new Ivy sidecar.



The Ajax, a four-cylinder French cycle car, selling at under £100. The method of fitting the friction transmission is shown. Final drive is by single chain to one rear wheel.

A PIONEER FIRM.

Ever since the motor cycle movement was started in this country Messrs. Brown Brothers, Ltd., Great Eastern Street, E.C., have supplied motor cycles which have gained an excellent reputation for their reliability, and in the old days for their wonderful hill-climbing powers. For next year they will list two models, a 3½ h.p. single-cylinder, and a 3½ h.p. twin. The twin-cylinder model has an Armstrong three-speed gear and direct belt transmission. The engine is fitted with overhead inlet valves, and the special features of these machines are spring forks, centre springs being used one above the other to take the compression and recoil. The single-cylinder model has chain-cum-belt drive, the gear box being situated on the counter-shaft, and a kick starter is fitted, but no pedalling gear is used as on the twin-cylinder model.

Passenger Machines of all Types.—

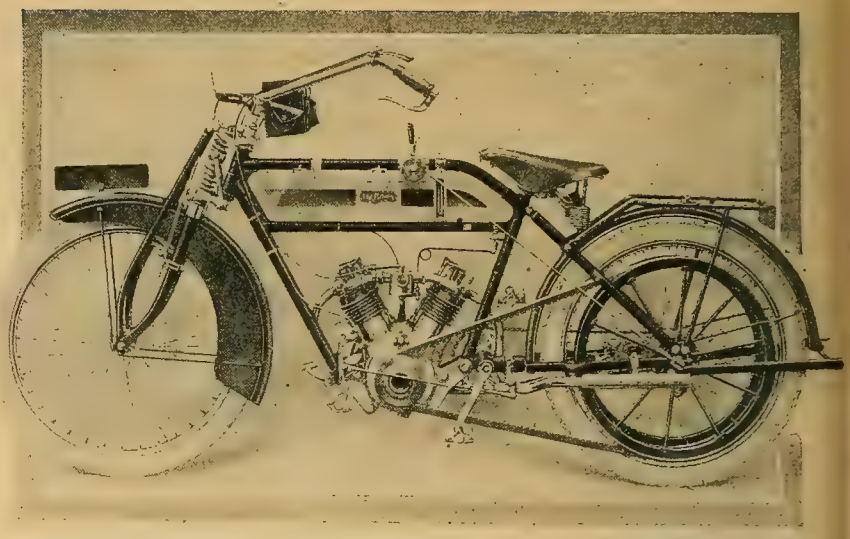
The gear on the single-cylinder model is changed by a Bowden wire from the handle-bar, and both machines present an exceedingly neat and workmanlike appearance.

A HANDSOME SIDECAR OUTFIT.

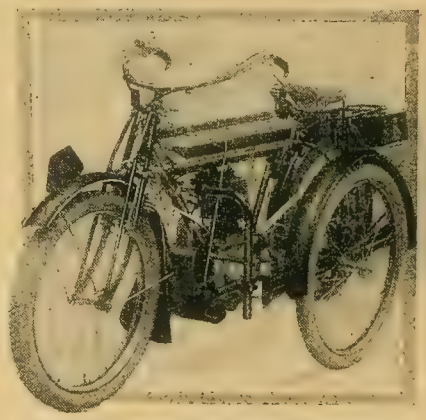
During the past season the Hazlewood motor cycle has done exceedingly well in trials, and the new sidecar outfit produced for 1914 by Messrs. Hazlewood, Ltd., Coventry, should thoroughly uphold their reputation. The power plant is a 5-6 h.p. J.A.P., having a cubic capacity of 664 c.c. The transmission is by chain to the counter-shaft, and thence by belt running over large pulleys to the rear wheel, in which is situated the latest pattern Mark VII. Armstrong gear, the change of which is effected by a large lever working in a quadrant on the left-hand side of the tank. These machines are finished in an attractive brown colour, and the coach-built sidecar is finished to match. A kick starter is provided, and other noticeable features of these well-designed machines are a very large spoon brake, acting externally on a dummy belt rim on the rear wheel, and a neat device for locking the spindle of the hub gear, and grease cups to the spring fork shackles.

THE PARAGON PATENT FOLDING SIDECAR.

The Wincycle Trading Co., Ltd., 106, Great Saffron Hill, E.C., are manufacturers of the Paragon folding sidecar, which is made in a variety of types, varying in price from eight to fifteen guineas. This attachment is capable of being folded up without removing from the motor cycle so that the whole will pass through a 30in. doorway, the time required for this being only a few seconds. The Wincycle Trading Co. market an attractive 4¼ h.p. Precision-engined motor cycle suitable for passenger work, and this will be shown at Olympia complete with the Paragon folding sidecar.



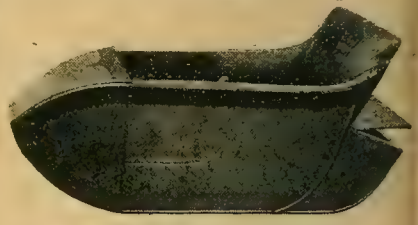
The 3½ h.p. twin-cylinder Brown in its latest form. Notable features in this machine are automatic carburetter, Armstrong three-speed gear, overhead valves, direct belt drive, and large driving pulley.



The Paragon sidecar chassis, which, as may be seen, folds up close to the machine when not in use.

LUGGAGE BOOT ON SIDECAR.

The Monarch Fittings Co., 203, Edward Road, Birmingham, are making a speciality of a sidecar, at the back of which is fitted a large boot capable of

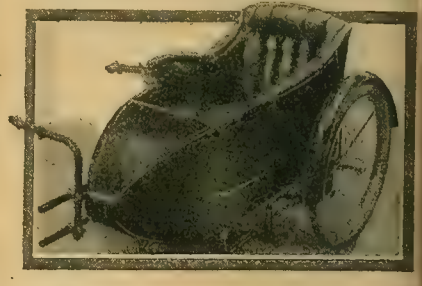


The Monarch coach-built sidecar, showing the box at the rear for tools, spares, etc.

holding a two gallon tin of petrol. The lid can be made to accommodate quite a good size bag. At the same time no loss of space is made in the sidecar, and the whole design is well carried out.

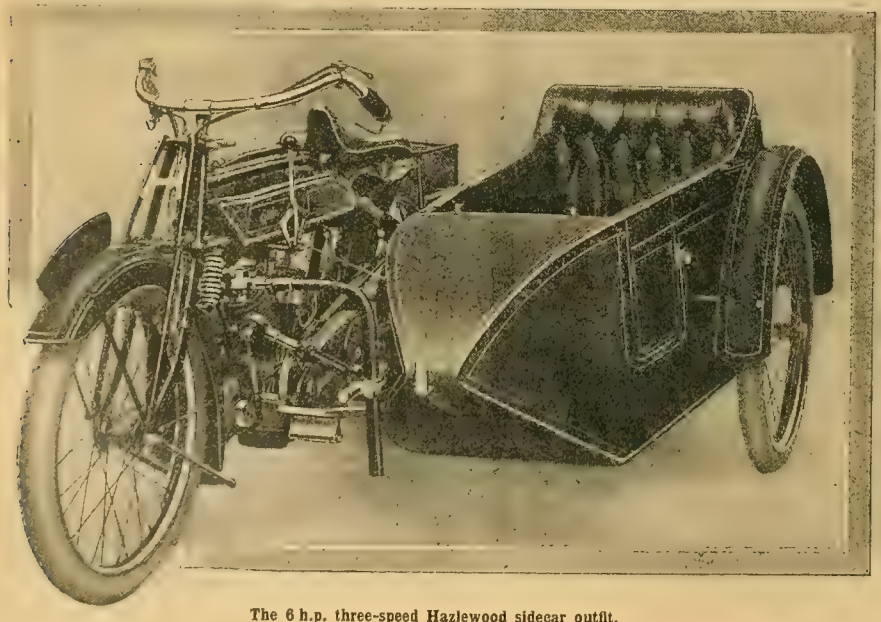
THE COSICAR TWO-SEATED SIDECAR.

A sidecar on novel lines is being marketed by the Ram-Car Manufacturing Co., 10, Gun Street, Ancoats, Manchester. A feature of this sidecar is the provision of two seats, the second seat being suitable for a fair-sized child,



The Cosicar, which is made by the Ram-car Co., and has a child's seat in the inside.

and made by curving outwards the inside panel of the sidecar. Should it not be required for passenger service the seat can be detached, and it then provides admirable space for carrying parcels.



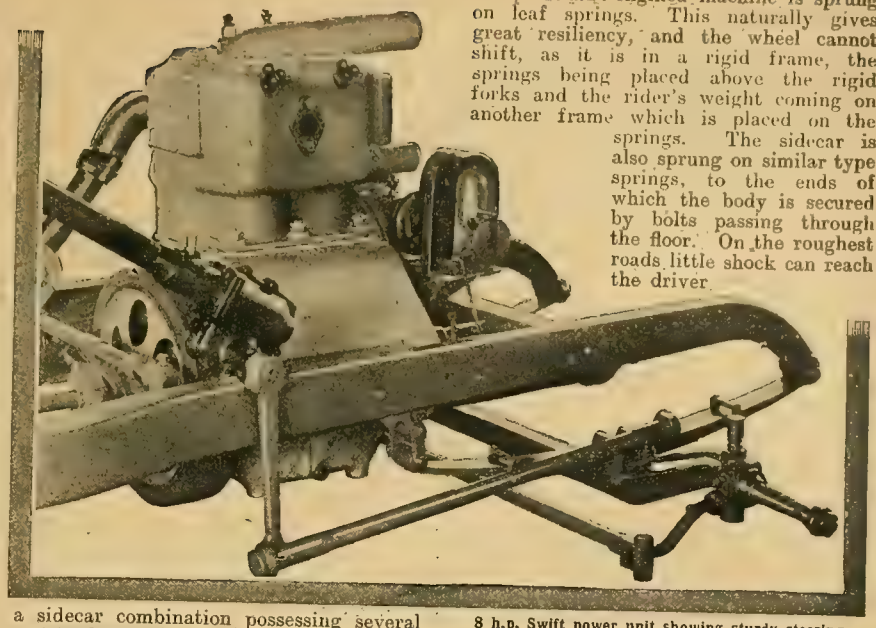
The 6 h.p. three-speed Hazlewood sidecar outfit.

SWIFT CYCLE CAR.

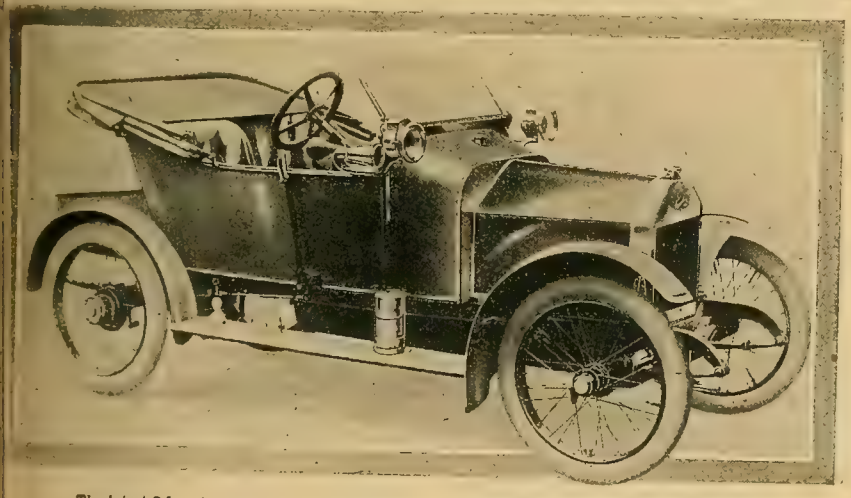
The Swift cycle car for 1913 has proved itself an admirable little vehicle, but it will hardly be recognised in its 1914 guise, so many and varied are the alterations and improvements effected. The tubular frame gives place to a substantial one of pressed steel, and the whole appearance of the machine gives the impression of far greater strength than the 1913 model. The engine remains the same, a twin-cylinder, water-cooled, 75×110 mm. bore and stroke. The gear box affords three speeds and reverse, and is actuated by a gate change. Ball bearings are extensively used throughout this cycle car, and an excellent feature is the provision of a five-gallon petrol tank, while the coachwork is very smart, being finished in grey with green leather upholstery and brass finish to the bright parts. The seats are slightly staggered to allow greater comfort for the passenger. The whole machine is exceedingly attractive in design, and the price is very little in excess of that of the earlier models, being £140, with hood, screen, lamps, and horn.

WELL SPRUNG COMBINATION.

The Craven Motor Co., 116, Greenwood Road, Dalston Lane, N.E., market a sidecar combination possessing several novel features, the chief being the manner in which the rear wheel of the 9 h.p. J.A.P.-engined machine is sprung on leaf springs. This naturally gives great resiliency, and the wheel cannot shift, as it is in a rigid frame, the springs being placed above the rigid forks and the rider's weight coming on another frame which is placed on the springs. The sidecar is also sprung on similar type springs, to the ends of which the body is secured by bolts passing through the floor. On the roughest roads little shock can reach the driver.



8 h.p. Swift power unit showing sturdy steering gear and channel steel frame.

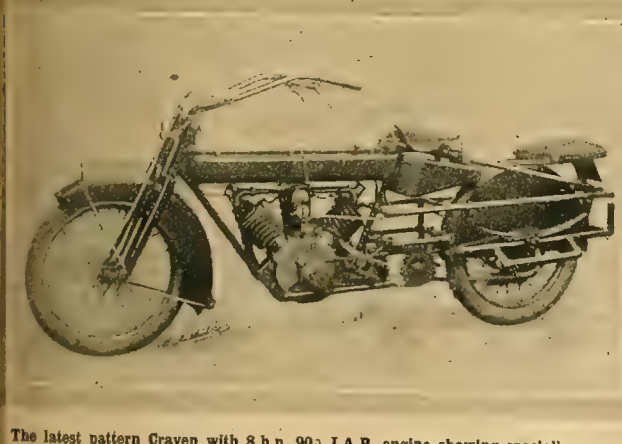


The latest 8 h.p. Swift cycle car, showing general arrangement and improved appearance.

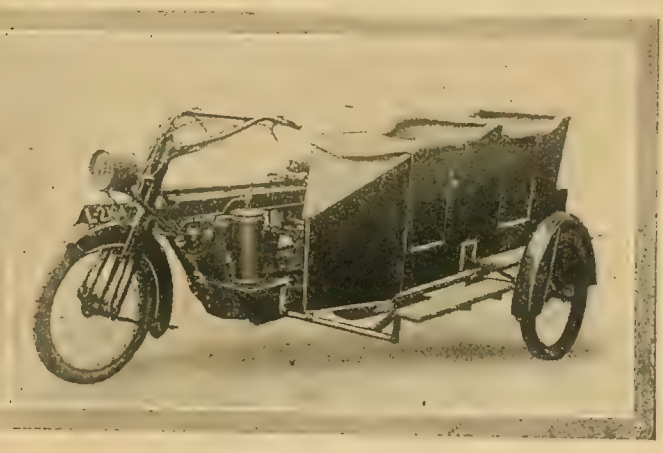
SIDECAR WITH DETACHABLE TOP.

There is no end to the ingenuity displayed by sidecar designers, and the limousine Compeer, made by the Compeer Sidecar Co., Coventry, is one of the latest types to provide complete protection to the occupant against bad weather. The top is coachbuilt, with

A neatly designed Compeer racing sidecar.



The latest pattern Craven with 8 h.p. 90° J.A.P. engine showing specially designed spring frame and chain drive.



The Craven double-seated coachbuilt sidecar outfit.

Passenger Machines of all Types.—

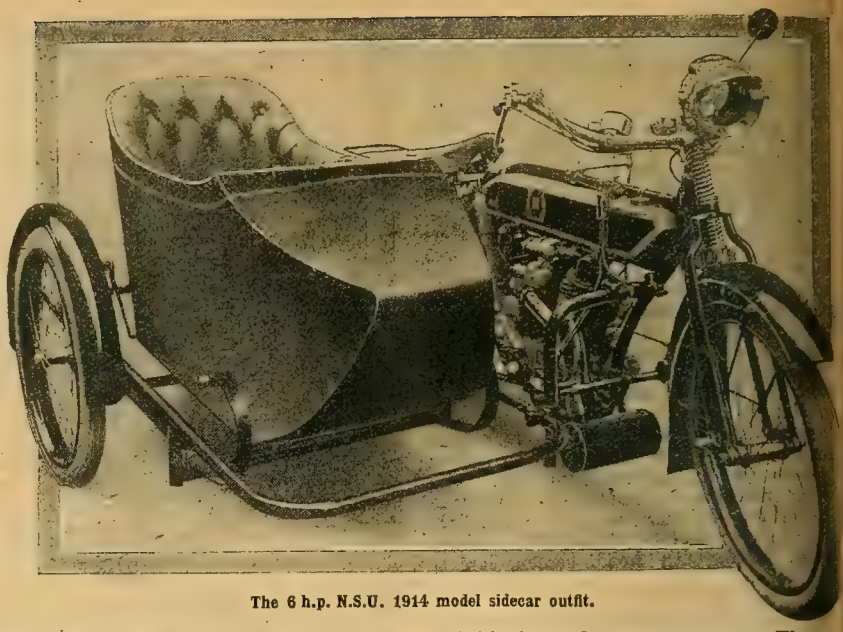
celluloid windows, the two front ones being detachable. The front is V-shaped, so as to offer as little wind resistance as possible, and is quite light.

The Compeer Sidecar Co. will market a Cabriolet model for next year with a detachable top as shown.

When removed, the sidecar presents the ordinary appearance of an open one. There is plenty of room when once inside. A member of our staff has had one of these sidecars in use during the last year, with considerable satisfaction to himself.

A LUXURIOUS PASSENGER OUTFIT.

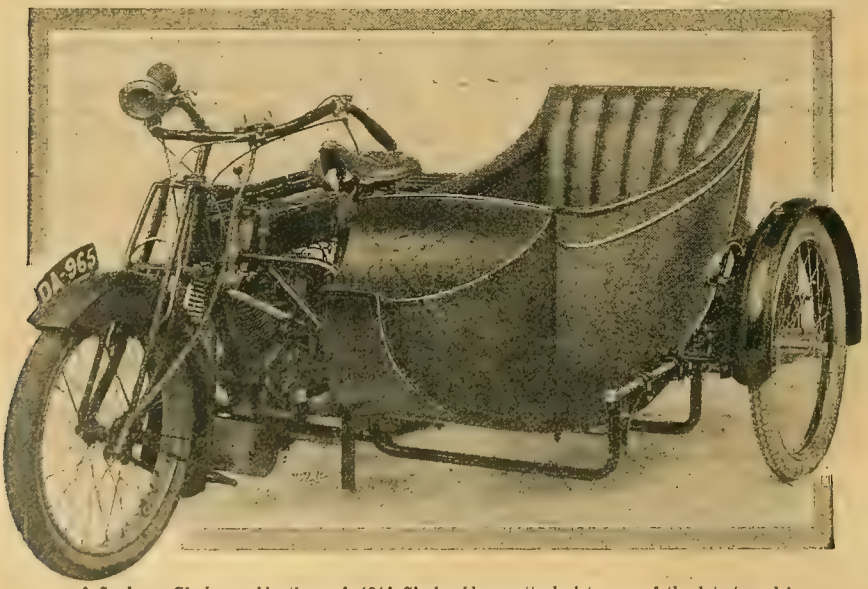
Almost instantaneous success was achieved by the 2¾ h.p. Sunbeam made by John Marston, Ltd., Wolverhampton, and next year this model will be supplemented by two others, particulars of both of which have previously appeared in our columns. These are the 3½ single-cylinder three-speed model, and the 6 h.p. twin-cylinder three-speed model. The general lay-out and design are substantially the same in both except that the front fork on the single cylinder is of lighter pattern than on the twin, the latter machine being specially designed throughout for sidecar work, although the 3½ h.p. is fully capable of giving admirable service in this direction, and the makers, in fact, in their catalogue recommend certain types of sidecar for use with it. As is generally known the Sunbeam name is associated with chain transmission enclosed in an oil bath case, and on all three models this is most neatly and completely carried out, the chains being absolutely protected from all wet, grit, and dirt, and running under the very best possible conditions. On the 6 h.p. twin model, a twin-cylinder engine of 76 × 85 mm., giving a capacity of 770 v.v. is used. To the engine is fitted a spring drive to ease the shock to the chains and gear box. The gear ratios provided are 4½, 7½, and 10 to 1. A great effort has been made to suppress as much unnecessary nickel plate as possible, and the black and gold finish is exceptionally neat and looks very handsome when combined with a sidecar finished in the same manner. The pr ductions of this firm are in every w high class, and the finish down the last bolt and nut is superb, effort being made to save cost of pr duction in any way. The result is, course, that the machines are among t most expensive on the market, but th are undoubtedly worth it, as the u of such a machine cannot help but f that it would be almost impossible him to obtain anything better.



The 6 h.p. N.S.U. 1914 model sidecar outfit.

N.S.U. PASSENGER MACHINES

The N.S.U. Motor Co., Ltd., 1 Great Portland Street, W., are mark ing a range of models suitable for side work next year. Special features these machines will be a quick detachal front wheel by withdrawing the spind mechanical drip feed lubrication, t pump being driven from the engine, a the supply being continuous, t amount of oil passed being decided by regulator which is adjustable, and t fitment of adjustable tappets. T engine employed has two cylinders, w overhead inlet valves, and two sizes engine are offered, 6-7 h.p., 74×94 m bore and stroke, and 7-9 h.p., 80× mm. bore and stroke. A three-spe gear box and clutch are provided, a chain drive is utilised. The coach bu sidecar fitted is an extremely han some one with a simple but strong fran This company have evidently laid the selves out to cater for the passeng machine class, and their latest tw cylinder models bear evidence of t most careful design throughout. excellent feature is the provision efficient mudguards.



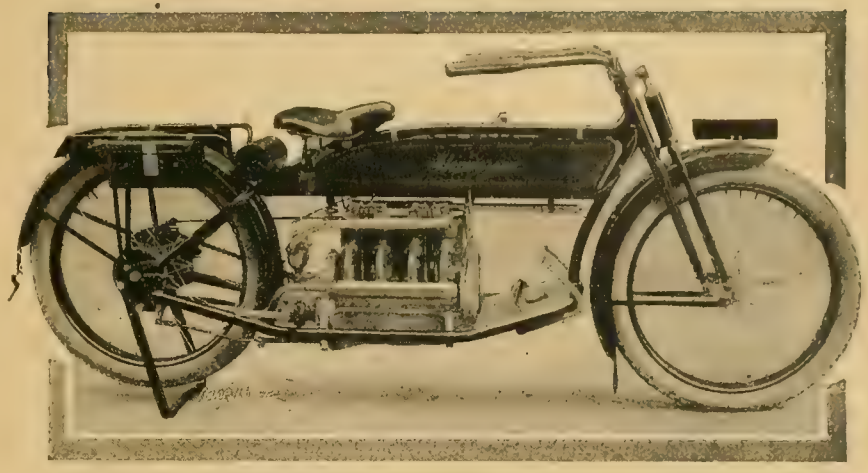
A Sunbeam-Gloria combination. A 1914 Gloria sidecar attached to one of the latest model 6 h.p. twin three-speed Sunbeams.

THE PARAGON CYCLE CAR.

The illustrations which we reprod of this little vehicle give an admira idea of its general appearance and out. The chassis that we illustrate fitted with a 90° J.A.P. engine, but future this will only be fitted to spe order, the standard engine used be

assenger Machines of all Types.—

he ordinary 50° twin, but a feature to e noted is that air or water cooling can e supplied at the same price. The ransmission is by chain to a counter-shaft nd thence by two 13ft. belts running ver expanding pulleys, but the makers laim that there is perfect grip even on ottom gear of ten to one, as even when that position the belts are still on in. pulleys, the pulley diameter for the igh gear being 9in. This, combined ith the length of the belt, should en-ure a long life for the drive. The ngth of the belt allows it to be run ery slack, and thus it is possible to dis-ense with the differential gear without ny ill effect. All engines are fitted with large outside flywheel, and a further finement is the provision of detachable heels. The whole idea of the makers, ho are Messrs. Portway and Co., anningtree, Essex, has been to pro-de a thoroughly simple cycle car, id in no way to make a "small car." he price of the vehicle is £115.



Valve side of 1914 Henderson. Observe neat silencer arrangement, kick starter, overhead valves, and general neatness.

Chassis of the 9 h.p. Paragon cycle car, showing the 13ft. belts running over 9in. pulleys, mounted on the counter-shaft.

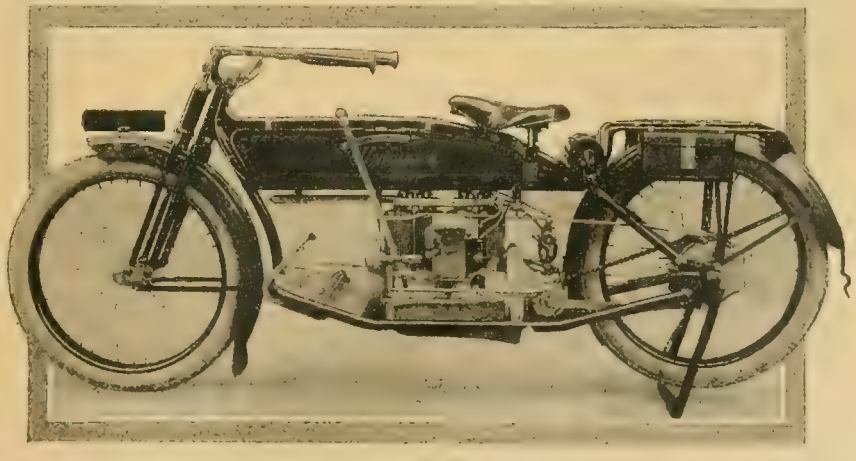
THE HENDERSON FOR 1914.

As regards the engine, the new four-inder Henderson has not undergone ny alterations. The dimensions 67×76 n. (1,085 c.c.) remain as before. White tal bearings, however, are now em-yed, the pistons are three ounces ter, and the gudgeon pins are held in in ingenious manner. A hole is drilled in e of the bosses, through which the low gudgeon pin passes, which isters with a hole in the latter. A it pin passes through the whole, and then opened out in the centre by ans of a punch, so that an absolutely ure fixing is obtained in the simplest sible manner. The timing wheels now steel. The magneto is a car e ZU4, water-tight Bosch, while the rebler carburetter is retained, and the thod in which this receives hot air worthy of mention, as it is derived m a pipe running right through the aust chamber, which latter is open its forward end. As regards the me, the saddle is now two inches er than in last year's model, and is ced in a slotted lug, so that three erent saddle positions can be obtained, ile it is also interesting to note that head is a drop forging. The tank, ich is made of two pieces of pressed el, holds three gallons of petrol, and f a gallon of oil, and the spring forks made more substantial than last year. The clutch is larger, and the plates are now ground to a mirror finish, causing it to be very sweet and gradual in its action.

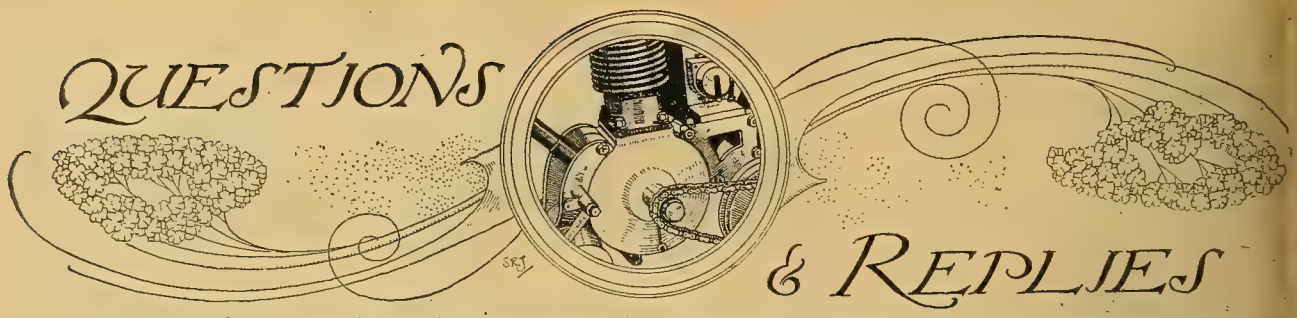
New Two-speed Gear Box.

An innovation is the introduction of a two-speed dog clutch type of gear incorporated in the back hub, and enclosed in an aluminum casting, visible in the accompanying photograph on the near side of the machines. Both clutch and gear are controlled by two long levers working in a common quadrant. Despite the fitting of the gear the back wheel is exceedingly accessible. Yet another improvement is the fitting of a larger band brake to the rear wheel, while it may be mentioned that the front hub is wider, and that stronger spokes are fitted. The control is effected by means of twist handles, works very easily, is quite positive, and delightfully simple. The cylindrical box noticeable in the photographs behind the saddle is a neat form of tool box, which is very popular in the States, and in addition to this two strong English tool bags are fitted. while yet another English fitment is a large front rim brake, not shown in the photographs. A small detail improvement which is worthy of mention has been effected in the design of the starting handle, and enables the latter to be engaged at four points instead of two, as formerly.

Owing to its flexibility, smooth running, and power, the Henderson, which is sold by Messrs. Robertson's Motor Agency, 157, Great Portland Street, W., is a machine which is highly suitable for sidecar work. Indeed, the Henderson is nearly a car on two wheels, with its cycle car size motor.



Transmission side of the four-cylinder Henderson, showing gear control, magneto position, and chain drive.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Taunton to Ludlow.

Would you kindly tell me the best route with distance from Taunton (Som.) to Ludlow (Salop), avoiding large towns?—W.O.S.

Your best route is Taunton, Bridgwater, Highbridge, Bristol, Gloucester, Tewkesbury, Worcester, Tenbury, Ludlow. The approximate distance is 130 miles.

The Life of Magnets.

I shall be obliged if you will kindly answer the following questions. (1.) How long does a magneto last before requiring remagnetising? (2.) Do the magnets deteriorate at the same rate while not in use? (3.) Can you recommend a reliable firm who would remagnetise the magnets, also the approximate cost of same?—H.D.

(1.) Provided the armature is not withdrawn from the channel in which it runs the magneto will last practically an indefinite period without requiring remagnetising. (2.) No deterioration of the magnets takes place when the machine is not in use. Of course, they gradually lose their magnetism, but the rate of loss is so low that it is not appreciable. (3.) The best people to apply to, if the magnets really require remagnetising, are the makers of the magneto. If you send us the name on your magneto, we can give you the name and address of its makers.

Running into Sheep at Night.

Whilst riding my motor cycle one evening lately, I encountered a flock of sheep. It was quite dark at the time, and although the drover said he shouted, I did not hear him. I was travelling about fifteen miles an hour at the time, and my acetylene lamp was lit. The drover had no light, and I had absolutely no room to pass. The consequence was I ran into one of the sheep, and the machine fell on top of it and injured it, and it subsequently died. I may mention that I also seriously damaged my machine. I shall be much obliged if you will kindly let me know—(1) If I am liable for the damage done, and can the owner sue me for the price of the sheep? (2) Ought the sheep not to have been turned off the road before dark; and (3) can I claim for the damage done to my machine?—D.T.R.

We have submitted your query to our legal adviser who replies as follows: "As regards query 1, this all depends upon the evidence. It is quite possible that a judge or jury would hold that on a dark night fifteen miles an hour was too fast, and that your correspondent ought to have been going at such a speed that he could pull up in time to prevent colliding with the sheep along the road. As regards query 2, a drover has every right to drive his sheep along the road after dark; and as regards query 3, it is quite certain that your correspondent would not be able successfully to claim for any damage done to his machine."

Gravesend to Bournemouth.

I should be much obliged if you will let me know the best road from Gravesend to Bournemouth. I wish to avoid big towns and long hills as much as possible.—F.E.J.

Your best route is as follows: Wrotham, Borough Green, Westerham, Redhill, Reigate, Dorking, Guildford, Farnham, Alton, Winchester, Romsey, Ringwood, Christchurch, and Bournemouth.

Removing Tar Stains.

I am now taking down my machine for an overhaul, and should esteem it a favour if you can suggest any means by which the lumps of tar may be removed from the enamel without damaging the latter.—S.E.P.

Tar is very difficult to remove from enamel without leaving a mark, but probably the best way is to use butter

Fitting Accumulator and Coil.

I have fitted a new tank to my motor cycle, and am now writing to ask you the best position to fit an accumulator and coil. Formerly there was a apartment in the tank for them, but the new tank is only for oil and petrol. Would it be satisfactory to fit the on top of the silencer?—F.B.

On the top of the silencer is rather a bad place to fix an accumulator or dry battery, even if the battery be contained in a metal case, owing to the heat dryi

A FAMILIAR SIGHT.
On the road during the forty-mile speed judging test promoted by the Doncaster A.C.

up the accumulator. Why not fix a metal case on the front of the steering fork above the front mudguard. You can obtain a leather case lined metal for this purpose from most of the big accessory dealers.

An Insurance Query.

I should be obliged if you would give me your opinion on the following: While riding my 3½ h.p. machine I had a heavy sideslip in rounding a corner too quickly on a muddy road. I then found that, in addition to the usual bent footrests, etc., the engine was jammed. I dismantled the cylinder by the roadside, and discovered that a piece of metal, attached to the top of the connecting rod for lubricating purposes, had been knocked out and fallen on the top of the crank case, thereby breaking pieces off all round the bottom of the piston and scoring the cylinder. After taking out the broken pieces of metal I was able to ride the machine home. The machine is insured against damage caused by sideslip, but the underwriters refuse to pass the claim for damage to the engine, stating they "are quite convinced that the damage to the engine was not the direct result of the sideslip," and they said they considered it more probable that the mechanical defect caused the sideslip. Although, of course, the piece of metal might have fallen out later, I think it is highly probable that I could have ridden many hundred miles further before it happened if I had not had a sideslip. (1.) Do you consider I have a reasonable claim, or are the underwriters justified in repudiating liability in this manner? (2.) It is, of course, possible that the underwriters do not believe my statements, but in this case who can decide the question?—R.H.B.

1.) We consider you have no reasonable laim against the underwriters, as the amage to the engine could not possibly ave been caused directly by the sideip. (2.) We think you must abide by he decision of the underwriters, as they re within their rights in refusing to ay the claim under the circumstances, - it is quite reasonable to argue that ie part mentioned which dropped off ie top of the connecting rod and used the damage would have dropped ff sooner or later with or without a deslip.

Difficulty in Starting a Twin.

I should be much obliged if you would help me in a little matter concerning my 6 h.p. Royal Enfield. It has now run nearly five hundred miles, and from the very first it has been extremely difficult to start. I always inject a little petrol in the compression taps, flood the carburetter, and then turn the starting handle as fast as I can, first with the valves lifted, and then with them down. I have tried all sorts of different mixtures, with the spark advanced and retarded, etc. I also use the half compression device that is fitted. The machine runs exceedingly well, and is very powerful on hills. Also it starts fairly easily when hot, but sometimes when it is cold I turn for about a minute with no result. The compression is high, but sometimes I can revolve the engine with the valve lifter down. The plugs are all right and spark well. I have just taken the carburetter down and find that it works well. The magneto I have not touched, except for putting a little oil in occasionally.—H.C.C.

It is difficult for us to say what is the matter with your machine without personally examining it. See if the valve lifter allows the valves to seat properly; also clean the magneto contacts with petrol; clean the sparking plugs and set points closer if necessary. See that the injected petrol really reaches the cylinder. Let your hand partially cover the air inlet of the carburetter, and if the engine starts more readily, it points to the fact that a smaller adapter is needed.

Excluding Grit from Engine.

I should be obliged if you would give me advice on a certain point. I have an idea that the life of motor cycle engines would be considerably lengthened if a suitable apparatus was fitted which would prevent any road dust or other destructive material from finding its way into the working parts. A motor cycle, of course, does not lend itself well; but in the case of a cycle car it would be an easy matter to find a space capable of taking a box, say about one cubic foot in size. One side of this box would be coupled up to the air supply of the carburetter, and the opposite side would preferably face the direction of motion. Inside the box a frame work would be provided, which would be covered with suitable cloth arranged so as to get as large a surface as possible, all air, of course, having to pass through the cloth before entering the engine. Of course, this cloth would have to be renewed or cleaned occasionally, but this should not be any great objection. —J.J.

There is no doubt that the life of all engines would be considerably lengthened if no dust or dirt were drawn into them through the inlet pipe, but your suggestion is not a novel one, as we used a contrivance on a motor bicycle about two years ago, which was sent us by a Northern reader. This consisted of a cylindrical case, which was attached to the carburetter, and through which all air was drawn. A gauze was used, surrounded by a closely knitted sort of stocking. After riding the machine all the summer it was possible to detect traces on the stocking of fine dust which had been collected. The idea was illustrated in *The Motor Cycle*, but did not catch on, as it was somewhat cumbersome. Theoretically, all traces of dust cannot be arrested unless the air is drawn through water.

Biggleswade to Harrow.

I should esteem it a favour if you will tell me the best way from Biggleswade to Harrow-on-the-Hill. I do not mind hills at all.—P.H.B.

Your best route would be as follows: Biggleswade, Hitchin, Codicote, St. Albans, Elstree, Little Bushey, Harrow, Weald, Wealdstone, Harrow-on-the-Hill.

EXPERIENCES WANTED.

"C.W." (Mansfield).—6 h.p. A.J.S. and 5-6 h.p. Clyno sidecar combinations. Reliability and durability of engine, chains, and change-speed gear.

"S." (Perthshire).—Senspray or other carburetter on Douglas. Power, petrol consumption, and starting.

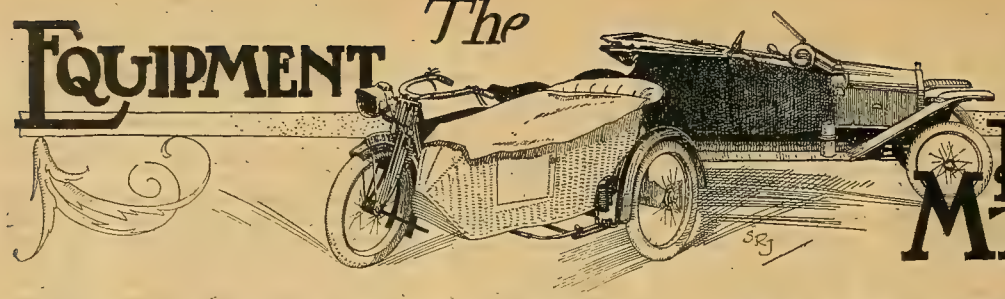
"H.S.L." (Chatham).—Voltalite lighting dynamo. Power of light and durability.

"H.A." (Melbourne).—1913 7 h.p. Indian. Power, durability, and general reliability.

"L.C." (Heathfield).—Standard Connaught single gear, hill-climbing, wear, lubrication, and petrol consumption. Brampton variable gear, with 3½ h.p. single cylinder; especially belt wear and effect of dirt, water, etc.

A group of ten Sheffield motor cyclists who are all mounted on Norton machines.

The Equipment of Passenger Machines



AS a really powerful and up-to-date passenger outfit is likely to cost the best part of £100, or even more, it obviously deserves good accessories, and they should be chosen to match it, if the complete equipment is to look harmonious. I have a great weakness for grey enamelled tubing and coachwork, set off by black oxidised metal fittings. Nothing looks so smart, and nothing is so easy to clean, but it is not a simple matter to obtain a full kit, including hooter and speedometer, in the black finish, so that a certain amount of nickel plating must be tolerated. Nickel and black and grey make a very pleasing *tout ensemble* indeed, and the lamps and generator at least should be oxidised. A mixture of brass and nickel finish looks abominable, with the possible exception of machines enamelled vermilion, like the Indian, a colour which, I think, suits brass better than nickel.

Fittings which are Necessities.

The prime necessities are those which have to do with the safety of the passengers; the secondaries are those which concern comfort. In the first-class, as a bulb hooter does not carry far, and as an exhaust whistle needs some auxiliary support in case of trouble, an electric alarm is desirable; two good lamps are essential. The side lamp should be mounted on a kinked bracket at the extreme edge of the sidecar, and should have a lens emitting short broad rays to light up the edge of the road only, while the head lamp should have a long distance ray. Dissolved acetylene is the best no-trouble illuminant; failing this, it is sensible to prefer two small generators to one large sample, and to carry a short Y of brass tubing, so that one generator can serve both lamps in emergencies. A red reflex mirror is a *sine qua non*, for special service when the outfit is stationary on the road after dark. Turning to comfort, a foot muff for the passenger is an excellent investment at this time of the year, and the rug should be both wind and waterproof—ordinary railway rugs are almost useless. Men generally prefer a storm apron, with a neckhole, to a hood and screen, but ladies dislike being blown about, and the machine that is intended for their use should have a hood and screen if the engine is big enough to do the requisite pulling.

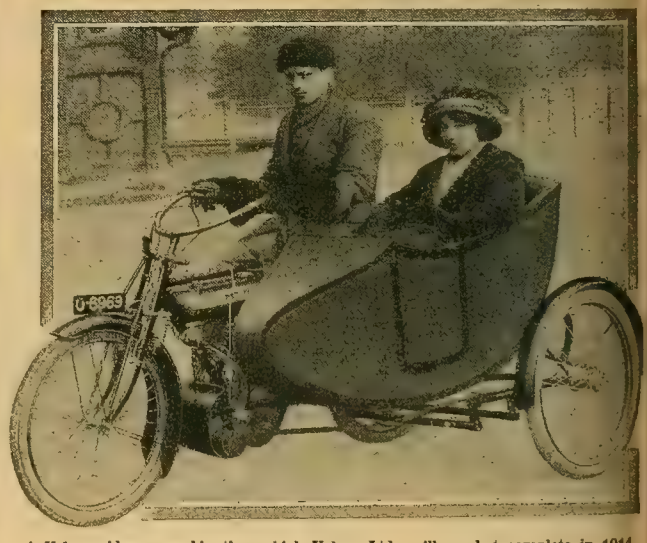
And those that are Luxuries.

All the above are obviously requisites. Proceeding into the sphere of luxuries, we must name a speedometer first. It is practically essential to the tuning of an engine and also to fuel economy, while it is simply invaluable in route finding, as it indicates the distance to a turning which looks obvious on a map or in a route book, but has to be sorted out of a dozen tempting roads in actual travel. A clock is almost as helpful. A handle-bar mirror is desirable, especially when the driver is inclined to be absorbed in a fair passenger. Some provision should be made for damping the oscillations of a sidecar when it is driven empty. The smartest tip is to fit two metal hooks on the chassis, and procure a broad strap or band of webbing with hooked ends of just the length to keep the chair low and steady; some provision in the way of tiny fenders to prevent the strap scraping off enamel is desirable, and two wee L-shaped brass plates will be found to wear best; these special fittings take a little trouble to arrange, but their benefits are great on a solo trip.

A luggage grid astern is essential for touring, and if the makers have been oblivious of this need, any cycle dealer who does a bit of brazing will rig one up cheaply when his men are slack in the winter. In its design the spare petrol can should not be forgotten, and brazed pegs or clips, to prevent straps shifting, are worth inclusion.

The Carriage of Tool Kits.

In the matter of tool and spare part storage, I am all against chucking a mixed assortment into a locker under the seat. They may be carefully packed once or even twice, but the day is sure to come when a hot and weary driver, hours behind time, throws them all back anyhow. I always use something in the way of a small attaché case for the tools, rolling them up in big soft dusters. If the locker is big enough to accommodate the case, so much the better; otherwise it will repose comfortably under the passenger's legs. The objection to big tool rolls is that they



A Veloce sidecar combination which Veloce Ltd., will market complete in 1914.

The Equipment of Passenger Machines—

seldom possess padlocks, and there are so many light-fingered gentry in the average garage.

Some kind of jack is useful with all types of passenger machine, but jacks are awkward to store. For sidecar work a special stand, permanently attached to the chassis, is infinitely preferable, and the market furnishes several cheap and efficient examples. For cycle cars a jack is better. One rider of my acquaintance has a wooden jack, made of two short pieces, hinged amidships, unfolding into an L, and strutted open by a third loose piece of wood, abutting against two stops on the arms of the L. Another uses a light car jack, which is fixed well forward under the scuttle to the footboards by a screwed bolt which threads through a hole in the jack-foot, and is secured by a wing nut. All passenger machines can and should carry big tyre pumps; a motor bicycle size pump is a sickening instrument for the inflation of large tyres. On cycle cars the pump is best stored in two clips fixed to the front board of the locker under the seats. Don't forget to carry at least one full-sized tyre lever.

It is foolish to use the leather pockets on the door of a sidecar or cycle car for permanent storage; theft is inevitable. On many machines it is possible to fix up a tiny unostentatious wallet, *e.g.*, under the scuttle of a cycle car or under the "lid" of a sidecar; in this should be kept the small items which ought to be handy, and which are bad for pockets, viz., a petrol injection squirt, a grease gun, a spare plug, a small King Dick, or a pocket tool kit containing half a dozen small instruments. Such a wallet will save many a reluctant visit to the main tool storage.

The storm-proof garb—probably high-grade oilies—should be furled into one big tight roll when dry, and either strapped on the carrier or used as a passenger's foot stool, or stowed under the passenger's legs. Oilies should be kept in a case. When they are once wetted they should not be repacked until they have been thoroughly dried. They will dry on the riders' persons in a few miles after a storm has terminated, or they can be hung up at the garage during the night; but they must not be rolled up till they are bone dry.

A roomy outfit should spare a corner for a tiny mat on which the mechanic in chief can kneel or squat during roadside repairs to the salvation of his clothes. A small square of lino, normally stowed under a seat cushion, takes some beating; others prefer a cocoanut mat, which saves the passenger's feet from damp and vibration.

ROAD RIDER.

TWO-HUNDRED MILES RELIABILITY TRIAL AT THE CAPE.

(1) On Roolhoogte. D. Garlick (6 h.p. Enfield sidecar) climbing the mountain pass.

(2) Preparing for the homeward journey. W. H. Easton (7 h.p. Indian sidecar), who gained third place, is seen in the foreground. (See "The Motor Cycle" last week, page 1427).

(3) R. C. Woodville (four-cylinder F.N.) pushing through one of the many streams.

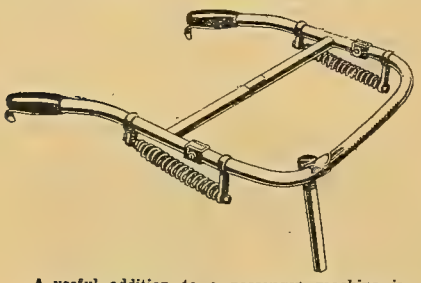
(4) Early arrivals at Villiersdorp, the luncheon stop. O. J. Prillevitz (6 h.p. Enfield sidecar) is seen studying the map for the return journey.

(5) W. Herbert (6 h.p. Clyde sidecar) passing through the Worcester district. He ultimately secured second place.

In the following pages we illustrate and describe a selection of accessories, mostly specially applicable to passenger machines. "The Motor Cycle" Show Report Number (on sale while the Exhibition is in progress) will contain a special section devoted to the accessories exhibited.

A Shock Absorbing Spring Handle-bar.

The Sphinx Manufacturing Co., Bradford Street, Birmingham, are marketing a spring handle-bar, the general working of which is apparent from our sketch. One of the features of this handle-bar is the substantial way in which the moving joints are made, and there should be no

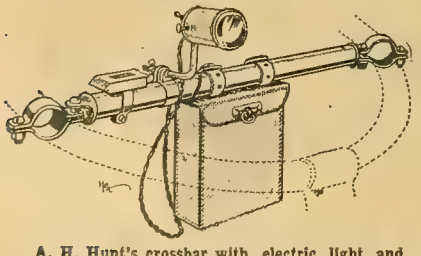


A useful addition to a passenger machine is a spring handle-bar, of which a very novel type, made by the Sphinx Manufacturing Co., is shown above.

suspicion whatever of side play, the handle-bars moving in a small arc. The bars are supported by a strong central tube which should go far to protect them in the event of a fall, and at the same time would be extremely useful for fitting a speedometer, lamp bracket, etc. Any type of grip can be fitted to these bars, and the standard bars supplied have a neat inverted grip.

Instrument Lighting Set.

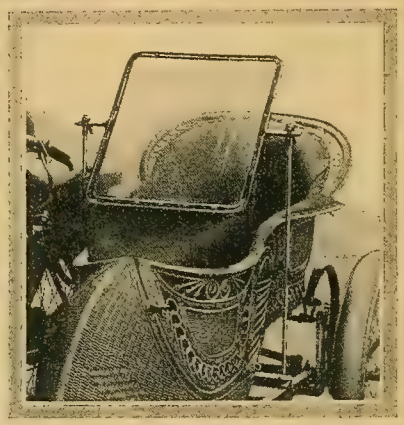
A neat little set is sold by Messrs. A. H. Hunt, 115-117, Cannon Street, E.C., for attaching to handle-bars of motor cycles to enable route cards, watches, speedometers, or such like fittings to be easily read at night. This set consists of a cross bar which can be fitted across the handle-bars inside the curve, the ends of the bar being adjustable and fitted with clips to take any size handle-bar.



A. H. Hunt's crossbar with electric light and H.H. battery for reading the speedometer and route card, etc. The H.H. match-box holder will also be noticed.

On this cross bar is mounted a small inspection lamp, together with a battery in a leather case which is suspended on two straps to the cross bar. A further refinement on this fitting is the provision of a matchbox and striker, which should be greatly appreciated by motor cyclists who ride much at night, as it is frequently a difficult matter to get at matches when wrapped up in thick overalls. The whole set is extremely neat, and adds practically nothing to the weight of the machine.

Among the many new interesting accessories which Mr. A. H. Hunt has introduced for motor cyclists is an ingenious form of valve lifter, which possesses the advantage of being extremely simple and very light. It consists only of four parts, is very powerful in action, and possesses the additional attribute of remaining in position when extended to its fullest limit.



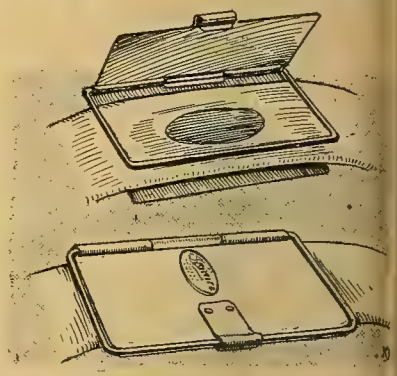
A useful accessory for passenger machines, the sidecar wind screen, made by Bluemel Bros. of Wolston, Coventry.

Adjustable Wind Shield for Sidecars.

The firm of Bluemel and Bros., Wolston, near Coventry, have a world wide reputation for celluloid tyre pumps and such like fittings, and they are now marketing an exceedingly neat sidecar wind screen. The screen is supported on two adjustable nickel-plated tubes, which are secured to the sidecar itself, whilst the screen may be adjusted at any angle and raised or lowered within a wide range of movement. The gap between the lower part of the screen and the sidecar is filled in by a leather curtain, and the screen itself consis of a very neat metal frame enclosi a sheet of celluloid. The whole atta ment is exceedingly rigid and al pleasing in appearance.

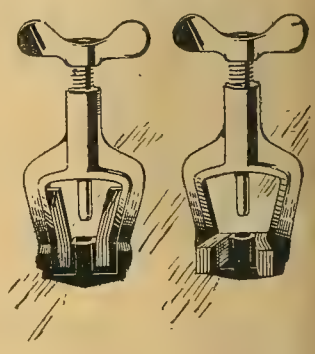
A Neat Patch Fixer.

The Service Co., Ltd., 292, High H born, W.C., are marketing a neat lit device for ensuring the proper adhesi



The Service Co.'s patch press.

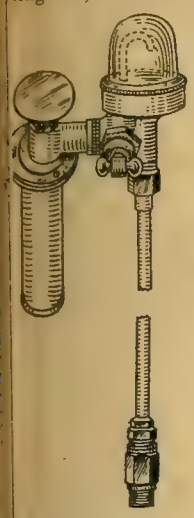
of patches to tubes. Many motor cycli will have experienced the difficulty th is sometimes in getting a patch to evenly on a tube, and to obviate this t Service Co. have brought out a sm metal clamp, somewhat in the form a very thin pocket book. One half the shield is slipped under the tube a the upper part is then clamped down a fastened with a snap lock, thereby suring a perfectly even pressure up the patch. This accessory has t further advantage of taking up v small space in the tool kit.



Belt punch which may be adapted to any size of belt, introduced by Benton and Stone.

A Useful Range of Fittings.

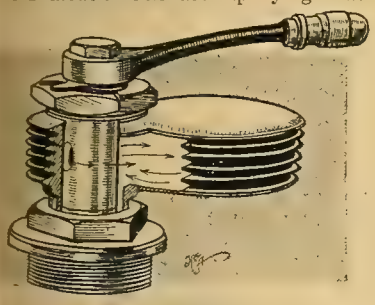
The excellence of the products of Messrs. Benton and Stone, Ltd., Birmingham, is well-known and a very large display of useful accessories will be made. Spare tyre carriers for sidecars, automatic drip lubricators with auxiliary pump, improved hinged filler caps for tanks, triple action motor cycle and cycle car tyre pumps will be shown, together with a very neat combined petrol tap, filter drain tap and two level tap, by which the rider is informed when he is getting towards the end of his supply of fuel in the tank, a fitting for which there should be a very considerable demand, seeing that it is so simple.



Enots sight feed and auxiliary hand pump lubricator.

Variable Compression Device.

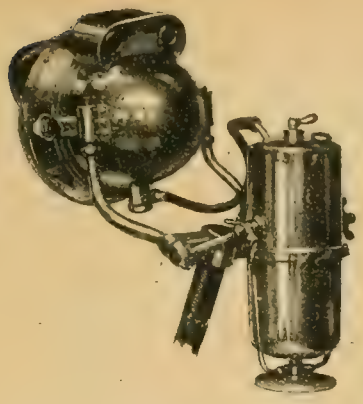
The accompanying illustration shows an improved form of decompressor introduced by Messrs. Packer and Prentis, of Ilford. It is a great improvement on the old model. The accompanying illustration clearly shows its working, and it will be seen that it consists merely of a valve cap and a decompressing chamber, the exterior of which is provided with well finished radiating fins. It is designed to fit into the valve cap, and is provided with a sparking plug thread. Thanks to the radiating fins no overheating trouble is now experienced.



Part sectional view of the P. and P. variable compression device.

Motor Cycle Lighting Outfits.

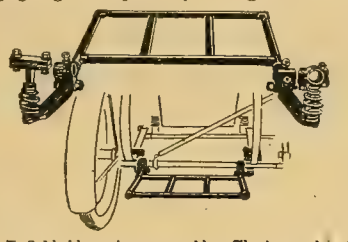
The Rotax Motor Accessories Co., 61, Great Eastern Street, E.C., make a speciality of motor cycle lighting outfits, and we illustrate a new lighting set, which, it is claimed, is specially suitable for powerful and fast machines, as the parabolic reflector projects an intensely brilliant beam of light. The generator is of the shaking grid pattern, the principle of which is well-known, and it ensures cleanliness and avoids waste of carbide. The generator is of large capacity, and will burn from six to seven hours on one charge. The complete set can be obtained either nickel plated or in stone black finish.



Rear view of the Rotax complete lamp and generator set.

The Royal Enfield Luggage Grid.

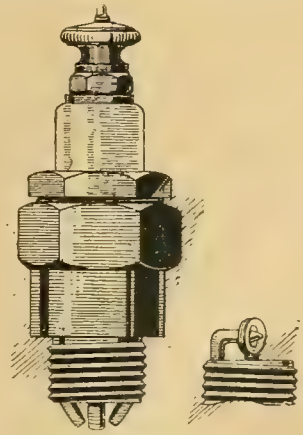
The Royal Enfield Co. have for a long time specialised in passenger outfits, and they have placed on the market an exceedingly strong and well designed luggage grid, specially designed for fitting to the 6 h.p. Enfield combination. It is designed to carry a large amount of luggage, and is attached to the sidecar chassis at four separate points, two of which are supported by springs to prevent undue shaking of the luggage. Ample road clearance has been provided, and at the price of 40s. this should meet with a large demand, especially as it can be easily attached to any existing Royal Enfield sidecar chassis by the owner without any outside assistance.



The Enfield sidecar luggage grid. The lower drawing shows method of attachment.

Forward Plugs and Belt Fasteners.

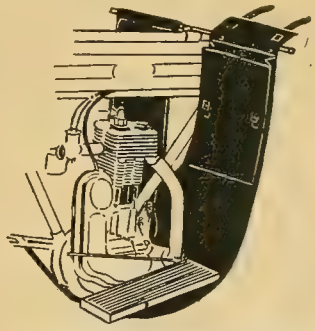
The belt fasteners and plugs made by the Forward Motor Co., Birmingham, are well known, the adjustable belt fastener in particular having gained an admirable reputation for durability and adaptability for some time past, while the Forward sparking plug sold by this firm is also well known for its ability to resist carbon forming on the points. A new model belt fastener is the Giant, which is an exceptionally strong pattern made for 1⅛in. belts. This is sufficiently strong for use on cycle cars.



Two types of Forward plugs. On the left the double point, and the right the well-known ejector type

The College Mudshield.

In winter riding it is almost essential to have some form of extra mud shield if the rider's feet and legs are to be properly protected, and for professional men this is an important point. The College mud shield, made by Beard-Brown and Co., Northampton, has for some years been a speciality of this firm, and a new pattern has this year been brought out with pockets attached to the inside of the shield, into which many useful articles may be stowed. They are even large enough to accommodate a spare pair of light overalls. These pockets have the further advantage that they can be fitted to an older pattern College shield, and these shields are also made in a variety of patterns suitable for almost every well-known machine on the market.



The College mudshield, showing pockets for spares, tools, etc.

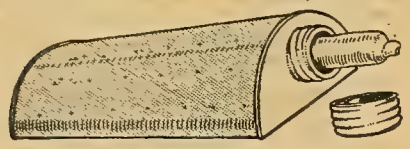
Tyres for all Purposes.

The Avon India Rubber Co., Ltd., 19, Newman Street, W., and Melksham, Wilts., who have gained a very enviable reputation with their motor cycle tyres during the past season, will show a very comprehensive selection of their products. Cycle car tyres are a speciality with this firm, and are made in various types, the Avon Combination tyre consisting of rubber and steel studs, the steel-studded and the all-rubber treads giving a wide range of pattern for this class of work. These tyres are also suitable for the heavier types of motor cycles and sidecar machines, and in addition to these, various patterns of rubber tyres suitable for machines from 2½ to 6 h.p. are marketed, as well as motor cycle belting.

The Sunstone Avon grooved tyre.

The "Capital" Foot Warmer.

Mr. Harold Perry, 101, Gray's Inn Road, W.C., has sent us a sample of an extremely handy little foot warmer for use in sidecars or cycle cars. It takes

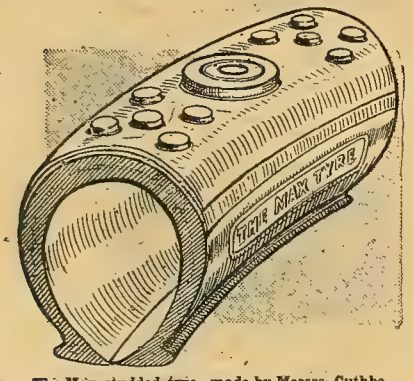


Perry's "Capital" foot warmer.

up very little space, and should be a most useful fitment in the winter months, especially as the price is an exceedingly moderate one, viz., 2s. 6d., while charcoal sufficient for about thirty hours can be obtained for 3d. a packet.

Max Tyres for 1914.

A new design of Max tyre will be marketed for 1914 by Messrs. Charles Cuthbe and Co., 37, Great Portland Street, E.C. The tyre is built up of rubber and leather, and is of special thickness. The tread is of high quality chrome leather specially prepared,

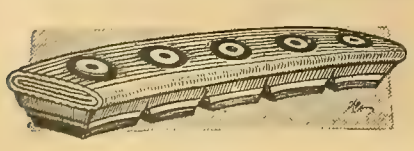


The Max studded tyre, made by Messrs. Cuthbe and Co.

through which protrude rubber discs shaped in the form of suction cups, the discs forming an integral part of the cover. Between the disc steel studs are embodied, and set close together. The walls of the tyre are of great strength. The tyre which we illustrate is specially designed for light car or cycle car use and is of 650×65 mm. section, this particular type of cover being made in three sizes, viz.: 2¼, 2½ and 3in.

A Strong Belt.

The Bulldog belt is a built-up power transmitter made by Mr. W. Pollin, Shepherdswell, near Dover. Our readers will remember that Mr. Pollin was at one time the maker of the Spalding belts. The new belt, the Bulldog, consists of a five ply of the very best and strongest Balata belting made, the under parts being built up with leather in sections, and the whole connected

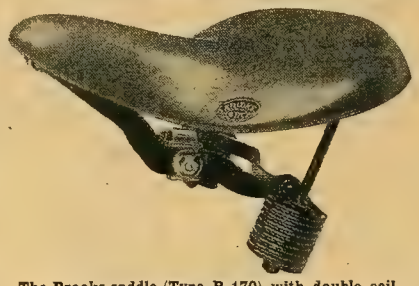


The Bulldog belt.

with bifurcated hollow rivets. The rivets have washers under the heads, which in the 1⅛in. belt measure ¾in. diameter; these support the top strand and prevent it from doubling. It is claimed for this combination that the Balata does not stretch in wet, and the leather does not slip, so that it provides a very useful spare for bad weather. The belt is made in ⅞in., 1in., and 1⅛in. sizes, and as a special inducement to readers to give it a test trial belts are offered for a few weeks at 1s. per foot.

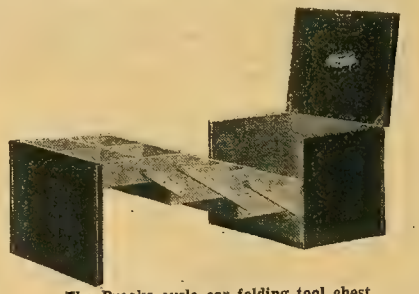
Brooks Equipment Specialities.

Wherever motor cycles are ridden the name of J. B. Brooks and Co., Ltd., Birmingham is known for the excellence of their saddles, tool bags, and other



The Brooks saddle (Type B 170) with double coil suspension spring.

accessories for motor cycles. For 1914 this firm is putting two new models of saddles on the market, which will be known as the B 160 and B 210, both specially designed for lightweight motor cycles, and are smaller additions of the well-known B 170 and B 220 types respectively. Extreme comfort is given by these saddles, and as the speed of lightweight motor cycles is not so great as to necessitate fitting a very large saddle, these will be found all that can be desired, with the further advantage of looking neat and not too large for small sized motor cycles. The popular model B 170 will, of course, be con-

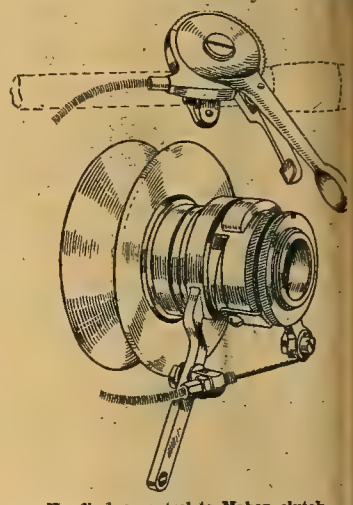


The Brooks cycle car folding tool chest.

tinued. Cycle car equipment is also catered for, and an exceedingly neat folding-up tool cabinet for fitting to the footboard is being marketed. This is a miniature edition of the well-known cabinets provided for use on large cars, and is one of the most useful accessories it is possible to fit. Trunks made to almost every shape and size for fitting to the footboards or luggage grids of cycle cars or sidecars are other specialities of this firm, and a point to be noted is the really excellent finish of even the smallest accessory turned out.

Mabon Gears and Clutches.

For many years the Mabon var gear, providing eight speeds and engine, has been favourably known, ratios of about 4 to 1-7 to 1 for and 5 to 1-8 to 1 for sidecar can be obtained. A feature of the is that the belt is always at co



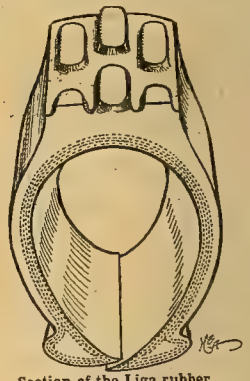
Handle-bar control to Mabon clutch.

tension, and the price is mode Mabon Motor Works, 54, High North Finchley, N., are now in a tion to give immediate delivery.

The Mabon free engine multiple clutch is operated from the handl by Bowden wire and is fitted to engine pulley. It is exceedingly si in operation and an admirable fitti machines of the T.T. fixed engine as by its use traffic riding with a high gear is comparatively simpl

Liga Motor Cycle Covers and Tu

Liga Tyres, Ltd., 26, Portugal Buildings, Kingsway, W.C., are ducing into England for 1914 their cycle covers and tubes for 26in. and wheels. The tyres are made in sizes, 2¼in., 2½in., and 3in. The is rubber-studded, the studs bein oval shape. This firm do not inter manufactur cheap si tyre, st that so trouble is caused by a tyre bu or easily turing. ever, the m strongly r mend the × 2¼in. tyr sidecar use. walls of tyres are substantial- beads are s and the tre thick; the should, t fore, be of great durability. The which has made its name abroad, which began by manufacturing rubber tyres for commercial purpos unfortunate in being unable to obt stand at Olympia.

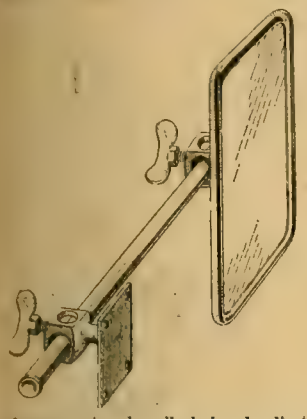


Section of the Liga rubber studded cover.

nong the Accessories.—

Some Useful Fittings.

The Priory Accessories Company, Coventry, are marketing a wide range of useful fittings for motor cycles and cycle cars. A good range of lamps of all patterns is listed, and a neat motor cycle



A very neat and well designed adjustable mirror for fixing to the dashboard of cycle cars. Sold by the Priory Accessories Co., Coventry.

oil lamp finds a place in the list. An excellent mirror for the dashboard of a cycle car should meet with much appreciation as it is well made and has a good glass area. It is adjustable within wide limits.

A useful accessory—the Priory Accessories Co.'s valve spring lifter.

Lucas Lamps.

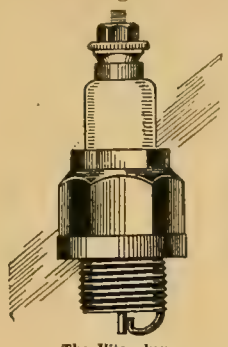
Joseph Lucas, Ltd., Birmingham, will exhibit at Olympia a comprehensive display of their lamps and accessories, the chief among them being the King of the Road motor cycle projector set, fitted with Mangin lens mirror and adjustable double bracket to carry the lamp and generator. This set will be shown in three sizes. Another interesting display will be a new pattern sidecar lamp, designed to throw a white light forward

The Lucas cycle car horn.

and a green light to the rear. An adjustable handle-bar mirror giving a wide range of vision, motor cycle horns, acetylene pumps, and last but not least, the Magna rear light, with which it is claimed a very wide area of light is reflected at the back of the machine, will complete a most interesting display.

Carburettors and Plugs.

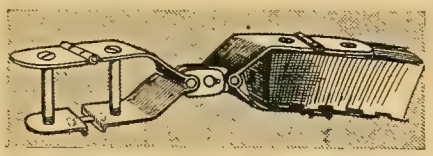
J. A. Riley, Martineau Street, Birmingham. A very comprehensive line of accessories and fittings, particularly adapted for cycle car and motor cycle requirements, are handled by this firm, and a special display will be made of certain lines exclusively handled. Foremost among these will be the Sthenos carburetter. This carburetter has been used with great success by the Swift, Belsize and Arrol-Johnston companies. The K.E.W. magneto will also be shown, and this is specially designed for use with V engines, such as those with which the majority of small cycle cars are fitted. Messrs. Riley also specialise in complete chassis sets from which light cycle cars can be built up. When built up, this chassis is designed to take a 6 h.p. engine. This firm also make a great speciality of the "Vita" sparking plug, which we illustrate.



The Vita plug.

A New Belt Fastener.

The accompanying illustration is that of a hinged belt fastener which has been provisionally protected by Messrs. Allen Bullock and Son, Stanley House, Box,

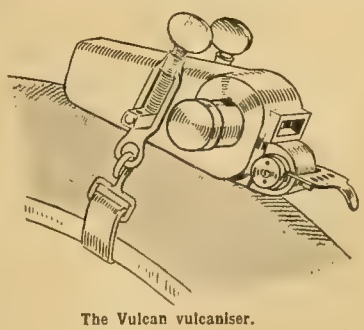


The Double Grip belt fastener.

Wilts. The fastener has a double grip by means of the hinged jaws and also a sliding joint, both of which improve the flexibility of the fastener and its gripping power. The patentees inform us that they have tested it under tremendous pressure against a number of various fasteners, all fitted in the same length of belt, when every fastener pulled out in turn, but the double grip fastener prevented all pulling out.

An Automatic Tyre Vulcaniser.

Messrs. J. Lacoste and Co., 184, Shaftesbury Avenue, W.C., are well-known as providers of many useful accessories, but probably they have never produced anything more useful than the "Vulcan" automatic vulcaniser, which is now supplied in a small size, suitable for motor cyclists' use. The great



The Vulcan vulcaniser.

feature of this instrument is that it is entirely automatic, and while it is working it is self-regulating, and requires no supervision, and thus takes up no time in watching. All that it is necessary to do is to set the instrument working, and at the required time the repair will be finished. An enormous number of these instruments have been sold, and are giving satisfaction. They occupy little space, and can be quite easily carried about in a sidecar while touring, without taking up too much room.

Service Passenger Clothing.

The Service Co., High Holborn, W.C., are specialising in some very smart and up-to-date clothing. Among the items shown to us are a lady's coat, hood, and leggings. The outfit, of course, is intended for lady motor cyclists who ride motor bicycles or drive sidecar combinations. The chest protectors in green leather lined with lambs' wool are not only a good protection from the cold, but

Service Co.'s leather waistcoat for ladies' wear.

neat and attractive. We illustrate one herewith, showing how it is worn by lady motor cyclists. The simplest form fastens over the chest by push fasteners, and hangs down the back for a distance of 4in. The other type passes over the chest and has no back collar; two bands fit over the shoulders and under the arms, and fasten by push fasteners in front.

Another item which was shown to us was a pair of leg overalls made of Cape cart hood material to be used when wearing knee breeches. The sides are fastened by push fasteners. An extremely smart overall in Cape cart hood material, with rubber over-shoes but no heels, is the new Service seatless trouser overall. The shoe portion is very neat and is made of brown glazed rubber. Perhaps the most interesting item of all is a Poncho oilskin with storm apron combined. This measures 120in. round the skirt, and fits over the sidecar, acting as a storm apron and preventing any water from running down the back of the seat. The Poncho has a hood which protects the passenger's head gear.

Among the Accessories.—

Speedometer Drive for Indians.

Thanks to the ingenuity of Messrs. H. Taylor and Co., Ltd., 21a, Store Street, Tottenham Court Road, W.C., riders of 1913 Indians will have a suitable device for driving a speedometer without their spring forks making it necessary to employ either a complicated or makeshift device. The device is very simple to fit; the photograph is self-explanatory. The other photograph shows the indicator, which registers speeds from 5 to 60 m.p.h.

The Robinson speedometer

Speedometer drive specially adapted for the rear wheel of 1913 Indians.

The Abingdon-Ecco Belt Fastener.

This handy little accessory, made by the Abingdon-Ecco Company, Tyseley, Birmingham, possesses several interesting features. It will be noticed that the inner surfaces of the links are serrated so that the belt is firmly gripped. The spindles of the coupling pass through

The new Abingdon Ecco belt fastener.

hexagon nuts, which fit into the closed ends of the links, while the whole is secured by means of a hook which engages with a groove cut in one of the spindles. Like other products of this company, the belt fastener is beautifully made, and manufactured of the very best material.

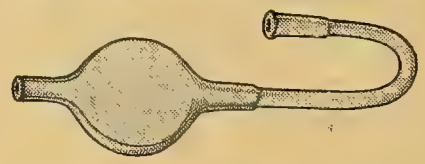
A Piston Ring Remover.

A useful little tool has been brought out by the Two-stroke Engineering Co., Harrogate Street, Otley Road, Bradford. It consists of a pair of tongs, the tips of which are specially shaped to be inserted between the slots of piston rings. When the ends are compressed these force open the rings and allow them to be removed from their grooves. The ring is pushed forward so that the ends project a little way out of the groove, and can then be expanded until it will just slip over the piston. With the aid of this tool a set of rings can be removed in a very short space of time. The Two-stroke Engineering Co. point out that in the case of concentric rings it is necessary to understand that these, when expanded, tend to take an oval shape, and to rectify this they should be held in the finger and thumb of the other hand and slightly squeezed, at the same time that the tool is used to expand them. The price of these articles is 1s. 9d.

A Tool for removing piston rings.

A Gas Bag Lamp Connection.

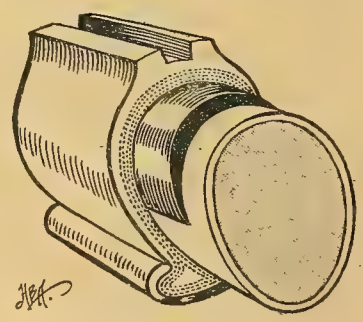
Mr. R. Surridge, the well-known manufacturer of "Holdtite" patches, has introduced an exceedingly well-made lamp connection, incorporating a



gas bag, which is beautifully made. The use of the bag is to allow a steady flow of gas. Many well-known riders use the device.

Peter Union Tyres.

Messrs. the Peter Union Tyre Co., Ltd., 190-192, Great Portland Street, London, will, during 1914, market their usual standard patterns of motor cycle covers and tubes; also a puncture-proof band; this the firm introduced some

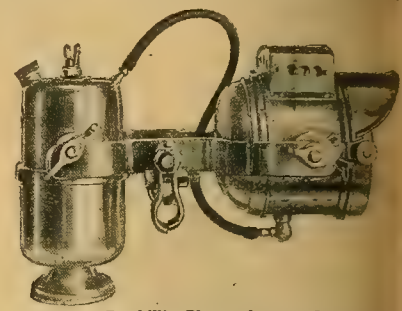


The latest pattern Peter Union motor cycle tyre, with puncture-proof band.

years ago, but it is not as popular as it deserves to be. A section of the band is shown in position in the accompanying illustration. We note with pleasure that the firm are also making covers for 28in. wheels, and have introduced a sidecar type.

Accessories at Dunhills.

A visit to Messrs. Dunhill's motor cycle department resulted in the discovery of several useful and novel accessories. The Pharos lamp is a well-made article differing from the majority



Messrs. Dunhill's Pharos lamp and generator set, which is fitted with a lens mirror behind the lamp lens front glass

of motor-cycle head lights in that a lens is fitted instead of the usual front glass in addition to a lens mirror behind the burner, which should greatly assist in concentrating the beam of light. The strong bracket and method of fixing are also worthy of note. We are looking forward with interest to testing this lamp. Those who care to indulge in carrier riding will be interested in a cushion specially designed for the purpose, made in black shiny material and provided with straps for fastening on to the luggage carrier.

Hanover Rubber Company.

This well-known tyre firm of 17, Goswell Road, E.C., are marketing a special combination three or four ply cover for sidecar use. The tread is composed of a thick layer of rubber in which are embedded steel studs in pairs and between each pair is an arrow-headed rubber projection. The cover appears to be of great strength, and should be practically puncture-proof on the tread, while the walls are of considerable thickness. This should prove very useful for the rear wheel of heavy passenger machines.

The Hanover combination tyre, which has alternate steel studs and rubber arrow headed portions.

NEXT THURSDAY!

THE MOTOR CYCLE

BUYERS' GUIDE

Of 1914 Models.

A complete report of the Olympia Show, with many illustrations, will appear in the issue dated Nov. 27th

ZENITH

MODELS *for* 1914.

3½ h.p. 70 m.m. bore x 64.5 m.m. stroke twin-cylinder engine. Equipped with all the special ZENITH fitments which have so often proved their worth, including the famous GRADUA GEAR, infinitely variable between wide limits.

"Motor Cycling," commenting on this new model, says:—"This machine, we feel sure, will have a very large vogue, as the new J.A.P. engine is one of the sweetest running small twins that we have ever experienced. On the road we found that the acceleration was terrific, and, instead of an impression of being bestride a 3½-h.p. twin, the sensations savoured more of 5-6 h.p As for its ability of pulling a sidecar, there can be no doubt whatever, although, of course, this machine is primarily intended for solo work."

The cylinders being of relatively small size, the machine can easily be paddled off whilst one is seated; its flexibility in conjunction with the GRADUA GEAR make it ideal for town and country use.

STOP PRESS.
STREATHAM & DISTRICT M.C.C.
ONE DAY OPEN TOURING TRIAL.
Acceleration, Speed, Restarting, and Reliability.
3 Non-stops. 2 Gold Medals. 1 Silver Medal. 1st and 2nd fastest time of the day at Brooklands; 1st and 2nd in Acceleration Test in 750 c.c. Class; 1st in Acceleration Test in 1,000 c.c. Class; 2nd in Acceleration Test in 500 c.c. Class; 1st in Acceleration Test in 750 c.c. Passenger Class. (Subject to Confirmation.) The 1914 Model 3½ h.p. twin Zenith with Gradua Gear obtained a Gold Medal, and did a speed of 50.38 m.p.h. in Brooklands Speeed test. (Speed required, 42 m.p.h. for this class.)

Details of the 6 h.p. and 8 h.p. Models will appear next week.

"Undoubtedly, at the coming Show, the Zenith stand will once more be a crowded spot."

ZENITH MOTORS, LTD., WEYBRIDGE, SURREY.

Country Life *is* Country Life

with

"COUNTRY LIFE"

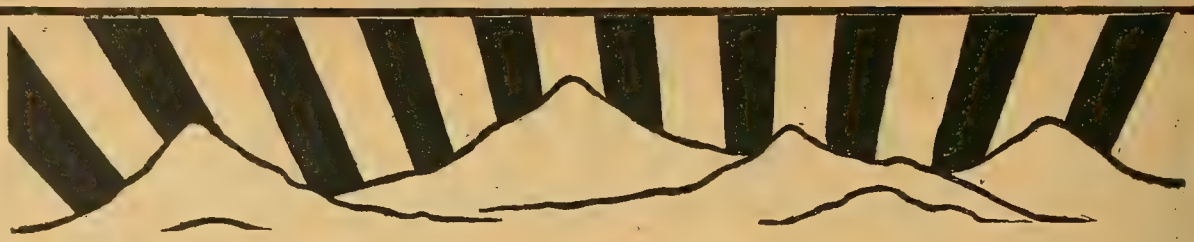
Cigarettes

(MEDIUM STRENGTH)

Manufactured from Pure Virginia Tobacco.

10 for 2½d.
50 for 1/-

JOHN PLAYER & SONS, Nottingham.
Branch of the Imperial Tobacco Co. (of Gt. Britain and Ireland), Ltd



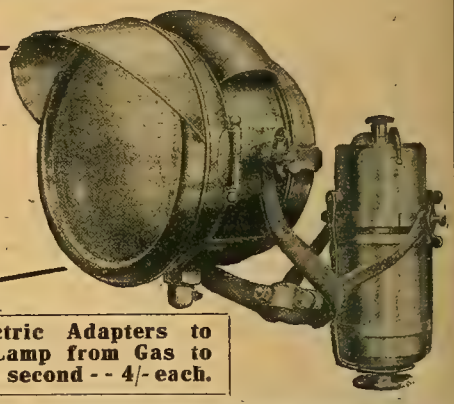
The "BEAM" which never sets.

TWICE THE POWER OF ANY OTHER MAKE.

	Lens.	Beam.	Weight.	Price.
Major	6in.	1,200 feet	6 lb.	**72/6 & 78/6**
Big 5in.	5⅛in.	1,000 „	5 lb.	**62/6 & 68/6**
	4¾in.	800 „	4¾ lb.	**52/6 & 58/6**
Standard	4¾in.	800 „	6½ lb.	**47/6**
Junior.	4in.	500 „	5¼ lb.	**42/6 & 37/6**

The lower prices are for "DRIF" Generators.

NEWSPAPER PRINT CAN BE READ AT 170 YARDS.



Latest Electric Adapters to make any Lamp from Gas to Electric in 1 second - - 4/- each.

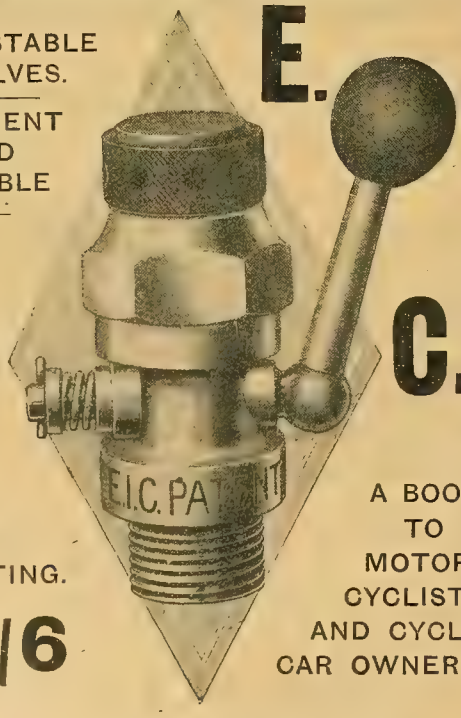
Handle-Bar Fittings for 1914. | **Complete Sets for "DOUGLAS" Motor Cycles at 32/6.**

The F.R.S. LAMPS Pershore Street, BIRMINGHAM. | London Showroom: 57, HATTON GARDEN, E.C. | Special Agents: SERVICE Co., Ltd., Holborn. ROBERTSON'S AGENCY, 157, Gt. Portland St., W.

ADJUSTABLE VALVES.

EFFICIENT AND RELIABLE

E. I. C.



FOR EASY STARTING.

8/6

A BOON TO MOTOR CYCLISTS AND CYCLE CAR OWNERS.

DECOMPRESSOR.

DEPT. C., ELECTRIC IGNITION CO. (1913), Ltd., B'HAM.
Descriptive Pamphlet on request.

This photograph shows thousands of butt ends which have been replaced by the Rich joint. Get the genuine thing in the first place and save time, trouble, and expense.
Rich Detachable Air Tube Co., Crawley, Sussex.

Don't fail to inspect the RELIABLE

ARMSTRONG

"Tourist Trophy" MOTOGEAR, at Stand 187 Gallery.

¶ MECHANICAL PERFECTION as portrayed in "The ARMSTRONG" is the outcome of pre-eminent merit in design and constructional refinement in details.

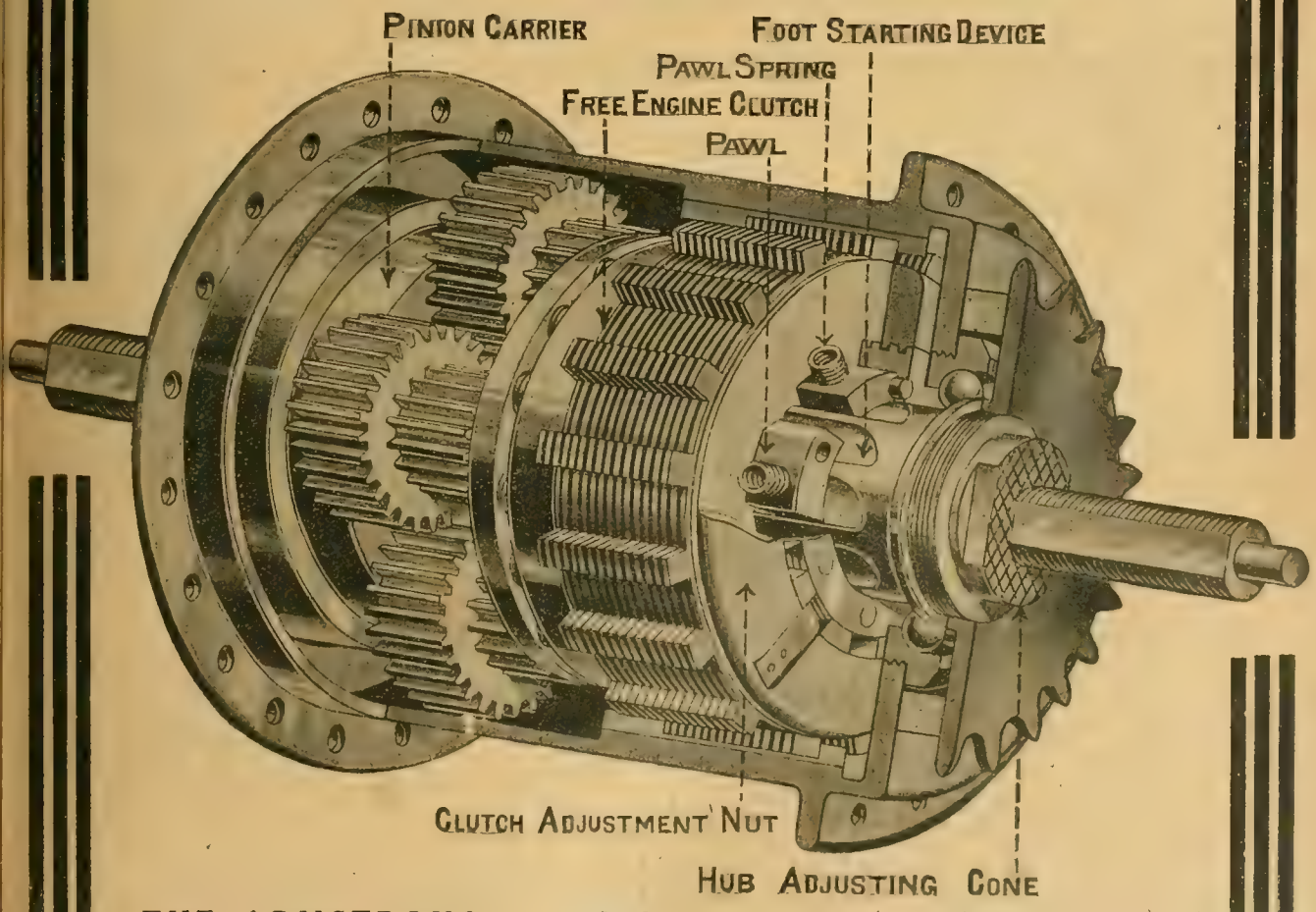
—"STRENGTH—SIMPLICITY—EFFICIENCY" is the keynote of "The ARMSTRONG" MOTOGEAR—backed by sterling "QUALITY" of materials, workmanship, and finish.

—Our sectional view reveals its working parts—those parts, it should be noted, are few, ESSENTIALS ONLY—and their fewness admits of MAXIMUM STRENGTH for each.

—By virtue of these features and the fact that it is the PIONEER 3-Speed Hub Gear, it ranks literally FIRST and BEST; and, inferentially, for its selection by all expert riders, its overwhelming successes in all competitions—with its crowning achievement in the TOURIST TROPHY RACES (winning the 1913 JUNIOR T.T.; FASTEST LAP, and RECORD TIME for the Course)— and its inclusion on the foremost machines of the day.

FIRST AND BEST

¶ FITTED BY ALL THE LEADING MANUFACTURERS!



THE ARMSTRONG 3-speed Gear Co., Ltd., BIRMINGHAM. R.H.S.

In answering this advertisement it is desirable to mention "The Motor Cycle."

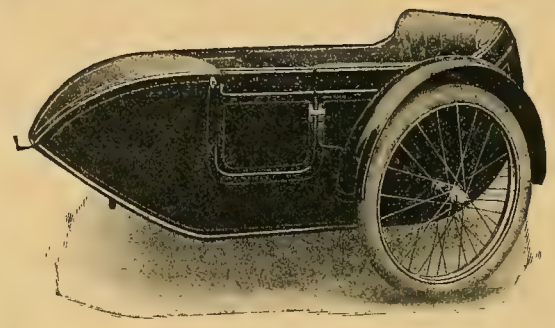
B1

Please call at STAND 132,

Olympia, Nov. 24th to 29th,

AND SEE THE UP-TO-DATE

BRAMBLE SIDECARS



The All Weather Sidecar.

THE BRAMBLE MANUFACTURING CO., LTD.,
London Road, Coventry.

Telephone: 835.

Millers make Light-givers—

have done so for 40 years — and you'll agree they know how if you visit the Miller Stand —

188, Gallery, OLYMPIA.

Will you? Will you let them demonstrate the many Miller merits and refinements—prove to you the unequalled efficiency of every Miller model—the perfect design and finish?

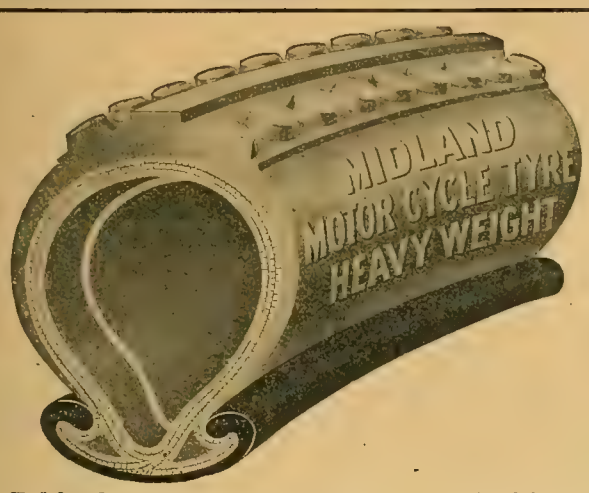
And they'll show you, too, that unique and only positive danger signal — THE MILLER MOTOR CYCLE REARLITE; and remember the red rear light is to-day demanded by the law.

If a visit is impossible write us for Catalogue.

H. MILLER & CO., LTD.,
55, Miller Street,
BIRMINGHAM.

MIDLAND

MOTOR CYCLE TYRES & BELTS



Ribbed and Studded Motor Cycle Tyre

A splendid anti-skid with a heavy centre tread of specially toughened rubber which is practically puncture-proof. A very resilient and long-wearing tyre. Guaranted 3,000 miles.

Prices: 26 × 2¼ **37/6** 26 × 2½ **40/-**

IF it is a Midland tyre it is a good tyre. That goes almost without saying: for Midlands are British—and unequalled. More miles and more satisfaction; less cost and less—far less—risk of disappointment are yours if you choose Midland tyres—and belts. Many times they have successfully helped in record-breaking trials; many times they have made wins; and always they have fulfilled every claim we have made for them. Midlands are above board—and equally above the average.

MOTOR CYCLE BELT.

⅝in. 1/5, ¾in. 1/9, ⅞in. 2/-, 1in. 2/4, 1¼in. 2/9.

SOMETHING NEW

Of the usual V section but made of rubber with a special core of steel wire of high breaking strain, coiled spirally and interwoven into a fabric, moulded under enormous hydraulic pressure. This combination of special wire fabric and rubber does away with all the disadvantages of belts made of rubber and cloth alone, and eliminates stretching and pulling through of fasteners. It is pliable, affords perfect drive, and gives large mileage.

The 'Wire-core' BELT

We are not exhibiting at Olympia but a full range of our specialities may be seen at our London West End Showrooms, 222, Shaftesbury Avenue, W.C.

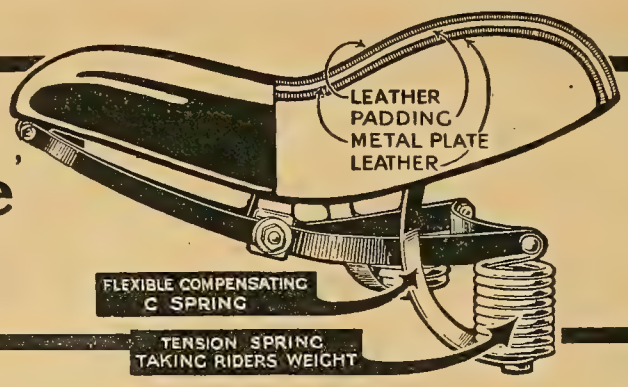
THE MIDLAND RUBBER CO., LTD.,

HEAD OFFICE AND WORKS: RYLAND ST., BIRMINGHAM. LONDON DEPOT: 31-34, EAGLE ST., W.C.

Coventry Depot: Priory Works, New Buildings. Glasgow Depot: 80, James Watt Street. Cardiff Depot: Plymouth Street.
Milan Depot: Via Sirtori 6. Amsterdam Depot: 50, Lange Leidsche Dwaars Straat.

For long driving—The new "Aero M" Recessed Ball, 2/-.

The 'Midmore' Patent Saddle



Stand 189 Olympia

See it at Olympia.

MAKE a point of inspecting the "Midmore" Motor Cycle Saddle at Stand 189 Olympia. Note the scientific compound springs that prevent all vibration and the consequent discomfort and fatigue. Feel the firm, well-padded seat that prevents all chafing and saddle soreness. Observe its splendid quality—the famous Middlemore Quality. Then you will understand why the "Midmore" is the saddle of Real Comfort.

If you cannot call, send now for explanatory folder.

MIDDLEMORE & LAMPLUGH, Ltd., Coventry.

MIDDLEMORES

DE. P. DUO. STAND 137.

THE DE P.ENDABLE CYCLECAR

4 SPEEDS AND REVERSE, COMPLETE WITH HOOD, SCREEN, LAMPS, ETC.

AIR-COOLED, **120 GUINEAS,**

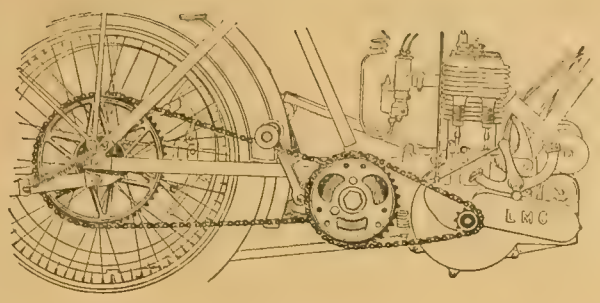
WATER-COOLED, **125 GUINEAS.**

LOOK US UP AT OLYMPIA, **STAND 137,**
AND SEE NEXT YEAR'S SUCCESS.

WRITE FOR LIST.

THE DEPFORD COMPANY, 2, EVELYN STREET, DEPTFORD, S.E.

STAND 70



STAND 70

THE STRENGTH

AND POWER OF THE

L.M.C. COUNTERSHAFT 2-SPEED GEAR

CONFIRMED

BY THE

INSTRUCTOR OF ENGINEERING OF THE SYDNEY TECHNICAL COLLEGE.

Mr. RIPP says "It is the best gear I have seen yet," and his view coincides with all other motor engineering experts.

New South Wales,
2nd June, 1913.

Dear Sirs,

I submitted the 3½ h.p. L.M.C. motor cycle fitted with the two-speed Countershaft Gear, to what I consider a severe test. I ran it over the steepest hills I could find in and around Sydney, including Forveaus Street, Ormond Street, Liverpool Street, to Darlinghurst, and the hill at the south side of Coogee, which is an impossible climb to most motor cars. The ascents were made with a passenger in the sidecar, myself driving, and on the last hill mentioned it is as well to remember two very sharp turns have to be negotiated on a very bad surface. The success and power this machine shows as a hill-climber is far and away ahead of my expectations. The old trouble of slipping belts was an impossibility, owing to the direct drive by chain on the low gear. This alone places the gear far ahead of all others.

The kick starter and decompressor are of great comfort. The rider being able to start the machine while in the seat without getting off at any time. All who have inspected this gear are most favourably impressed, and a great business should be ahead of you in this line. It is the best gear I have seen yet.

Yours truly, H. J. RIPP.

The Gear was placed on the Market two seasons ago and the number of successes standing to its credit is probably greater than any other make of variable Gear: Proof of its superiority. It is the simplest, strongest and best Motor Cycle Gear produced and, like the machine itself, is of Proved greatest reliability. See this gear and full range of L.M.C. Models at Olympia.

L M C

The Motor Cycle of *PROVED* Greatest Reliability

Write for a copy of illustrated art catalogue to day, post free, from

LLOYD MOTOR ENGINEERING Co., Ld., 132, MONUMENT ROAD, BIRMINGHAM.

Agence pour la France: Parry & Co., 28, Rue Sedaine, Paris

CALL AT STAND 127

FOR

1. Reduced price list.
2. The actual tyres used in London-Edinburgh Trial (plus 5,000 miles since)
3. Special Sporting Offer during Show.

OYLERS' Ltd

SKEW TYRES

Telephone—Mayfair 681. **35, NEW CAVENDISH STREET, W.**

BLUEMEL'S

MOTOR CYCLE

ACCESSORIES

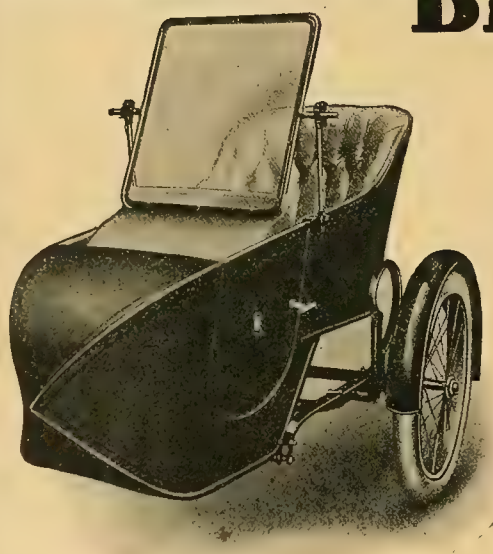
WILL BE EXHIBITED AT

OLYMPIA,

STAND 157.

We shall be pleased to see you there, and demonstrate the superiority of the Bluemel manufactures, meanwhile write for our

BOOK OF NOWEIGHTS — POST FREE. —



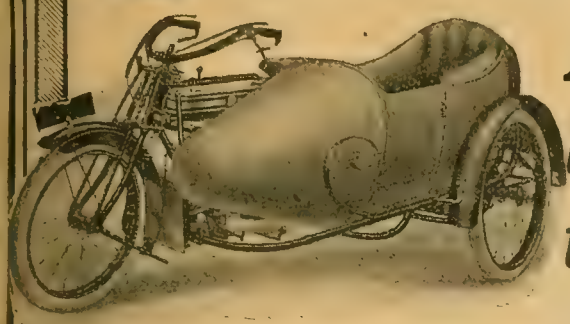
Bluemel's Sidecar Wind Screen
affords a splendid protection to the passenger against wind, rain, etc.
Swings open like a door.

Bluemel Mascot Plug with Patent Enamel Gas-tight Joint.

BLUEMEL BROS.

— LTD., —

WOLSTON, Nr. Coventry.



Are You looking for the BEST Passenger Machine?

—If so, carefully study the specification of the new type

REX-J.A.P

with Countershaft 3-speed Gear, enclosed ∴ Chain Drive, and Kick Starter. ∴

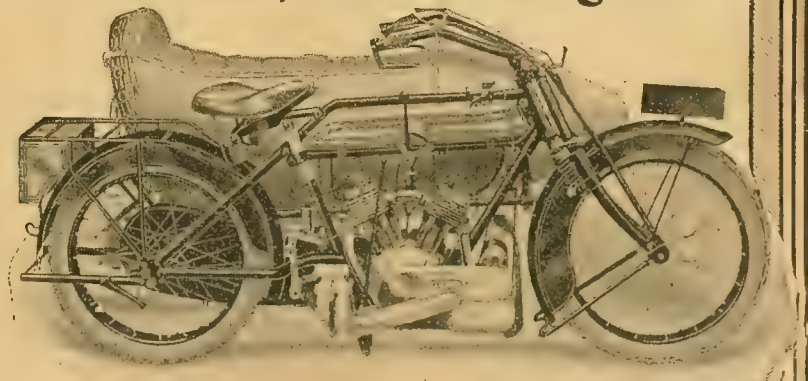
"Built to an Ideal, and not to a Price"—the 1914 REX-J.A.P. is constructed to meet the demand for an absolutely reliable Passenger Machine. Every detail has had careful attention, and no expense has been spared to ensure satisfactory service under all conditions. Speedy, comfortable, silent, and flexible—a machine of many merits and no faults.

¶ Illustrated Catalogue now ready—May we post you a copy?

¶ AGENTS—We are now appointing Sole Agents—write for our agency proposition, or pay us a visit at Olympia.

The Premier Motor Co., Ltd., ASTON ROAD, Birmingham.

Stand 105, Olympia.



Olympia Stand No. 40.

EVERYTHING FOR THE MOTORCYCLIST

TAYLORS

Olympia Stand No. 40.

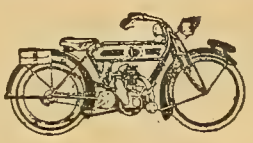
Sole London and District Agents for the famous A.J.S. Motor Cycles. TRADE and RETAIL supplied.

Call at STAND No. 40 and ask for Mr. TAYLOR.

He will be ready and willing to give any information and advice about the famous A.J.S. Motor Cycles. The machine which took sidecar and passenger to the top of BEN NEVIS—Scotland's lordly mountain.

The A.J.S. Motor Cycles have a reputation second to none—they have distinguished themselves in practically every trial. The new 1914 2¾ h.p. and 6 h.p. models simply bristle with good points. Their mechanical excellence and handsome appearance cannot fail to make them one of the most popular mounts for 1914. 1914 A.J.S., 6 h.p., 3-speed, 70 guineas. 1914 2¾ h.p., 2-speed, 47 guineas; 3-speed, 50 guineas.

Remember TAYLORS can supply almost all the best makes of motor cycles and cycle cars for cash, or they can be purchased out of income, ¼ down and the balance in monthly instalments. Ask for delivery dates for P. & M.'s, TRIUMPHS, WILLIAMSONS, DOUGLASES, ZENITHS, G.W.K.'s, A.C.'s, MORGANS, LAGONDAS, etc. Call at Store St. for second-hand bargains. TAYLORS—the house for quality and competitive prices, expert service, and prompt delivery.



H. TAYLOR & Co., Ltd.,

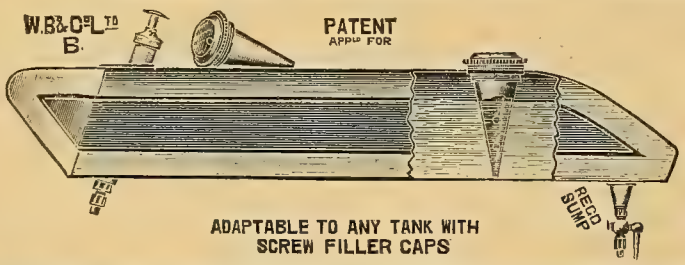
21a, Store St., Tottenham Court Rd., London, W.

'Phone 10957 Central. Telegrams: "Dynametro"

AT LAST! A PETROL GAUGE THAT WILL AND MUST GAUGE.

NEW COMBINED FILLER CAP AND PETROL OR OIL GAUGE.

NO FLOAT, WIRES, DIAL, OR DANCING INDICATOR—SIMPLY NATURAL AND PERPETUAL ACTION.
NON-MECHANICAL AND CANNOT GO WRONG. MARVELLOUSLY EFFECTIVE AND CANNOT DECEIVE.



ADAPTABLE TO ANY TANK WITH SCREW FILLER CAPS

Made in sizes to suit ANY collar from 1in. to 2in. bore.

Prices from 2/3 to 4/6 each.

Fit it to your old tank at once, but DON'T BUY A NEW MOUNT WITHOUT IT. It has neither equal nor rival, and any substitute will only prove disappointing.

THE PETROL IS ALWAYS IN FULL VIEW OF THE RIDER.

Write at once for full particulars to the Sole Manufacturers—

W. BRANDON & Co., Ltd., OLIVER STREET, BIRMINGHAM.

HIGH-CLASS PETROL TANK MAKERS.

Price as shown, £6 10s.
Complete with 2 speeds, 2 variable pick up clutches, free engine, kick off start, adjustable pulley, chain, etc.

Do you know that the Ball Clutch is the latest and best form of drive for speed gears— Experts say they are "IT"

You must have a speed gear, why not have the best Two-speed countershaft gear, with a variable pick up, complete for fitting to almost any standard make of frame. Write for a description of the unique Ball Clutch for Motor Cycles.

The TOROGA MOTOR ENGINE Co., Ltd., St. George's Terrace, Brearley Street, BIRMINGHAM.

Photography and FOCUS

Motorists interested in the camera will find this journal interesting and instructive.

Every Tuesday—One Penny.

In answering these advertisements it is desirable to mention "The Motor Cycle."

WE'RE HERE!

YOU'RE THERE!

MEET US INSIDE

WE'RE HERE to demonstrate to you that HAZLEWOOD Motor Cycles are unsurpassed for Reliability and Workmanship.

EVERYTHING

in HAZLEWOOD Motor Cycles is of the very finest quality and thoroughly tested. For beauty of design and handsome finish they are unsurpassed.

ECONOMICAL

in use. HAZLEWOOD Motor Cycles are absolutely RELIABLE and EFFICIENT, as proved by their sensational successes in noteworthy Trials of the year.

CALL AT STAND 124,

and inspect for yourself the superb finish and quality of workmanship of HAZLEWOOD Motor Cycles.

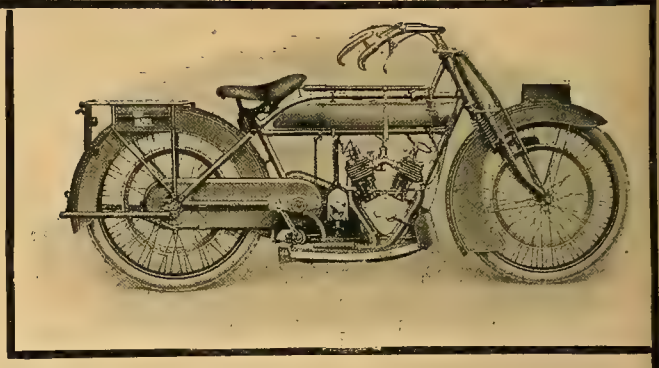
A copy of our handsome new book "HAZLEWOOD Motor Cycles" may be obtained from our stand, or post free from

Hazlewoods LTD.

COVENTRY, England.

LEA-FRANCIS

FINEST MACHINE IN THE WORLD.



SOME OF ITS FEATURES:

Lightning Detachable Wheels.
Enclosed Chain Drive.
Bracket 2-speed Gear.
Multiple Plate Clutch.
Reliable Brakes.
Substantial Kick Starter.
Simple Adjustments.
Correct Weight Distribution.
Low Riding Position.
Rapid Acceleration.
Easy Control.
Quiet Running.
Speed 2 to 50 m.p.h.
Price 65 Guineas.

LEA & FRANCIS, LTD., COVENTRY.

Address of nearest agent on request.

S T O P !

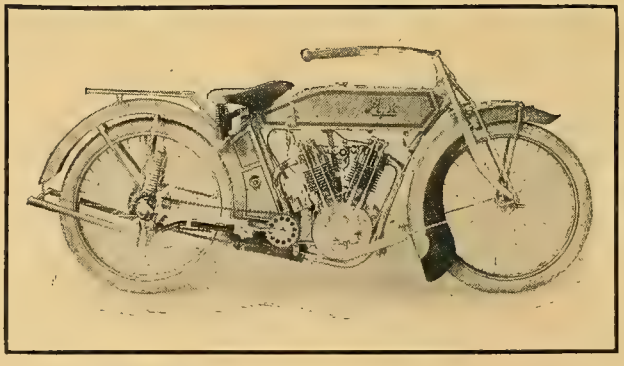
Stand No. 43.

America's last word in Motor Cycles. Don't leave the Show without seeing our Stand.

Arrange for a trial run.

'Phone: 1137 Wall.

Wires: "Acarobox, London."



Stand No. 43.

Twin Cylinder, 7 h.p., Chain Drive, Multiple Disc, Free Engine Clutch, Rear Wheel Spring Suspension, Mechanical Oil Pump.

Pope

The Pope Motor Cycle Agency,
55, Banner Street, E.C.

The Service Company Ltd.
(LONDON)

R CYCLE WORLD

EXHIBITION.
IN THE HEART OF LONDON.

pressed to purchase. We merely want every motor cyclist in town during the week to see our stock, and thus realise how well we are able to supply **anything for the motor cyclist** PROMPTLY and CHEAPLY. Engines, Gears, Wind-guarding devices, Speedometers, Lighting Sets, Horns, Luggage, and Tool equipments, Silencers, Carburettors will all be on view, as well as the famous "Service" specialities, such as "Service" Belting, Belticum, Tappet Adjusters, H.& B. Two-speed Gears, B. & B. Carburettors, Autovarnish, &c.

FOR YOUR COMFORT. There will be all manner of Clothing in our Outfitting Department where you may inspect and try on new goods at your leisure, and without being jostled by a moving crowd as at Olympia.

HOW TO GET HERE. By Central London Tube to Chancery Lane, by Piccadilly Tube to Holborn, by L.C.C. Tram to Gray's Inn Road, or Southampton Row, or by Holborn 'Buses from all parts of London, which pass the doors in endless succession. Open daily from 9 a.m.

Write a postcard for our BARGAIN BUDGET of Clearance Sale Lines.

FINALLY. Whatever car, motor cycle, or sidecar you favour do not place your order without seeing us. We can quote you best Cash, Credit, or Exchange Terms.

Oilskins for Wet Weather Riders.

SPECIAL LINE:

AN OILSKIN SUIT, Jacket and Seatless Trousers .. 20/-

RVICE SPECIAL SILVER GREY SUIT, Double-breasted Jacket and Seatless Trousers, **£1 - 5 - 0**

Long Coats, from **10/11.**

cial Line in Black Oilskin Coats, 52 inches long, **16 6.**

ervice Oilskins will not stick or crack.

Ladies Light Oilskins from **14/11;**

Sou' Westers, **1/11** and **2/11.**

SERVICE COLD WEATHER JACKETS, Leather-lined, **£1 - 5 - 0.**

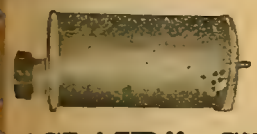
Ditto, Marmot Fur lined, **£2 - 10 - 0.**

Leather Waistcoats from **20/-.**

aterproof Suits, Latest Styles in Mackintoshes, Oilskin Suits, Oilskin nchos, Oilskin Sidecar Capes, Long Oilskin Coats, Lady's Oilskin Coats, u' Westers, Hutchinson's Overboots, Leather-lined Jackets, Fur-lined ckets, Fur-lined Rugs, Fur Gloves, Leather Gloves, Asbestol Gloves, Hats, ps, Racing Helmets, Woollen Helmets, Goggles, Eye Shields, Carrier Bags, Scarfs, Throat Protectors.

SILENCE & POWER.

HE LAW DEMANDS SILENCE. YOU WANT POWER.



THE

"CLAIR" Silencer gives both.

CAN EASILY BE FITTED TO ANY MACHINE.

WE INDEMNIFY USERS AGAINST CONVICTION.
NDER NEW POLICE REGULATIONS—WE WOULD PAY THE FINE.

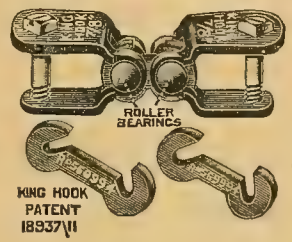
"CLAIR" SILENCER WILL BE SUPPLIED ON .PPROVAL FOR 7 DAYS. SILENCE WITHOUT LOSS OF POWER GUARANTEED.

RICES FROM **10/6** to **21/-** ACCORDING TO SIZE.

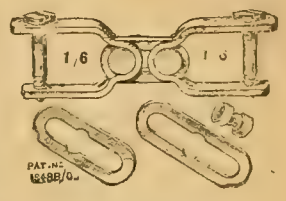
ILLUSTRATED LIST POST FREE.

We Stock "FORWARD"

The World's Best Fastener,

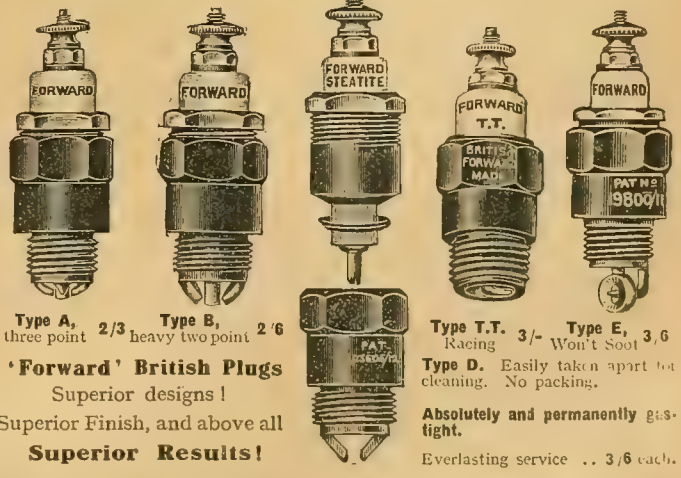


also **'King Hook'** the strongest hook fastener and **by far the best** on the market.



1/- detachable; **1/3** adjustable.

We strongly recommend "Forward" Plugs.



Type A, three point **2/3** **Type B,** heavy two point **2/6**

'Forward' British Plugs

Superior designs!

Superior Finish, and above all

Superior Results!

Type T.T. Racing **3/-** **Type E,** Won't Soot **3/6**

Type D. Easily taken apart for cleaning. No packing.

Absolutely and permanently gas-tight.

Everlasting service .. **3/6** each.

89-292-293, HIGH HOLBORN,
ne Buildings. LONDON, W.C.

'Phone : 260 Central.
Wires : "Admittedly."

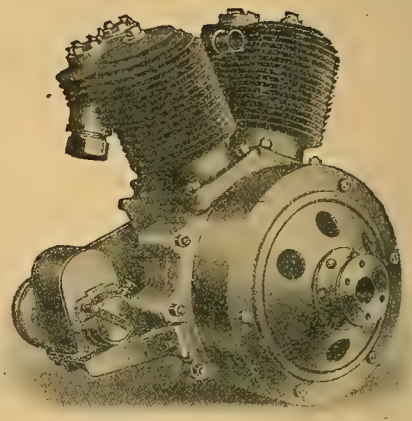
FAFNIR Engines

have long been known for their trustworthiness.

Single-cylinder, 2½ and 3½ h.p.

Twin-cylinder, 5-6 and 8 h.p.

Types for Motor Cycles, Sidecar Work, and Cycle Cars.



Fafnir

211, Upper Thames Street, London, E.C.

Agents for Australia:
A. G. HEALING & CO., LTD.,
Melbourne and Sydney.

STANDARD TOURING MODEL

OVER-SEAS

3½ Horse Power £39 : 0 : 0

The OVER-SEAS places motor cycling within the reach of all. Its very moderate cost has been rendered possible by standardisation. The OVER-SEAS is not an untried machine. It has pioneer knowledge and experience to recommend it; for it is the product of Mr. W. J. Lloyd, of the original Quadrant fame, and the designer of that most successful machine which bears his name. The machine conforms to standard specification, and is the embodiment of every reasonable refinement at such a moderate figure as **£39.**

The machine, as the name implies, was originally designed for use in oversea dominions, where much of our business is done, and a motor cycle which will successfully endure heavy colonial conditions, must essentially give still greater satisfaction on the well-conditioned roads of the United Kingdom. Price was also an important factor, because from experience we have realised that the greatest constant demand is for a motor cycle, reasonable in cost, simple in construction, easy to handle, and upon which every reliance can be placed.

BRIEF SPECIFICATION.

ENGINE.—3½ h.p. Overseas, 85 mm. bore, 88 mm. stroke, 499 c.c., Mechanically operated valves, interchangeable. Overseas half compression device operated by lever conveniently placed on the top rail of frame.
WHEELS.—26in. x 2¼in., strong hubs, heavy spokes, belt rim attached by separate spokes. Tyres 2¼in.
BELT.—1in. "Lyso."
CARBURETTOR.—B. & B.
MAGNETO.—Bosch H.T. ball bearing, driven by Hans Reynold chain.
GEAR.—Overseas adjustable pulley, adjusting from 4 to 5½ to 1.
SADDLE.—"Lyso" Pan Seat.
Complete set of tools supplied in folder.

Sturmey-Archer 3-speed hub Model.....£49
Free Engine Model £47

Write for Catalogue to-day post free from

THE OVER-SEAS MOTOR Co., Ltd., 1a, Johnstone St., Ladywood, B'ham.

Calcott

2½ h.p.

LIGHTWEIGHT MOTOR CYCLE

PROFITABLE TO AGENT.——————

SATISFACTORY TO RIDER.——————

OLYMPIA

STAND NO. 108.

'PHONE 91. CALCOTT BROS., LTD.—COVENTRY. TEL.: CALCOTTS.

THE "CALCOTT LIGHT CAR"
WILL BE EXHIBITED DIRECTLY OPPOSITE
OLYMPIA AT 11, HAMMERSMITH ROAD.

TO THE TRADE.

NEW MODELS for 1914

When at Olympia call here and inspect the fine range of BOWDEN CYCLE and MOTOR CYCLE FITMENTS on view.

Everything in the way of BOWDEN Brakes and BOWDEN Controls for every operation in connection with cycles, motor cycles, and cycle cars can be supplied by

THE
BOWDEN BRAKE CO.
LTD.,
TYSELEY, —— BIRMINGHAM.

If you cannot attend the Show, please drop us a postcard for our Preliminary List, which is now ready.

STAND 235, GALLERY.

ASK YOUR AGENT
FOR SURRIDGE'S PATENTS.

Don't be put off anything is as good. This is one—

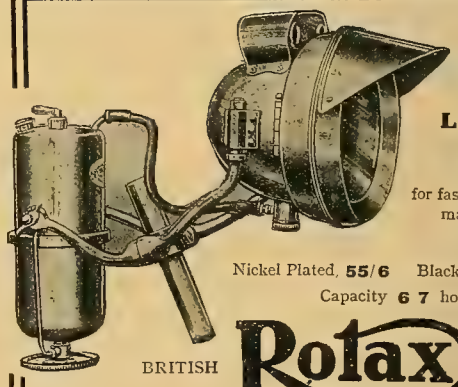
BAG LAMP CONNECTION

A SURE SUPPLY.
A STEADY FLAME.
NO FLICKERING.

The bag traps the moisture, a tell-tale to the supply of Gas.

6in.	1/-
9in.	1/2
12in.	1/4
15in.	1/6
18in.	1/8
24in.	2/-

AND THE FAMOUS HOLDTITE PATCH, &c. SEND FOR LIST.
58, Lomond Grove, Camberwell, London.
ASK TO SEE THESE AT THE SHOW.
Mr. Surridge will be pleased to meet you at Stand 103.



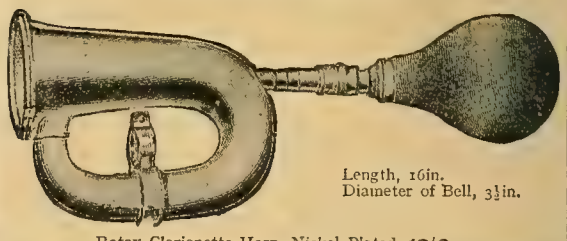
Rotax
LIGHTING SET
for fast and powerful machines.

Nickel Plated, **55/6** Black Plated, **72/8**
Capacity **6 7** hours.

BRITISH **Rotax** MADE

Motor Cycle Accessories.

Send for copy of Complete Illustrated Catalogue—
ROTAX MOTOR ACCESSORIES CO.,
GREAT EASTERN STREET, LONDON.



Length, 16in.
Diameter of Bell, 3½in.

Rotax Clarionette Horn, Nickel Plated, **18/9**

CLIPPER

AT OLYMPIA (STAND 12)

MOTOR CYCLISTS

going to Olympia will be amply repaid by a visit to STAND 12, where we shall exhibit everything in the way of Tyres, Belts, Accessories, Wood Rims, and Motor Clothing which go to make the motor cyclist's complete equipment.

MOTOR CYCLE TYRES

will be ably represented by The REFLEX-CLIPPER "IDEAL" TYRE (new pattern), The CLIPPER TYRE (Rubber-studded), and The CLIPPER TYRE (Ribbed-pattern) —a trio of Tyres which for quality and utility cannot be beaten.

ACCESSORIES

The "CLIPPER" BRAND ACCESSORIES are in ever increasing demand, and comprise every requisite for Motor Cycle Tyre equipment and replacement.

WOOD RIMS.

As Sole British Agents for The American Wood Rim Company, and The Compagnie Franco Americaine des Jantes en Bois, Paris, we hold large stocks of highest class Wood Rims for all types of tyres. See special Wood Rim for Motor Cycles.

MOTOR CLOTHING

We have a special department for dealing with Motor Cycle Clothing, and carry a very complete Range of Suitings, Overalls, Mackintoshes, etc.

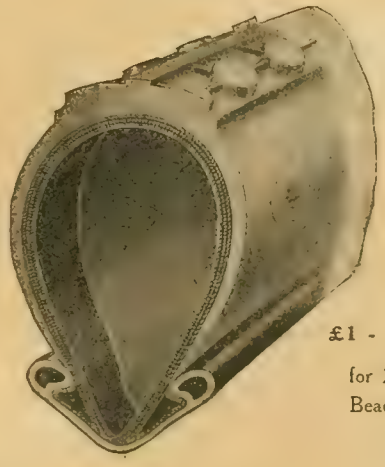
THE REFLEX-CLIPPER "IDEAL" TYRE FOR MOTOR CYCLES.

(New pattern.)

£1 - 12 - 6 per Cover
9 - 6 per Tube
for 26 x 2¼in. size.
Beaded Edge only.

THE "CLIPPER" TYRE FOR MOTOR CYCLES.

(RUBBER-STUDDED.)



£1 - 1 - 0 per Cover
9 - 6 per Tube
for 26 x 2¼in. size.
Beaded Edge only.

WRITE FOR 1914 ILLUSTRATED BOOKLET—
ALL about Clipper Tyres and Accessories.

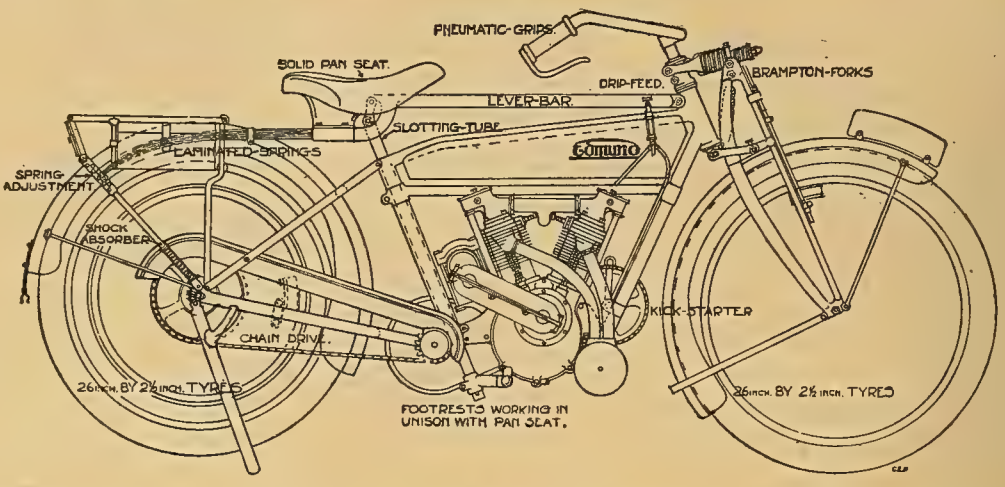
THE CLIPPER TYRE CO., LTD.,
52 - 60, STEELHOUSE LANE, BIRMINGHAM.

LONDON: 102, Leonard Street, E.C. COVENTRY: Alma Street.

In answering this advertisement it is desirable to mention "The Motor Cycle."

B31

You will see many 1914 Boneshakers at Olympia, but if you have "had some," see Stand 39 and the last word in Spring Frames.



CHARLES EDMUND & CO., CRANE BANK, CHESTER, and 20, CLAVERING AVENUE, LONDON, S.W.

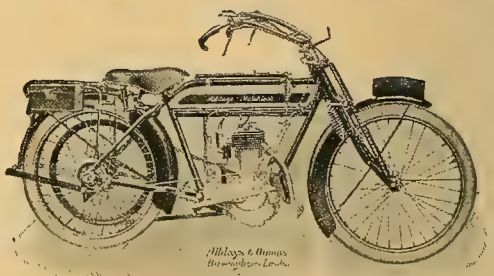
STAND 39. **The Stand for Comfort.** **STAND 39.**

STAND No. 77 & 77A.

ALLDAYS

MATCHLESS MOTOR CYCLES.

- 3½ h.p., countershaft chain drive, single-cylinder, three-speed.
- 3½ h.p., belt drive, three-speed hub.
- 3½ h.p., belt drive, clutch hub.
- 6-8 h.p., twin-cylinder, three-speed, countershaft chain drive for sidecar work.



SEND FOR complete catalogue.

ALLDAYS MIDGET CARS.
MATCHLESS MOTOR DELIVERY TRICYCLES.
TRADESMEN'S EXPRESS DELIVERERS.
MATCHLESS BICYCLES.

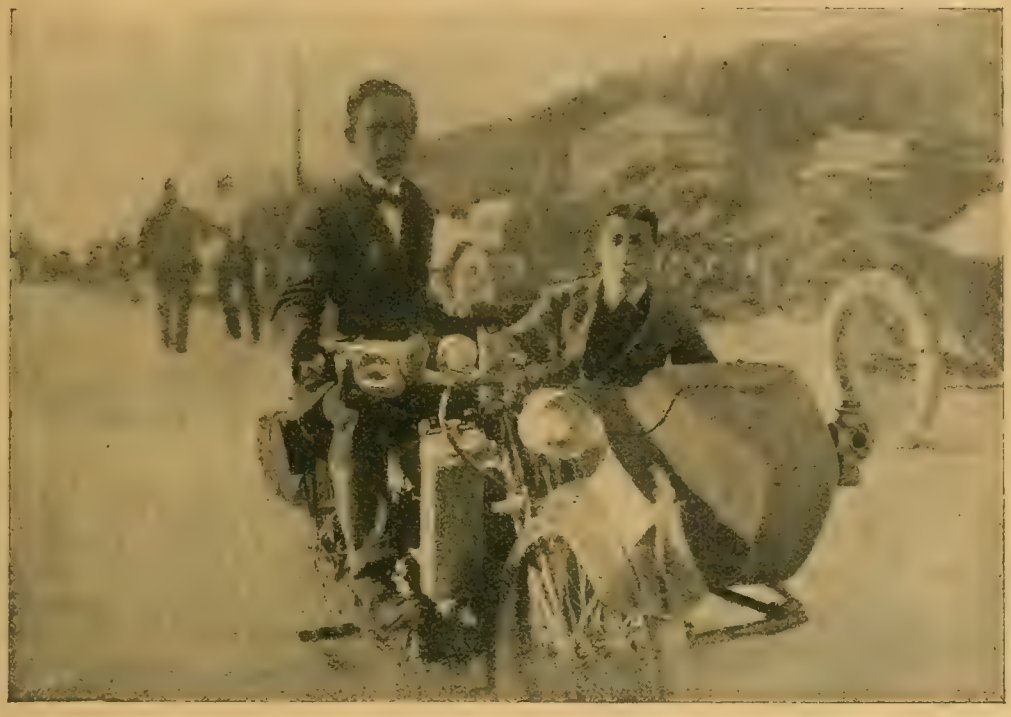
ALLDAYS & ONIONS PNEUMATIC ENGINEERING Co., Ltd., Matchless Works, BIRMINGHAM; and 58, Holborn Viaduct, LONDON, E.C.

ESTABLISHED 1650.

In answering these advertisements it is desirable to mention "The Motor Cycle."

1914 WILLIAMSONS ARE GOING

STAND **85** OLYMPIA SHOW



FURTHER AHEAD THAN EVER

INTERNATIONAL SPEED TESTS. NICE TO LA TURBIE.

Dear Sirs,

Here I am at the finish of the Race, being first in my class. The machine ran beautifully. I am sending details of the Race to one of the motor papers, so hope you will see them. I will write and let you know all about it later.

Yours,

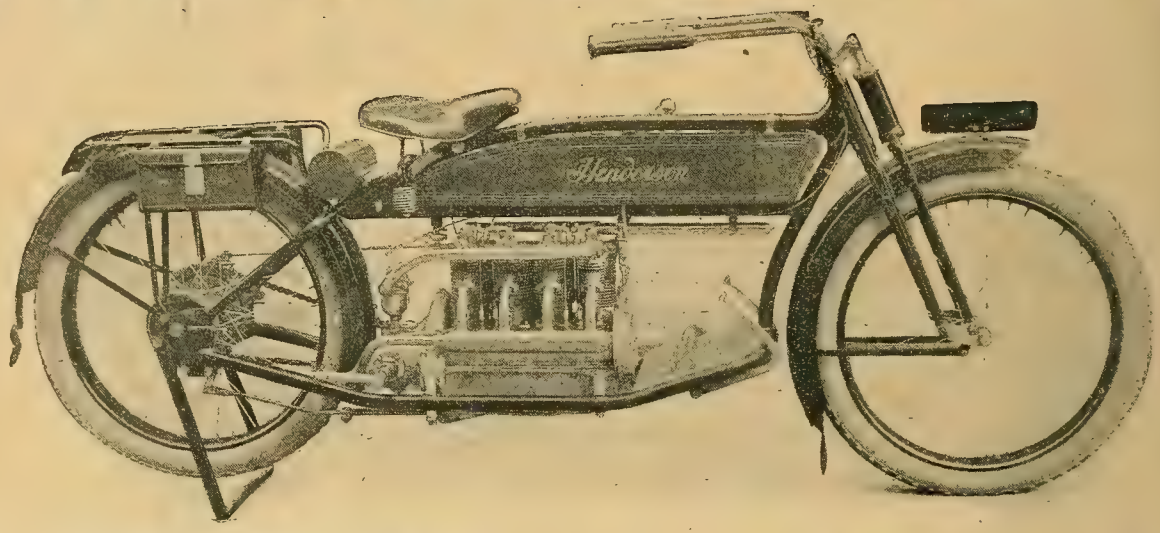
W. W. HONYWOOD,

Secretary for "The Daily Telegram," Monte Carlo.

THE WILLIAMSON MOTOR CO., LTD.,

COVENTRY.

HENDERSON



ROBERTSONS
157B, Gt. PORTLAND STREET, W.
TELEPHONE: MAYFAIR, 5767.

STAND 119

Reliance **MAGNETO**

SPARK PLUGS

Especially desirable and serviceable where an excess of oil is used.

The Central Electrode or insulated sparking point is a solid piece of platinum-iridium, baked in the porcelain.

5/- each, post paid.

S. & F. Stephenson,
12, Hopwood Street, Liverpool.

"Reliance" Spark Plugs used by the Winners (Scott two-stroke motor cycles) in the Senior Tourist Trophy Races 1912 and 1913.

TRANSFERS

for **Motor Cycles**
Sidecars
Cycle Cars
Registration Letters
. . . and Numbers, . . .
. . Monograms, etc. . .

Artistically Designed and Neatly Printed.

Makers and agents requiring Transfers are requested to send particulars of wording required, upon receipt of which we will submit, free of charge, a specially prepared design.

¶ *When asking for gratis design please state the colour of the background upon which the transfers will be affixed.*

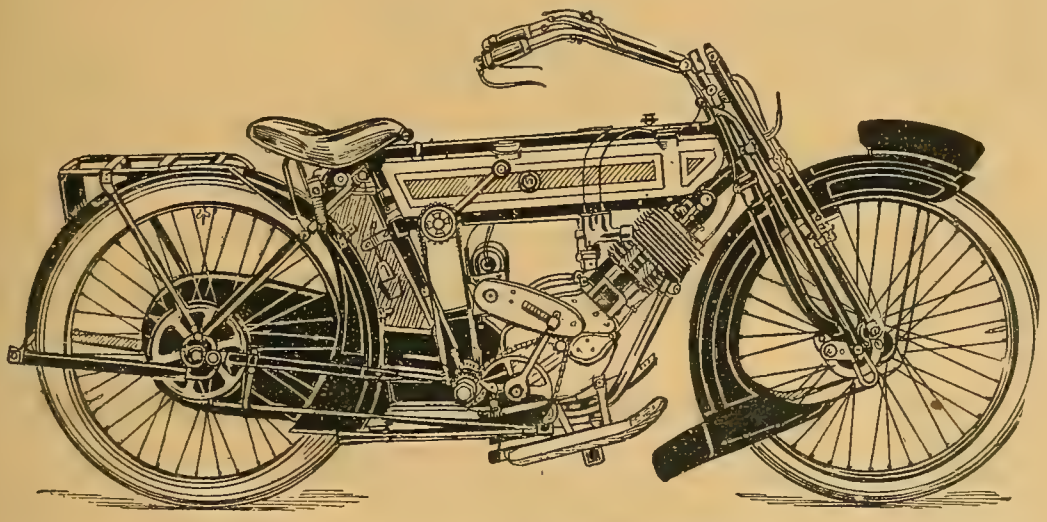
ILIFFE & SONS LTD.,
TRANSFER SPECIALISTS, COVENTRY.
London: 20, Tudor St., E.C.

P. & M.

THE PERFECTED MOTOR CYCLE.

STAND No. 69.

Up the centre of the Hall, under the Gallery, a little to the right.



1914 MODEL, Price £65.

The first chain-driven machine (1900).

The only machine which has the engine as part of the frame—that is why chain drive has always been supremely successful on the P. & M.

Low but plenty of ground clearance, comfortably sprung yet rigid, enormously strong but reasonably light, fast on the level but a magnificent hill-climber, easy to control and exquisitely finished.

PHELON & MOORE, LTD.,

CLECKHEATON, YORKS.

4, PERCY STREET, LONDON, W.

The Measure of Success is Results.

W. B Gibb, the successful rider of the 2¾ Douglas.

IT IS DEEDS—NOT IDLE WORDS—THAT COUNT.

Mr. GIBB'S success in all the most important trials during 1913 is testimony to the superiority of the DOUGLAS. His experience is at your service

AT OLYMPIA

GIBB is the DOUGLAS MAN

We are large contractors, and can give you early and prompt deliveries.

GIBB, GOUGH & SON, London Rd., GLOUCESTER.

Some of his Successes.

Colmore Cup Trial.
Cup and only Gold Medal.

London-Land's End-London.
Gold Medal.

Bristol Open Trial.
Silver Cup for best Trade Rider's performance and Gold Medal.

London-Edinburgh-London.
Gold Medal.

Anglo-Dutch Trial.
Silver Cup for best Trade Rider's performance. Gold Medal and Plaque D'Honneur

English Six Days.
Gold Medal, full marks.

Gloucester Hill-climb.
2 Firsts and fastest time of the day.

Cheltenham Passenger Trial.
First against all comers and Special for best performance for engines under 560 c.c. with 2¾ h.p. Douglas & Sidecar.

SOME NOTABLE ACHIEVEMENTS BY THE U.H.

Tourist Trophy won by Hugh Mason on the N.U.T.

5 WORLD'S RECORDS

at Brooklands, Oct. 20, by Mr. H. C. Newman, on an Ivy-Precision.

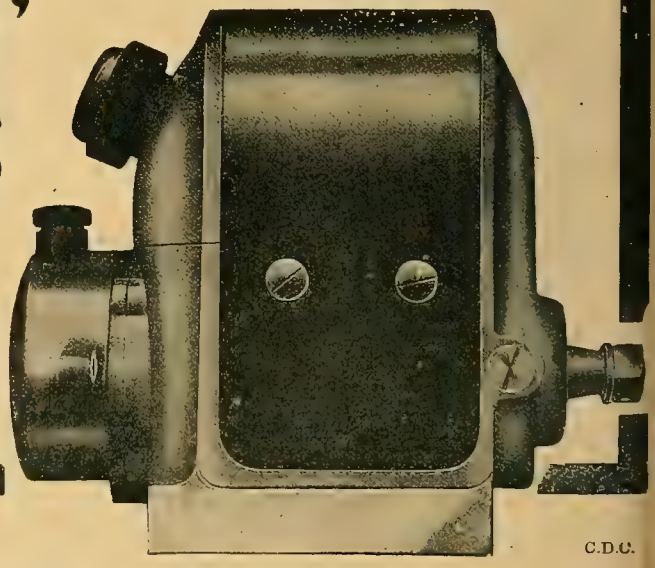
12 SIDECAR RECORDS

at Brooklands, June 23rd, by Mr. H. Riddell, on a Zenith-Precision.

Get the Ignition Right.

The ignition is the whole heart of a motor cycle, and you cannot afford to take risks.
That is why the experienced rider invariably selects the

'U.H' MAGNETO



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THE MOTOR CYCLE
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AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

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The Tourist Trophy Races.

THE announcement of the dates for the 1914 T.T. Races calls to mind the fact that at the conclusion of the last race there was much discussion as to desirable amendments in next year's conditions to render the races less risky to the competitors. This journal took a leading part in the discussion, and, in addition to making a number of suggestions as to the clothing of the riders and the equipment of their machines, subsequently interviewed prominent A.C.U. officials as to their opinions. The result was a number of really practical recommendations, and, seeing that the regulations must shortly be issued, we offer no apology for refreshing readers' minds as to desirable clauses in the rules governing future Tourist Trophy Races. First and foremost, in view of certain unfortunate mishaps due primarily to the difficulties of the course, we advised that efforts should be made to hold future races on a safer course, and suggested the venue of the 1903 Gordon Bennett Race in Ireland as a suitable spot. Certain A.C.U. officials were with us in this matter, but whether any attempt has been made to obtain the use of Irish roads for the T.T. Race we do not know. Any way, the Isle of Man is once more to be the theatre. Probably congestion of legislation in Parliament rendered it a matter of impossibility to get the necessary Act passed permitting a race in Ireland.

Now that we are assured that the race will again be run over the admittedly rather risky Isle of Man course, it behoves everyone connected with the conduct of the competition to do everything possible to ensure the safety of the riders. Falls there are bound to be, of course, and no one expects to escape them in such a sport as motor cycle racing, but by insisting on suitable clothing and head gear being worn by riders, *in practice* as well as in the race, a great deal will be done to minimise the evil effects.

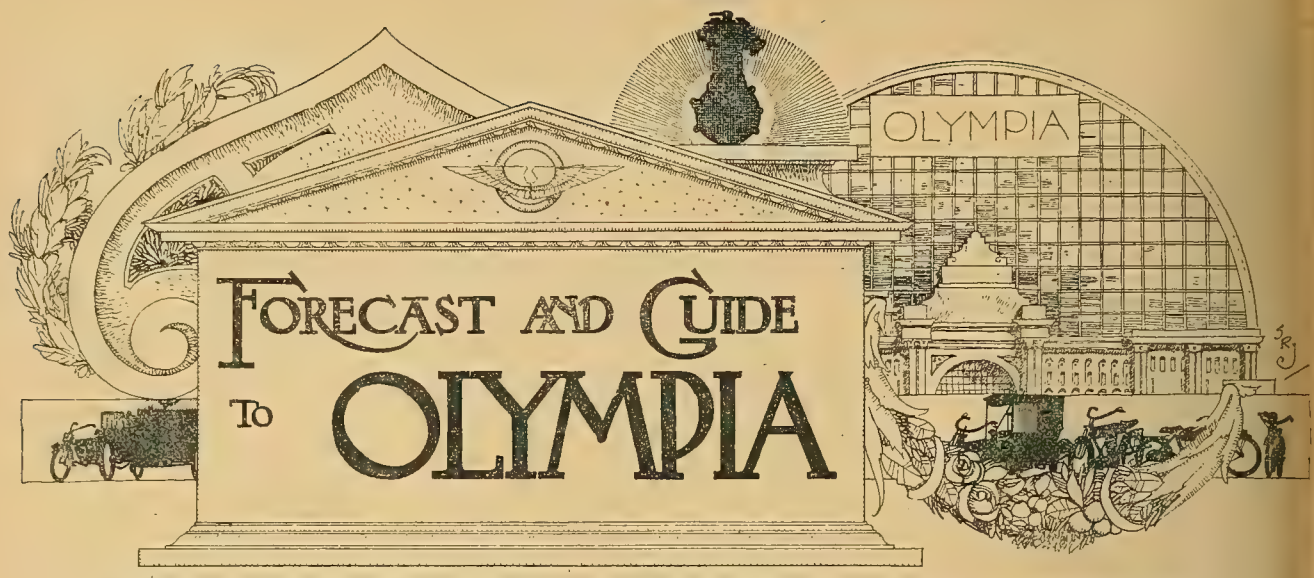
We do not believe in cutting down speed by artificial means such as limiting the fuel supply or cutting down the capacity of the motors to an extent that they would not be of serviceable size for touring purposes. But no rider should be allowed to start who could not satisfy the officials that he had completed at least six laps in practice. Aviation type safety helmets ought to be made compulsory, and each helmet inspected by a competent person, and no rider should be allowed to ride, even in practice, unless so equipped. One of the most dangerous effects of a fall often results from road impurities being forced into a sometimes trivial wound. If it were made compulsory that all riders must wear stout leather coats, breeches and gaiters, a further step towards safety would be made. Last June quite a large number of riders had spills in practice garbed in ordinary tweeds, which are no protection whatever against what is expressively termed "gravel-rash."

With regard to the machines, at least two security bolts per tyre should be obligatory, and in the event of a tyre being changed these should be replaced or renewed, under penalty of disqualification, if finishing without the bolts. Experience has shown that it is not so much the actual bursting of the tyre that causes the danger. It is the chance of its getting off the rim and locking the wheel that is to be feared.

There is another point where we might very well copy our French friends. There should be a slip road provided at the finish, up which each man, as he passed the judge, would be directed. This would allow his friends to surround and congratulate him without danger to other riders finishing. The slip road would best be situated about two or three hundred yards beyond the finish, so as to ensure riders being able to enter it at a moderate pace.

As to whether the Junior or Senior T.T. Races will be run concurrently, as last June has not been announced officially; but we do know that this method of running off the events was not popular, and it is more than probable that separate days will be resorted to, which would enable riders to compete in both events.

It would be observed from our announcement last week that the dates have been brought forward for next year's races, viz., May 19th and 21st. The date of the proposed cycle car T.T. race is September 24th.

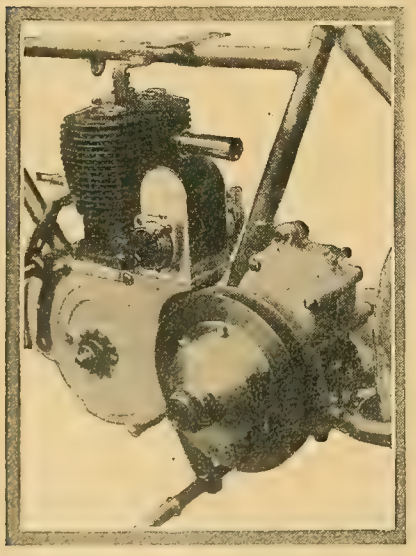


FORECAST AND GUIDE TO OLYMPIA

We continue this week our descriptions of new model motor cycles, sidecars, and cycle cars for exhibition at the annual show, which opens on Monday next. Plans showing the positions of exhibitors are contained in this issue. In "The Motor Cycle," dated November 27th, a full description of the exhibits with numerous illustrations will be published.

NEW PREMIER GEAR BOX.

THE most important innovation found upon the 3½ h.p. Premier for 1914 is the adoption of a very substantial three-speed counter-shaft gear. This is placed in the same position as the now well-known two-speed gear. The kick-starter is combined with the gear and enclosed by the aluminium casting, and the plate clutch is carried in the large diameter belt pulley. The gear itself has three pairs of gear wheels, which are always



Transmission side of the 3½ h.p. 1914 Premier, showing chain sprocket on engine shaft, counter-shaft gear, and belt pulley.

in mesh, but, owing to pending patents, we are unable to divulge the actual working arrangements. However, we may say that there are no sliding dogs and that the gear changes with the greatest possible ease. The new design of clutch is very sweet in action and will stand any amount of slipping in traffic. The gear box appears but little larger than the two-speed box, but the strength of wearing parts has been in no way sacrificed.

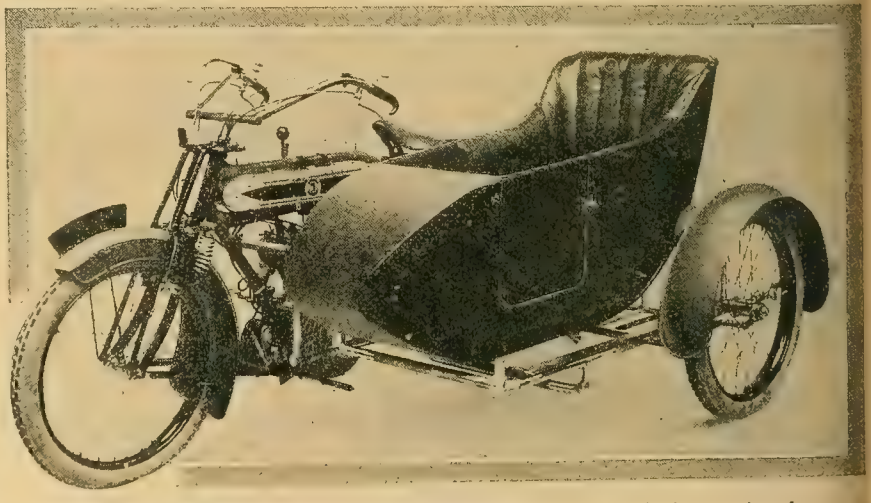
Aluminium footboards are a standard fitting, and the engine plates, which have been somewhat altered in design, now carry the rear brake operation. The rear brake shoe has also been somewhat improved, and is of very solid construction. A cleaning up of crank case and timing gear gives a very neat appearance to the engine and the handle-bars are now neatly curved. The silencer of the new model has a long tail pipe with a flattened end, and this fitting has been found considerably to decrease the noise. The rear guard and carrier is still detachable from the rear forks, which facilitates tyre repairs.

The big 7-9 h.p. model has undergone but few changes. The two-speed gear is still retained, but the final drive is now by belt or chain at option, a neat shock absorbing device being fitted on the engine-shaft. The silencer pipes have been rendered considerably neater by means of lugs cast so as to obviate unsightly pipe bends, and an improved silencer has been fitted.

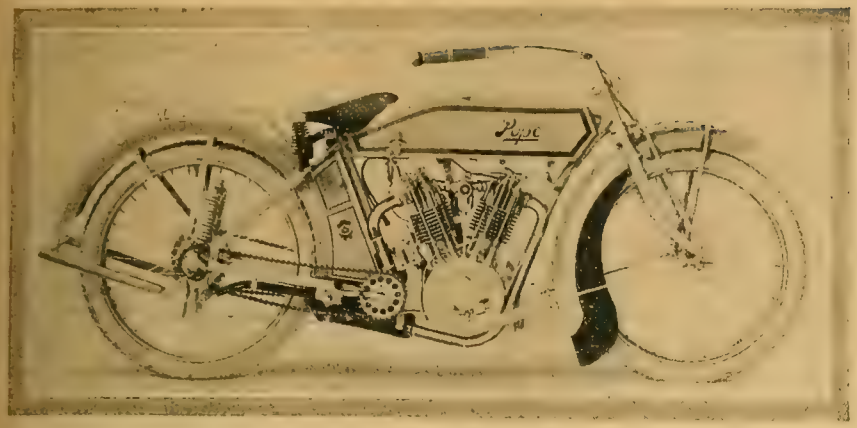
The Sidecar and Cycle Car.

An extremely substantial sidecar is marketed to suit this type. It has four points of attachment arranged in such a manner as to do away with bent tubes and the chassis has curved cross members to permit of a reasonably low body position, and at the back a very solid permanently attached luggage carrier is mounted with special provision for a spare petrol can at one side. The body is coach built, and provides ample space for the passenger, and a 7in. domed mudguard is firmly fixed in position so that it cannot rattle.

An entirely new design cycle car with four-cylinder engine and three-speed gear box will make its *début* at Olympia.



The 7-9 h.p. twin-cylinder three-speed Premier, with coach-built sidecar. Note the large mudguard on the sidecar wheel.



Twin-cylinder 7-8 h.p. spring frame Pope, which has chain drive and overhead valves.

THE LATEST 7 H.P. POPE.

The Pope Motor Cycle Agency, 55, Banner Street, Golden Lane, E.C., is exhibiting at Stand 45 a model of the Pope motor cycle. This machine is of American manufacture.

The chief features of the machine are as follow: The engine is a 7 h.p. twin, 84½ mm. bore × 89 mm. stroke, fitted with roller bearing big ends, mechanically operated overhead valves and detachable cylinder heads. Lubrication is by mechanical oil pump, a hand pump also being fitted for high speed work. The clutch is of the multiple-disc type and is operated by a lever at the side of the tank. The carburetter is a "Schebler" automatic, with auxiliary air valve.

The frame is sprung at the rear as will be noted in the illustration. The spring forks are of the leaf pattern. Ignition is by Bosch magneto driven by shaft.

Control is effected by twisting the grips of the handle-bar. Transmission is by Hans Renold chains throughout. There are two band brakes which may be operated from the foot boards or by means of the pedalling gear.

Among other requirements we might mention that folding footboards are fitted and that the tank is fitted with a strainer.

THE 1914 CHATER-LEA.

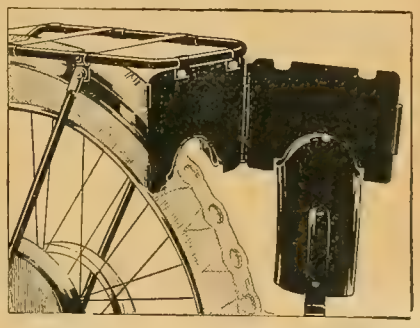
For 1914 Chater-Lea, Ltd., Banner Street, Golden Lane, E.C., have largely re-designed their well-known No. 7 model.

The frame now has a dropped top tube, and a riding position four inches lower than previously is thus obtained, and the sidecar lugs are brazed on to the frame. There is a gear box hanger, formed in one piece, from which the gear box is suspended from three points. The wheel base is six inches shorter, and the weight of the machine has been slightly reduced. Internal expanding instead of external band brakes are now fitted, the segments being covered with Ferodo and controlled by cam motion. The brake surface is 1¼in. in width. The hubs have large size journal bearings at each end with ⅝in. balls, and a felt washer between two collars excludes dust and water.

The engine, an 85 mm. bore × 88 mm. stroke 50° twin, has been radically altered, since the tappets are now driven directly off the cams, so eliminating the use of rockers altogether. The makers claim a quieter engine by means of this alteration. The valves are covered by shields, while the tappets are adjustable, and the main driving chain and the magneto chain can be adjusted. The front chain cover is split and easily detached.

Internal expanding brake on the 1914 8 h.p. Chater-Lea.

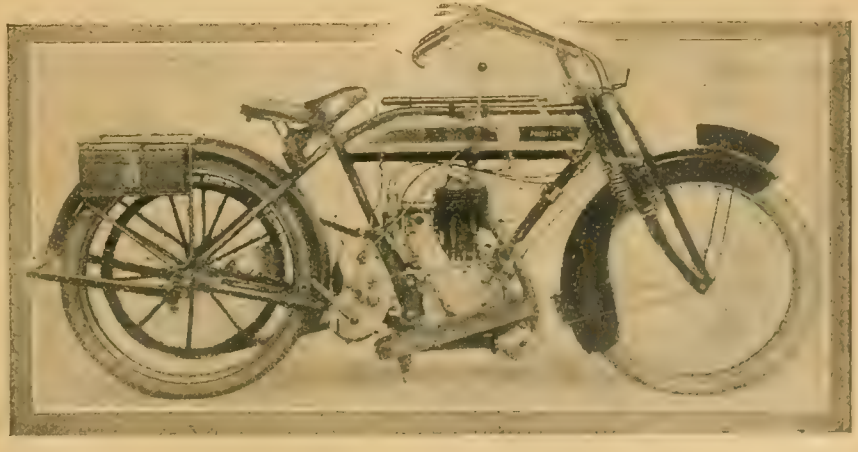
Lubrication is by means of a suction drip feed and by an external pump on the right hand side of the tank. The oil tank is now part of the main tank; it was previously attached to the frame under the saddle. The gear quadrant has been removed from the top tube to the right hand side of the tank, and gear changing is now effected by means of an arm carrying a spring pin sliding into notches cut on a shaft contained in the gear box. The clutch, which is of the multiple disc type, has been altered, and now is pushed in instead of being held out, thus doing away with the special framework formerly necessary for carrying the operating mechanism.



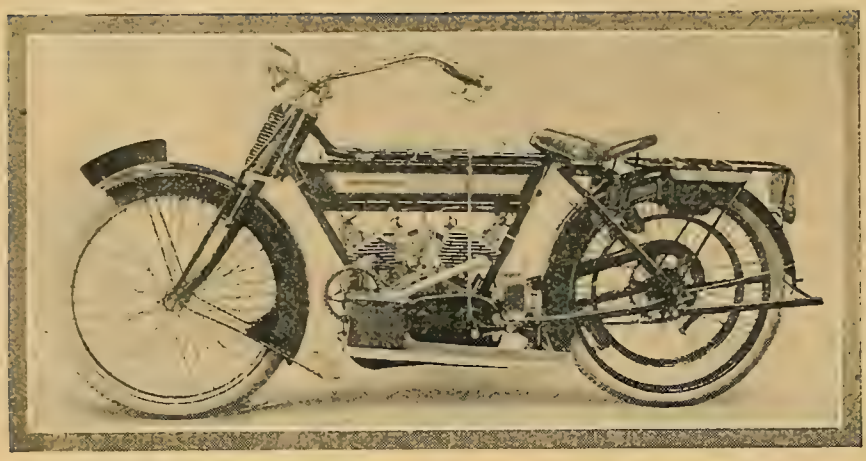
P. and M. rear number plate and mudguard extension, which may be swung round to facilitate tyre repairs.

THE DEPFORD CYCLE CAR.

Mr. de Peyrecave may be described as the "father" of the cycle car movement in England, for he it was who brought over the first Bedelia to this country some four years ago. He is now engaged in manufacturing a new cycle car known as the Depford at 2, Evelyn Street, Deptford, S.E. This machine is a cycle car on true lines, and despite its light weight, appears to be substantially built. It is fitted with either Blumfield, Precision, or J.A.P. 8 h.p. motors, at the purchaser's option, and a choice of air or water-cooling is given. The drive is taken from the engine through a universally jointed shaft to a gear box situated in the middle of the chassis, the gears being changed by gate, the operating lever being situated in the



One of the Premier 1914 range, with three-speed counter-shaft gear.



The 3½ h.p. twin-cylinder Motosacoche, with chain drive and two-speed gear.

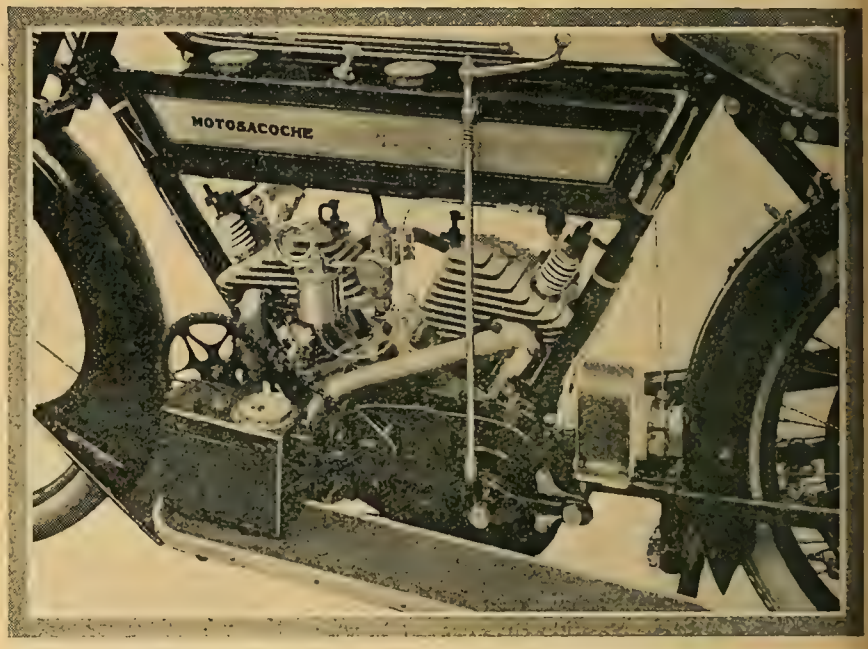
centre of the machine. A cross-shaft carries large automatic variable pulleys at each end, and the drive is thence taken by belt to the rear wheels. The frame is of pressed steel, and the springing quarter elliptic fore and aft, steering being by bobbin and triple cables. The machine is built on taking lines, and is moderately priced, being 120 guineas for the air-cooled model, and 125 guineas if water-cooled.

3½ H.P. TWIN ELECTRICALLY-LIT MOTOSACOCHE.

An exceedingly pretty medium weight machine is the 3½ h.p. twin-cylinder two-speed Motosacoche. Incidentally, the engine is extremely efficient for its size, and the machine has been used with a sidecar with considerable success.

The model we illustrate is fitted with the patent de Lissa exhaust valve, full details of which have lately appeared in our pages. The great claims for this valve are that, owing to the manner in which it is cooled, it will never warp or stretch, and that pitting is unknown, while oil will not carbonise upon the valve face.

The gear fitted is of the Enfield type, and the machine is chain-driven throughout, a useful fitment being the provision for a kick-starter. The neat Motosacoche electric lighting set is fitted, and large mudguards are a further excellent feature of a very workmanlike mount.



Power unit of the 3½ h.p. Motosacoche, clearly showing De Lissa valves, battery on footboards, kick-starter mechanism, two-speed gear, magneto position, and efficient design of mudguards.

Next week we hope to describe and illustrate the 6 h.p. Motosacoche model, which is fitted with the well-known M.A.G. engine. This machine will doubtless prove one of the most attractive sidecar models for the coming year.

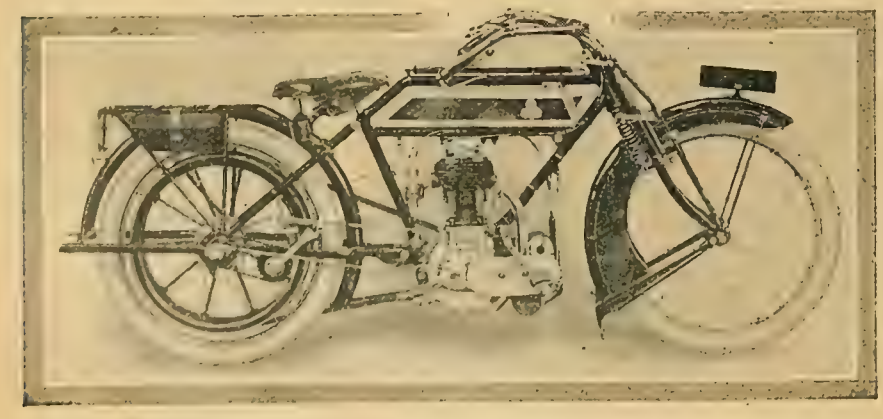
SWIFT 1914 MODELS.

Three types of Swift motor cycles will be marketed in 1914. The engine is of 3½ h.p., 86×85 mm., with large valves and adjustable tappets. The transmission is by chain and belt. The newest model has a counter-shaft gear box, on which is also mounted the free engine clutch. The following ratios are provided: 5.25, 8.5, and 16 to 1. The design of the silencer has been somewhat improved and modernised.

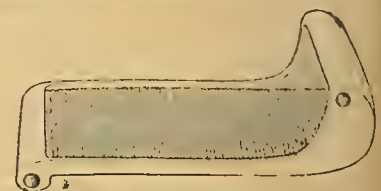
Another model is the 3½ h.p. with half compression device to ensure easy starting; bore and stroke as before. This model is single geared, and, in common with the previous model, is provided with front and back stands, Brown and Barlow carburetter, waterproof Bosch magneto, etc. If desired, a three-speed gear, either Armstrong or Sturmey-Archer, may be fitted at slight extra cost.

A third model also has the engine fitted with a half-compression device, with the same design of engine. To it a three-speed hub gear, together with kick-starter, is fitted as an extra. This is the T.T. model, consequently wide racing handle-bars are fitted.

All the types referred to have black enamelled coslettised frames and are finished in excellent style.



Valve side of the 3½ h.p. Swift for 1914, with three-speed gear and kick-starter.



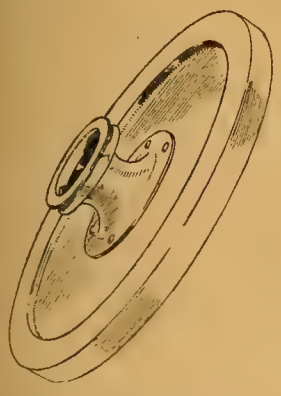
Excelsior curved footboards which protect the rider's feet.

THE 1914 PRECISION ENGINES.

SUPPLEMENTARY to the already well-known Precision models, Mr. F. E. Baker is producing three new types, the chief of which is the little Precision Junior power-unit. This little engine has a capacity of 175 c.c., and combines in its construction many interesting features. The single vertical cylinder has a bore and stroke of 60 mm. with horizontal valves placed in the head, these valves are of ample diameter and have extremely strong stems which effectively prevent breakage. They are operated by rocking beams fitted at the top end with adjustments for wear, and at the lower end with rollers on which the cams work directly. A light two-ring piston transmits the force of the explosion through a hollow gudgeon pin and split big end connecting rod to a solid one-piece crankshaft. This crankshaft is carefully balanced by means of counter-weights attached to the crank webs and the big end bearing is fitted with an oil scoop.

The Two-speed Gear Described.

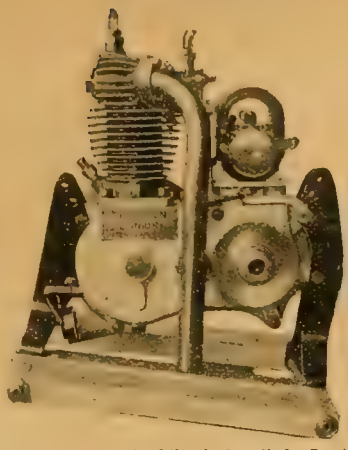
An outside flywheel is fitted on the offside, while, enclosed in the crank case on the nearside, is a stout gear wheel. The crank case casting is extended rearwards to form a two-speed gear, which is



Spun copper oil retaining flange on the flywheel of the Precision Junior.

carried out as follows: Meshing with the above mentioned gear wheel is a two-to-one wheel mounted on a cross-shaft which has a second gear wheel on the further side and two cams mounted between. These cams actuate the valves through the long rocking beams previously described, while the two gears mesh with corresponding wheels mounted freely on a shaft parallel to and directly behind the camshaft. On the end of this secondary shaft is mounted a 4in. adjustable pulley, and between the gear wheels the shaft is square in section and carries a sliding member with dog clutch at either end. To obtain high or low gear the sliding member is moved sideways till the dog jaws engage with similar jaws cut on the face of the gear wheels. Thus with the aid of only five gear wheels, a combined camshaft drive and two-speed gear is obtained.

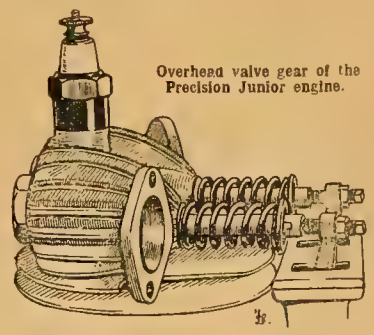
The actuation of the sliding member is carried out in a peculiarly simple manner, for cast in the gear casing is a steel tube, through which runs a rod attached to a fork engaging in a groove in the sliding sleeve. At the front end of the rod is mounted a double pedal extending across the engine and projecting in a convenient position over either footboard, so that if the left pedal is depressed the left pair of dogs are engaged, or *vice versa*. Large plain bearings are used throughout the unit, and spun copper discs are arranged on both pulley and flywheel, which lie inside oil retaining wells on the case, and thus prevent leakage. The magneto is mounted behind the cylinder and is chain-driven from the camshaft, a simple sliding arrangement being provided for chain adjustment.



Two aspects of the single-cylinder Precision Junior, showing general arrangement, method of operating overhead valves, footboards, and gear change pedals.

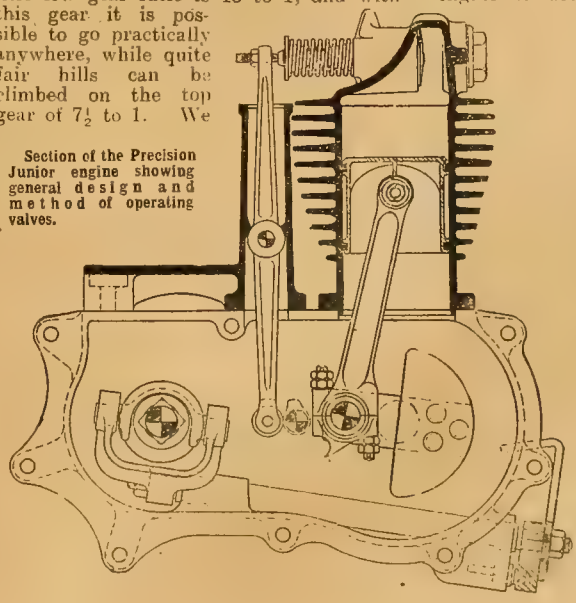
A Real Lightweight.

The complete unit, with carburetter, magneto, plug, footboards, silencer, and gear striking pedals, weighs only about 40 lbs., so that the complete motor cycle should be no heavier than 100 lbs. We tested the machine over some rough ground and up a long slope, and found that it pulled in a most extraordinary way, and, in changing gear, it is not even necessary to lift the exhaust valve. The low gear ratio is 16 to 1, and with this gear it is possible to go practically anywhere, while quite fair hills can be climbed on the top gear of 7½ to 1. We were given a most wonderful exhibition of the utility of the tiny machine, for it was ridden over fields and up paths and in and out of the paths round the New Precision works with the greatest ease.



Overhead valve gear of the Precision Junior engine.

The new 4 h.p. twin has been designed to meet the requirements of the solo rider who desires a fairly fast machine, which is capable of taking a sidecar when necessary. The bore and stroke of the engine are 60×88 mm., and the engine is designed throughout on Precision lines. All bearings are of very serviceable length and diameter, and the cam gear has wide wearing surfaces. A very simple exhaust lifter is used, which consists of a supplementary tappet which, on being pressed down, raises the exhaust valves through the rocker arms. The tappets are now of large diameter, and the flywheels are carefully balanced by means of lead filling. The cylinders are interchangeable, and flange pipe joints are supplied.



Section of the Precision Junior engine showing general design and method of operating valves.

FOR USE ON CYCLE CARS.

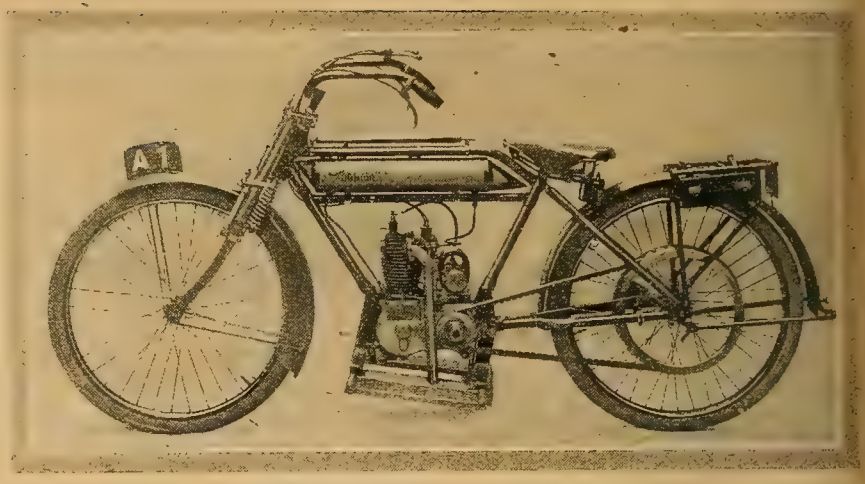
The 8 h.p. cycle car engine may be obtained with either air or water-cooled cylinders. Very large bearings are the feature of this model, and the magneto is now driven across the front by en-

closed bevels. All Precision models now have adjustable tappets which are concentric with the valve stems, and whenever possible twin-cylinder types have expanding flange joint inlet pipes. A new cast silencer and magneto bracket is supplied for the single cylinder models, provision being made for a tail pipe.

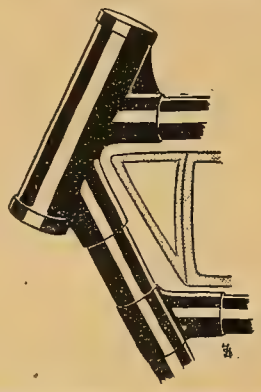
1914 CALTHORPE MODELS.

The new Calthorpe models will be shown at Olympia, one being fitted with the 4 h.p. twin Precision, and either the Calthorpe expanding clutch counter-shaft two-speed gear, or a three-speed hub. The other new model will be fitted with the Precision junior engine unit, which is thoroughly described elsewhere in this issue. This little machine is really well carried out. The lugs are all very substantial, especially the head lug. Druid forks are fitted, and a substantial heel operated foot brake is applied to the 14in. belt rim, there is also the usual front rim brake. A tubular tank containing three quarts of petrol and a pint of oil is carried on the lower frame rail. Stand, carrier, pannier tool bags, Best and Lloyd lubricator, and sidecar wings to the mudguards complete the specification of the "Calthorpe Junior," which weighs only 110 lbs.

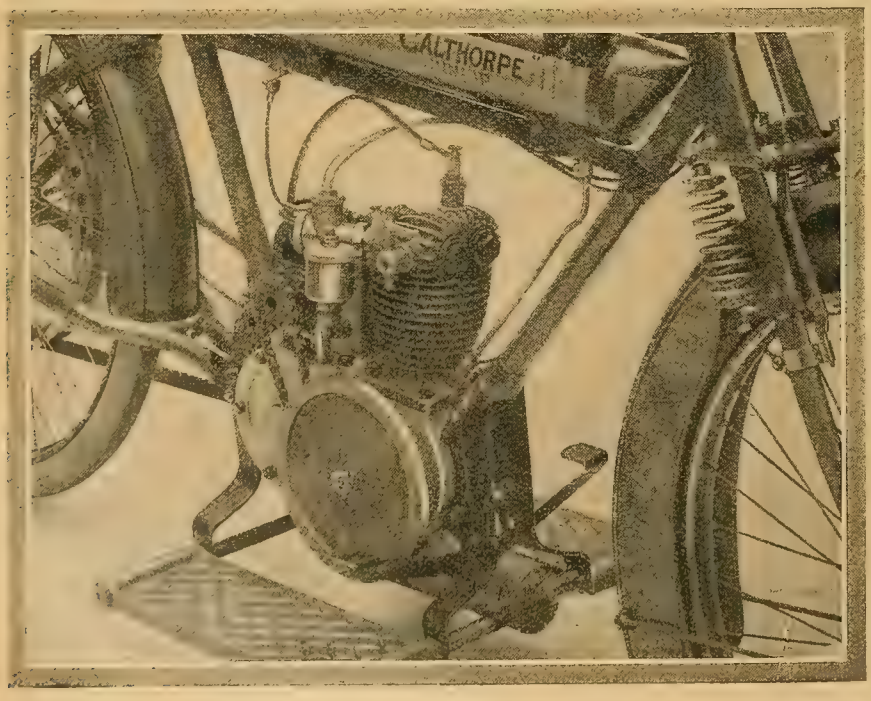
Calthorpe sidecar models have the attachment lugs brazed to the frame, a fourth lug being attached to the steering head stay. The new sidecar chassis has a dropped frame and is very strongly constructed. springing is well carried out, and a luggage carrier and foot plate are parts of the standard outfit. A smart sidecar will be shown, the panels of which are of coach finished leather, which besides looking very neat has the advantage of flexibility and comfort. The Calthorpe counter-shaft two-speed gear is controlled by two expanding phosphor-bronze clutches which lock either the high or low gear in position as desired, a free engine position being arranged in between. Excellent mudguards are fitted to all models and the tool bags are protected by metal base plates.



The 1½ h.p. Calthorpe Junior, which has a two-speed countershaft gear.



The substantial head lug of the Calthorpe Junior.



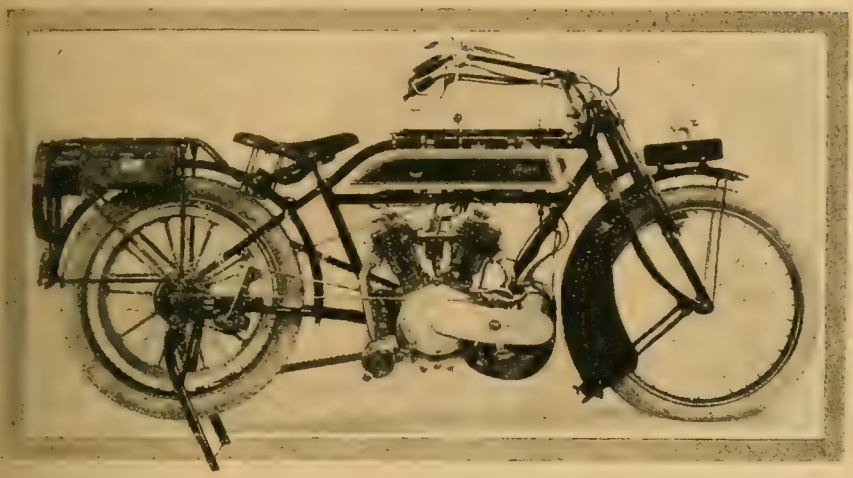
Power unit of the Calthorpe, showing footboards and change-speed levers.

ZENITH-GRADUA NEW MODELS

The success of the Gradua gear as exploited by Zenith Motors, Ltd., Weybridge, has been phenomenal, but it has possessed one drawback for use with a sidecar, in that it has not been possible to obtain a double figure low gear ratio. Realising that a low gear is an absolute necessity nowadays, the designer (Mr. F. W. Barnes) has introduced a method of obtaining the necessary reduction for passenger work. This is obtained by fitting a counter-shaft clutch and kick-starter in front of the engine, a chain drive being used from the engine to the counter-shaft, the drive thence being by a very long belt to the rear wheel. By gearing down the counter-shaft on which the pulley is situated, it is, of course, possible to use a very large pulley, with the result that gears as low as 11 to 1 may now be obtained by Zenith riders, with the further advantage of the very smooth drive given by such a long belt. All models for 1914 will be fitted with the twin-cylinder J.A.P motors, ranging in power from 3½ h.p. to 8 h.p., and in addition a 3½ h.p. model fitted with the Green water-cooled engine is supplied. The kick-starter fitted on the counter-shaft is of the push-forward type, and substantially made. Of course, it is quite possible by changing the engine sprocket, to obtain an almost indefinitely wide ratios of gears.

WOLF MODELS.

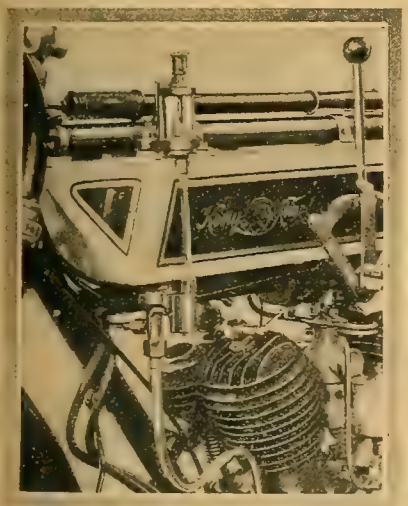
The 3 h.p. Wolf is fitted with a Toroga counter-shaft gear, double chain transmission, kick starter, Pilot spring forks, and Patterson pan seat saddle. The same machine is also fitted with combined chain and belt transmission. Another model is the 2½ h.p. Wolf lightweight, also with Toroga gear, chain and belt transmission. This model can be fitted with either fixed gear or Albion two-speed gear as well as Toroga.



Valve side of the Kerry-Abingdon 5-6 h.p. twin-cylinder three-speed model. Observe the clean crank case, kick starter, separate silencers and belt and tube cases on the end of carrier.

KERRY-ABINGDON.

A large range of Kerry-Abingdon motor cycles will be exhibited at Stand No. 34, bearing the famous King Dick trade mark. Small fittings for the control of the petrol and the priming of the engine have particularly received attention. A kick starter has been embodied with the Armstrong three-speed gear in most of the models, which admits of wheeling the bicycle in a backward direction, as is necessary when adjustments to the belt have to be made.



Kerry-Abingdon automatic drip feed, which only works while the engine is running and requires no attention. A hand pump is also fitted on the offside of the machine for use if desired and also when the engine has been cleaned out.

Another ingenious device that the company fit as an extra, at the option of the rider, is an automatic oiler. This is fitted on the tank, and, although only connected to the engine by one pipe of somewhat larger diameter than usual, by means of a diaphragm pump, contained in a portion of the fitting, oil is forcibly fed through the usual spotting glass (which is under the control of the rider) down to the engine. Unlike semi-automatic oilers, the supply of oil is stopped immediately the engine stops. An ordinary hand pump is also fitted. We understand that this device has given the greatest satisfaction, both on twin passenger machines and 3½ h.p. singles.

A special modèle de luxe passenger 6 h.p. twin is in course of preparation, and it is hoped to exhibit one of these machines at the Show. This will have chain and belt drive, with counter-shaft three-speed gear and kick starter, very large mudguards, and ample gear casing for belt and chain. An extra large tank will be fitted, to carry about two and a half gallons of petrol. The frame is designed to give extra ground clearance for the engine, to suit colonial conditions. The sidecar attachment lugs are in one with the frame lugs, giving a maximum of security at this point.

One of the characteristic features of these machines is still being maintained, namely, the circular spare belt case, which serves as a number plate at the rear of the machine.

In the gallery will be exhibited, besides the King Dick engines, an assortment of fittings and accessories.

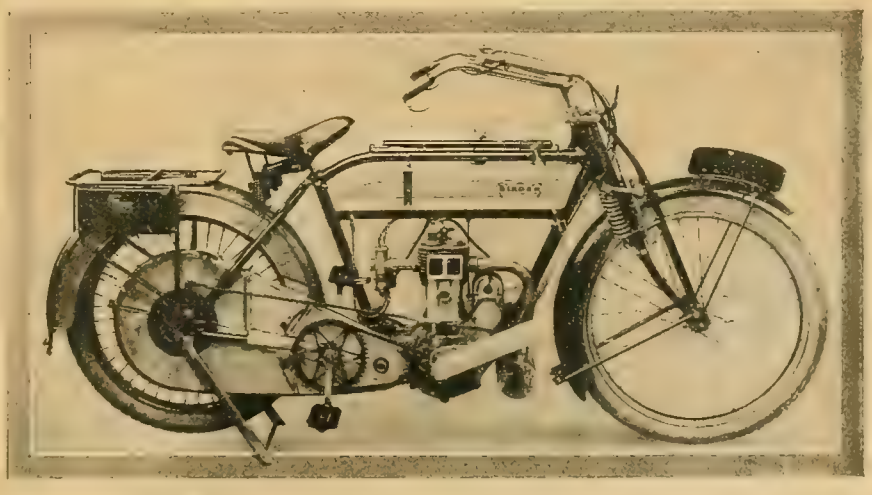
THE 2¾ H.P. DIAMOND UNIT.

Quite one of the most original engine designs is that of the 2¾ h.p. Diamond, which consists of a unit embodying engine, clutch and two-speed gear, all totally enclosed and running in oil. It is manufactured by the D. F. and M. Engineering Co., Ltd., Sedgley Street, Wolverhampton. The engine is 75×79 mm. bore and stroke, 349 c.c., with the cylinder set *déssaré*. The inlet and exhaust valves are driven off a single camshaft, and the former operates on the overhead principle, the mechanism being enclosed in a dust proof cover, and adjustable tappets are provided. Ignition is by a U.H. magneto, gear driven direct from the solid camshaft. Embodied in the unit casting of the base chamber and gear box is the metal-to metal clutch, which, the makers state, can be slipped indefinitely in traffic without damage, and a kick-starter of an improved type is also fitted. The final drive is by a chain, the advantage of which is that the gear ratio can be altered by a change of sprockets. The unit cases for 1914 have been redesigned, giving a neater appearance and greatly facilitating cleaning. To the student of advanced design the 2¾ h.p. Diamond presents many interesting features, and should on no account be missed. It will be exhibited on Stand No. 16, Ground Floor, Olympia.

SINGERS FOR 1914.

The only difference in the Singer models for 1914 will be the fitting of chain drive throughout on the 4½ h.p. model in place of the final belt hitherto supplied. The engine is 88×88 mm. bore and stroke, and a two-speed counter-shaft gear box is used, affording ratios of 5½ and 7¾ to 1. The machine is designed for use with a sidecar. The 2½ h.p. and 3½ h.p. single-cylinder models remain unaltered, Sturmey-Archer three-speed hubs and belt drive being the system of gearing and transmission employed.

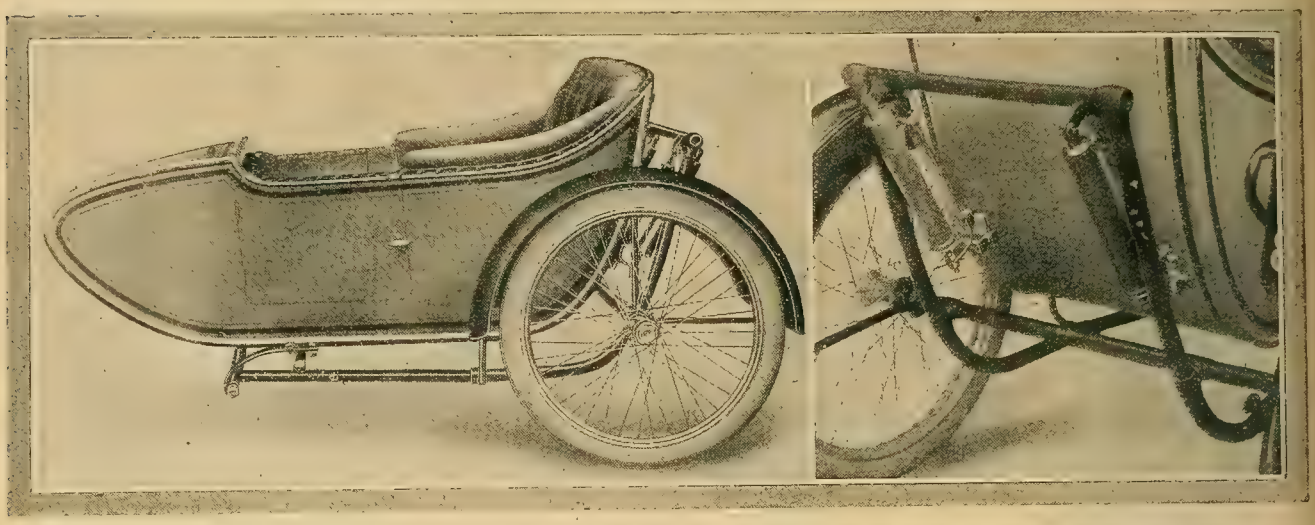
The Singer engines are always interesting to study owing to their extraordinary successes at Brooklands in the hands of G. E. Stanley and other riders, and the firm still hold the coveted hour record for 500 c.c. engines.



Valve side of the new chain-driven Singer, with two-speed counter-shaft gear

A New B.S.A. Model.

FEATURES: Three-speed Counter-shaft Gear, 556 c.c. Engine, 2½ in. Tyres.



The new B.S.A. sidecar is fitted with a decidedly novel type of springing in the form of two long spiral springs at the forward end.

THE policy of the B.S.A. is always a matter of interest, and it is, therefore, a matter of some note that the company will market nothing but single-cylinder engines for the coming year. The 3½ h.p. engine has been retained with all its distinctive features such as the *désaxé* cylinder and pear-shaped casting, the only noticeable alteration to this type of power plant being the addition of adjustable tappets which are held up to their work by enclosed springs. A new 556 c.c. engine will also be standardised, and this will resemble the 3½ h.p. type in every detail except that the stroke has been lengthened by 10 mm., thus increasing the capacity to 556 c.c. This model has, of course, been built for those who consider the extra power necessary for sidecar work in heavy country.

The 556 c.c. Engine and New Gear Box.

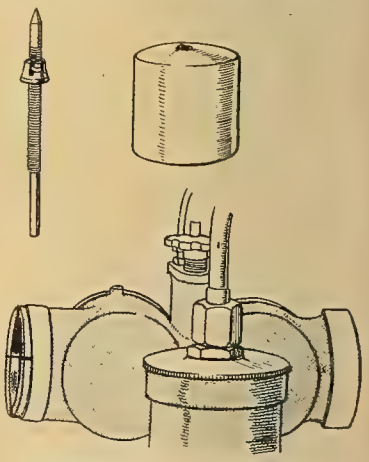
The 85×98 mm. engine is mounted in a substantial frame which follows standard lines in its general construction, but is reinforced by a central helical web. On the end of the crankshaft is mounted a sprocket which is driven through a spring shock absorber, containing three compression and three recoil springs.

A chain transmits the power to the new three-speed counter-shaft gear box, which has several novel features. All three pair of gear wheels are constantly in mesh, and the change is effected by sliding dogs. These dogs are peculiar in that there are nine jaws to each set, each of which is slightly undercut. One set is mounted on the primary and two on the secondary shaft. The sliding members are moved laterally by a very simple and ingenious method which has the additional advantage of being absolutely positive in action.

A fork engages each dog member, and is loosely mounted on the striking rod, the boss of each fork being cut away in the form of a specially shaped slot. Through these slots project hardened steel pin heads, the pins being firmly embedded in the striking rod. The striking rod, on being rotated by a quadrant and pinion, forces the forks to the desired position by means of the pins, and thus the dogs are engaged (this description may be clearly followed by reference to the sectional illustrations). A multiple-plate clutch is also mounted within the gear box and contains twenty bronze and nineteen steel plates which afford ample gripping surface.

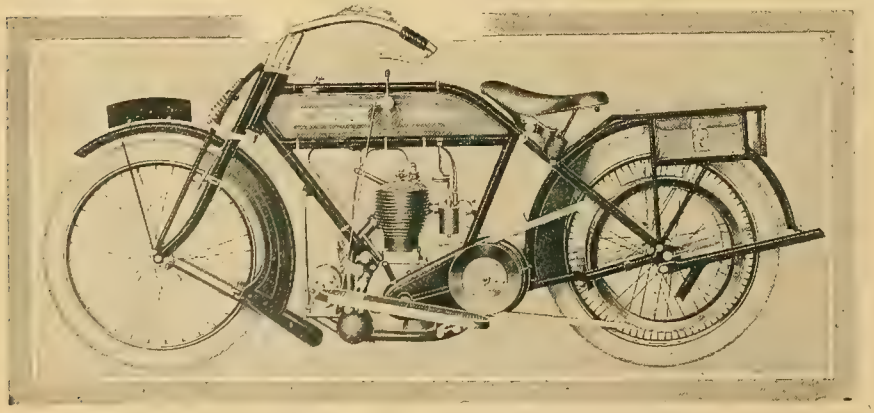
Thoroughness in Manufacture.

Every detail of this gear box is constructed with the most scrupulous care, and a thorough examination of a set of parts which has been under severe road test showed practically no wear. A kick-starter is mounted on the right-hand side and rotates the layshaft through an intermediate gear wheel, the teeth of which are so formed that it is impossible for the teeth to over-ride. Gear-changing is effected by a neat quadrant and lever secured firmly to a special lug on the lower rail. A spring control box is fitted to prevent straining the gears. The final drive of this model is by chain. Both chains are carefully protected from mud and dust, and simple chain adjustments the provided.



Arrangement of new top feed float chamber and threaded needle to enable the petrol level to be readily altered.

The cycle fittings are excellent throughout, excellent mudguarding being fitted, which, in combination with neat and substantial footboards, provide excellent protection for the machine and rider. The B.S.A. spring fork is retained, and Best and Lloyd drip feed lubrication has been standardised; 26×2½in. tyres are now



A new model B.S.A. for 1914 with chain cum belt transmission

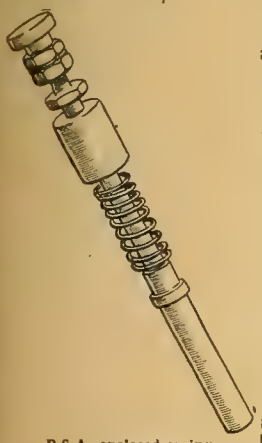
A New B.S.A. Model.—fitted to all models except the T.T. machine, and the frame has been slightly raised to compensate for the consequent decreased road clearance. A similar machine may be obtained with the 3½ h.p. engine and with the two-speed hub gear.

The 500 c.c. Models.

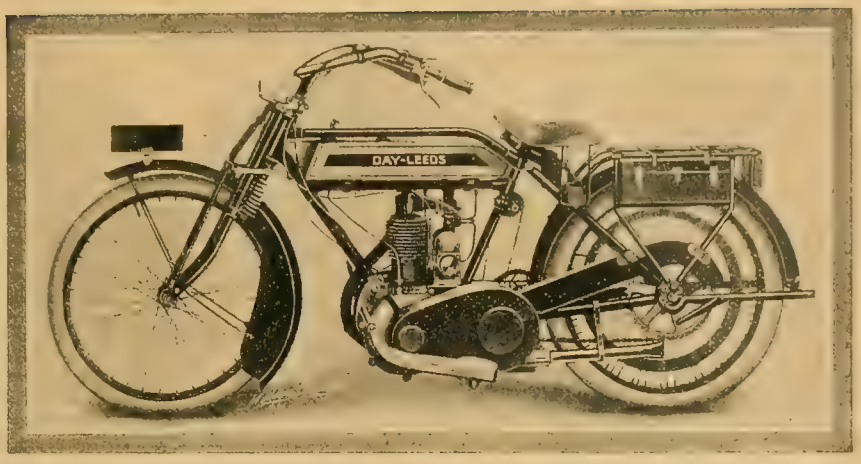
Other models are the 3½ h.p. chain cum belt drive with three-speed counter-shaft gear, a 3½ belt driven model with either the two-speed hub gear or free engine and the belt driven T.T. type. The specification of each of these models is similar except, of course, that the last mentioned model has dropped bars, footrests and 2¼in. types.

Spring drive to deaden the impulses of the engine as used on the chain driven B.S.A.

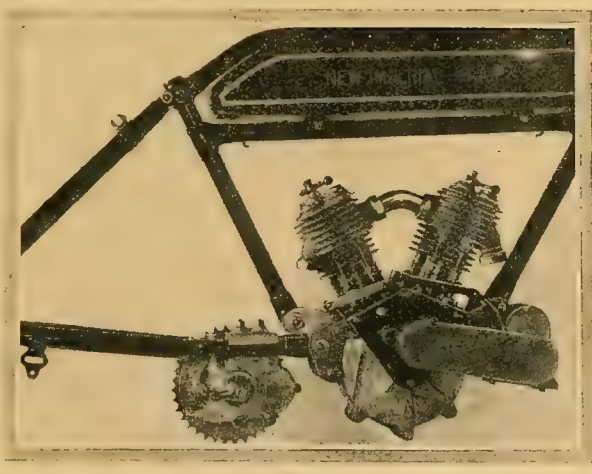
All B.S.A. machines are fitted with two stands, a detachable rear mudguard and carrier, and metal protected pannier tool bags. The Ruthardt magneto has been standardised, and the B.S.A. carburetter is now fitted with the petrol intake in the top of the float chamber, the float needle being reversed and a simple adjustment being provided for the height of the petrol level. Before leaving the works we were enabled to see a comparative test of the 3½ and 556 c.c. engines on the electric brake, and at an average speed of 2,700 revolutions the 3½ h.p. pulled approximately 8 h.p. and the 556 c.c. about ½ a h.p. more. An interesting detail of construction is that the pulleys on the belt driven models are formed of two steel pressings riveted together.



B.S.A. enclosed spring valve tappet.



The 3½ h.p. chain driven Day-Leeds fitted with P. and M. two-speed counter-shaft gear.

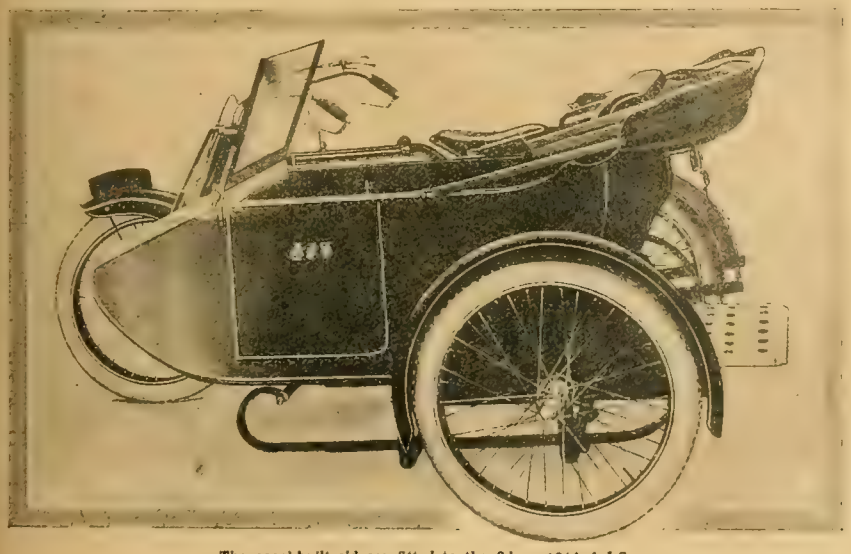


The New Imperial-Jap 4 h.p. twin-cylinder engine and three-speed gear box.

The company are marketing a very attractive sidecar for use with their machines in 1914, and two features stand out prominently on this attachment. One is the upholstering of the sidecar sides on the top with rolled leather arm rests, as in car practice, and the other is the suspension. The body is suspended at the rear by two long spiral springs enclosed in a tube, enabling the springs to be kept lubricated. The design is very well carried out and should provide most comfortable suspension. The outline of the coachbuilt body is clean and plenty of leg room is provided.

As will be realised from this description, the B.S.A. programme provides a range of models from which a machine can be selected to suit almost any taste from a go-anywhere sidecar combination to a single-geared speed machine.

The adoption of the long stroke single-cylinder engine by another large firm of manufacturers is a sign of the times.



The coachbuilt sidecar fitted to the 6 h.p. 1914 A.J.S.

NEW IMPERIAL MOTOR CYCLES.

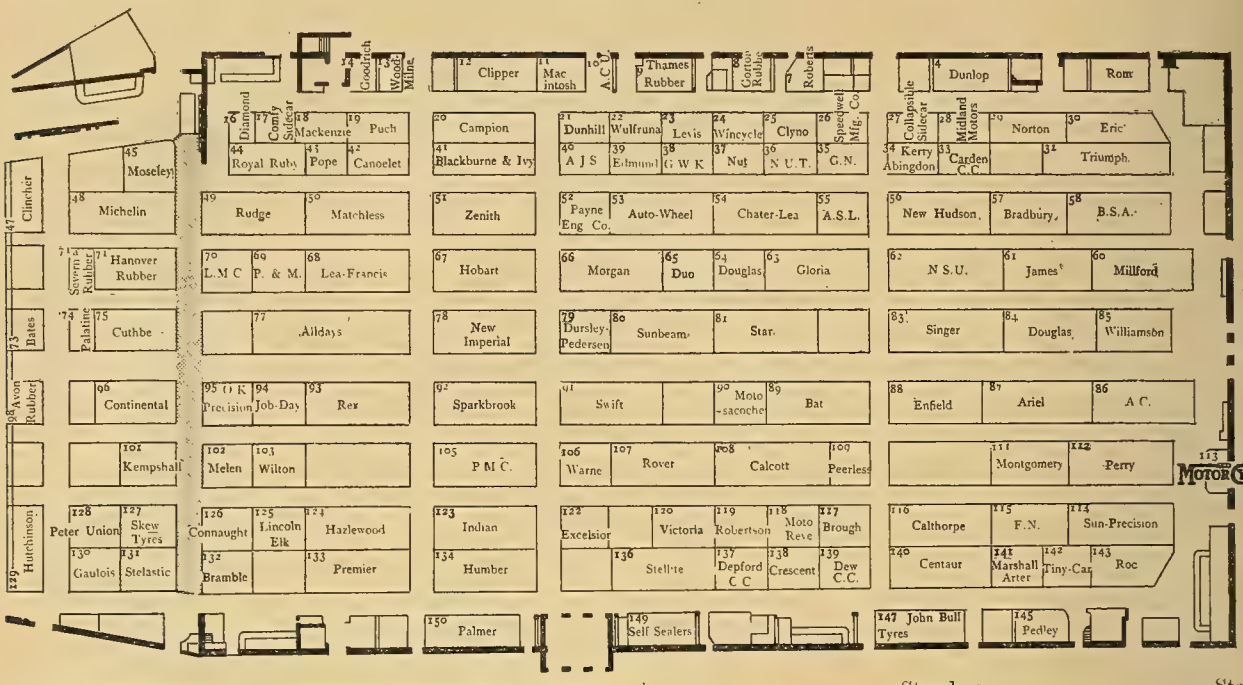
In addition to a cycle car, this company manufacture a range of motor cycles fitted with a 4½ h.p. single-cylinder and 3½ h.p., 6 h.p., and 8 h.p. twin-cylinder engines. They fit both two and three-speed counter-shaft gears, and a special new model for 1914 is the 3½ h.p. twin-cylinder, the dimensions being 70×64½ mm. bore and stroke. It is fitted with a two-speed counter-shaft gear box, affording a 50% reduction on low, and the machine is said to be very "nippy."

The three speed counter-shaft gear box is fitted to the big single and big twins, and is specially designed for heavy passenger work. The standard ratios provided are 4½, 7⅝, and 13½ to 1.

The cycle car is of very up-to-date design, having a four-cylinder water-cooled engine, pressed steel frame, V type radiator, and three speed gear box.

Plans of Olympia, showing Positions of Exhibitors.

MAIN HALL.

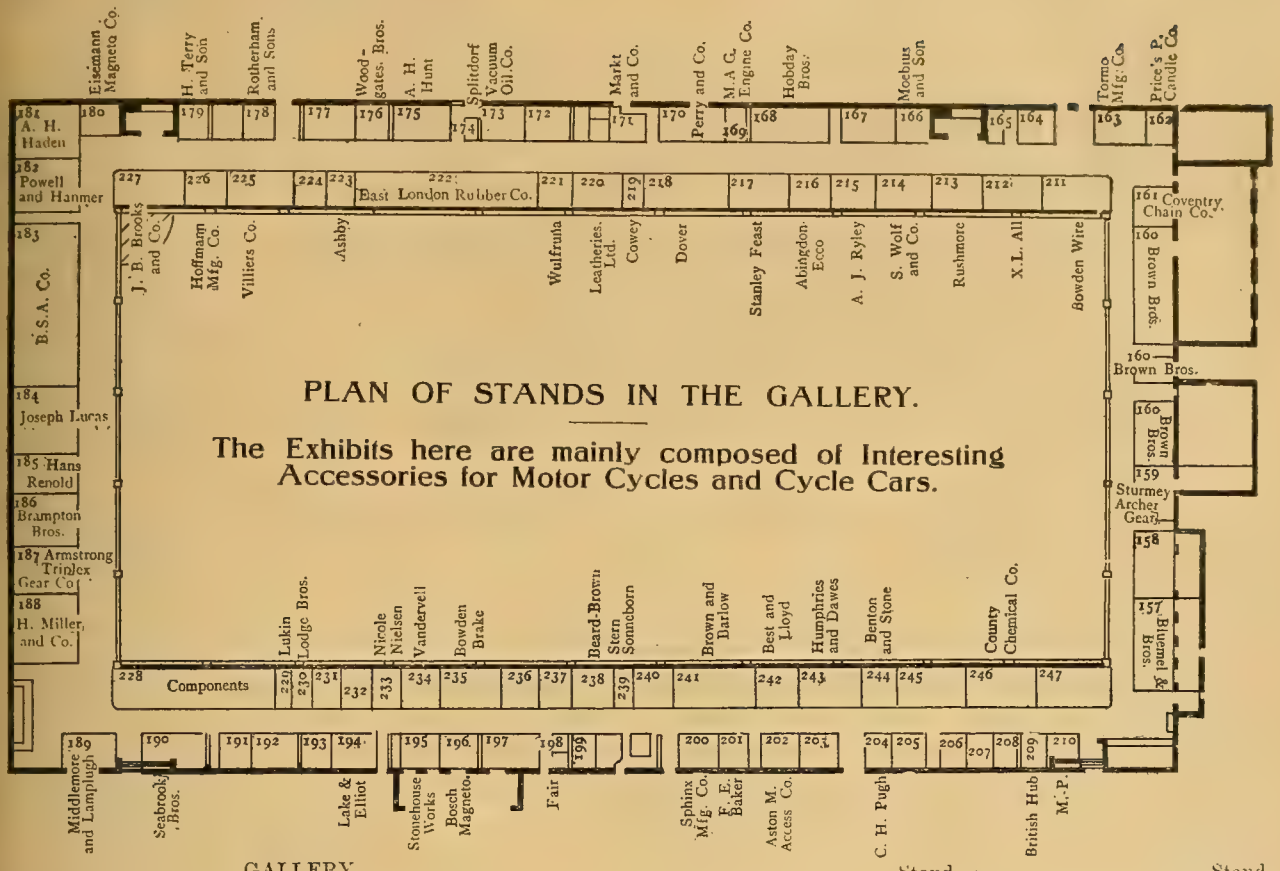


ALPHABETICAL LIST OF EXHIBITORS.

GROUND FLOOR.

	Stand.
Abingdon-Ecco, Ltd.	34
Alldays and Onions, Ltd.	77 and 77a
Angus, Sanderson, and Co., Ltd.	37
A.S.L., Ltd.	55
Auto-Carriers, Ltd.	86
Auto Cycle Union	10
Auto-Wheels, Ltd.	53
Avon India Rubber Co.	98
Bat Motor Mfg. Co.	89
Bates, W. and A., Ltd.	73
Bayliss, Thomas, and Co.	122
Birmingham Small Arms Co., Ltd.	58
Bordesley Engineering Co., Ltd.	126
Bradbury and Co., Ltd.	57
Bramble Mfg. Co., Ltd.	132
Brough and Co.	117
Burney and Blackburn	41
Butterfields, Ltd.	23
Calcott Bros., Ltd.	108
Campion Cycle Co., Ltd.	20
Carden Eng. Co.	33
Centaur Co., Ltd.	140
Chater-Lea, Ltd.	54
Clipper Tyre Co., Ltd.	12
Clyno Eng. Co.	25
Collier, H., and Sons, Ltd.	50
Comfy Sidecar Co.	17
Components, Ltd.	87
Continental Tyre and Rubber Co., Ltd.	96
Crescent Motors, Ltd.	138
Cuthbe, Chas., and Co.	75
Dew	139
Depford	137
D. F. and M. Engineering Co., Ltd.	16
Douglas Bros., Ltd.	64 & 48
Dunnill, Alfred, Ltd.	21
Dunlop Rubber Co., Ltd.	4
Duo Cycle Cars, Ltd.	65
Edmund, Charles, Ltd.	39
Electric and Ordnance Accessories Co., Ltd.	136
Enfield Cycle Co., Ltd.	88
F.N. (England), Ltd.	115
Gaulois Tyre (1909), Ltd.	130
Gloria Cycle Co., Ltd.	63
Goodrich, B. F., Co., Ltd.	14
Gorton Rubber Co., Ltd.	8
G.W.K., Ltd.	38
Hanover Rubber Co.	71
Hazlewoods, Ltd.	124
Hendee Mfg. Co.	123
Higgs, G. N.	35
Hobart Bird and Co., Ltd.	67
Humber, Ltd. 134 and	135
Humphries and Dawes, Ltd.	95
Hutchinson Tyre Co.	129
James Cycle Co., Ltd.	61
Kempshall Tyre Co., Ltd.	101
Kirby, James	125
Lea and Francis, Ltd.	68
Leicester Rubber Co.	147
Lloyd Motor Engineering Co., Ltd.	70
Marshall Arter, Ltd.	141
McKenzie, Thomas	18
Macintosh, Charles, and Co., Ltd.	11
Marston, John, Ltd.	80
Melen, F. and H., Ltd.	102
Mead and Deakin	42
Midland Motor and Cycle Co.	28
Michelin Tyre Co., Ltd.	48
Mills-Fulford, Ltd.	60
Minstrel and Rea Cycle Co.	116
Montgomery, W., and Co.	111
Morgan Motor Co., Ltd.	66
Moseley, D., and Sons, Ltd.	45
Moto-Rêve Co., Ltd.	118
Nanson, Barker, and Co.	142
New Hudson Cycle Co., Ltd.	56
New Imperial Cycles, Ltd.	78
Newman, S. A.	41
Norton Motors	29
North British Rubber Co., Ltd.	47
N.S.U. Motor Co., Ltd.	62
Oylers, Ltd.	127
Palatine Tyre Co.	74
Patent Collapsible Sidecar Co.	27
Payne's Engineering Co.	52
Palmer Tyre, Ltd.	150
Parkyn, F. H., Ltd.	82
Pedley, J., and Son, Ltd.	149
Pearsall-Warne, Ltd.	106
P. and C. Syndicate, Ltd.	30
Perry Motor Co., Ltd.	112
Peter Union Tyre Co., Ltd.	128
Phelon and Moore, Ltd.	69
Pope Motor Cycle Agency	43
Premier Cycle Co., Ltd. 133 and	133a
Premier Co., Ltd.	105
Redfern's Rubber Works, Ltd.	100
Rex Motor Mfg. Co., Ltd.	93
Rover Co., Ltd.	107
Roberts, Alfred, and Son, Ltd.	7
Robertson's Motor Agency	119
Royal Ruby Cycle Co.	44
Rudge-Whitworth, Ltd.	49
R.O.M. Tyre and Rubber Co., Ltd.	1
Self-Sealing Rubber Co., Ltd.	149
Severn Rubber Co., Ltd.	71a
Sidley, H. W.	19
Singer and Co.	83
Smith, J. E.	36
Speedwell Mfg. Co., Ltd.	26
Spencer, Moulton, George, and Co., Ltd.	148
Sparkbrook Mfg. Co.	92
Star Cycle Co.	81
Stelastic Tyres, Ltd.	131
Stevens, A. J., and Co., Ltd.	40
Sun Cycle Fittings Co., Ltd.	114
Swift Cycle Co., Ltd. 91 and	91a
Thames Rubber and Leather Co.	9
Triumph Cycle Co., Ltd.	31
Victoria Motor and Cycle Co., Ltd.	120
Wall, A. W., Ltd.	143
Williamson Motor Co., Ltd.	85
Wilton Cycle and Motor Co.	103
Wincycle Trading Co., Ltd.	24
Wood-Milne, Ltd.	13
Zenith Motors, Ltd.	51

Plans of Olympia, showing Positions of Exhibitors.—

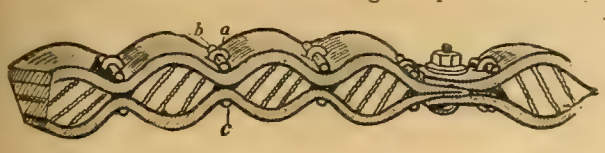


GALLERY.

	Stand.
Abingdon Ecco Co., Ltd.	216
Armstrong Triplex Gear Co.	187
Aston Motor Accessories Co., Ltd.	202
Baker, F. E., Ltd.	201
Beard, Brown and Co.	238
Benton and Stone, Ltd.	244
Best and Lloyd, Ltd.	242
Birmingham Small Arms Co., Ltd.	183
Bluemel Bros., Ltd.	157
Bosch Magneto Co.	196
Bowden Brake Co.	235
Bowden Wire, Ltd.	211
Brampton Bros., Ltd.	186
British Hub Co.	209
Brooks & Co., Ltd., J. B.	227
Brown Bros., Ltd.	160
Brown and Barlow, Ltd.	241
Components, Ltd.	228
County Chemical Co.	246
Coventry Chain Co.	161
Cowey Engineering Co.	219
Dover, Ltd.	218
East London Rubber Co.	222
Eisemann Magneto Co.	180
Fair and Co., B. M.	198
Haden, A. H.	181
Hans Renold, Ltd.	185
Hoffmann Mfg. Co.	226
Hobday Bros.	168
Humphries and Dawes	243
Hunt, A. H.	175
Lake and Elliot, Ltd.	194
Lucas, J., Ltd.	184
Lodge Sparking Plug Co., Ltd.	230
Lukin, Ltd.	229
Lycett's Saddle Co.	177
M.A.G. Engine Co.	169
Markt and Co., Ltd.	171
Middlemore & Lamplugh	189
Miller and Co., H., Ltd.	188
Moebius and Son	166
Nicole, Nielsen and Co., Ltd.	253
Perry and Co., Ltd.	170
Powell & Hanmer, Ltd.	182
Price's Co., Ltd.	162
Pugh, Chas. H., Ltd.	204
Rotherham & Sons, Ltd.	178
Rushmore Lamps, Ltd.	213
Ryley, J. A.	215
Seabrook Bros	190
Smith and Sons, Ltd., S.	192
Splitdorf Electrical Co.	174
Sphinx Mfg. Co.	200
Stern, Sonneborn Oil Co., Ltd.	239
Stanley Feast and Co.	217
Sturmey-Archer Gears, Ltd.	159
Stonehouse Works Co.	195
Terry and Sons, H.	178
Tormo Mfg. Co.	163
Vacuum Oil Co., Ltd.	173
Vandervell & Co., C. A.	2[illegible]
Villiers Eng. Co., Ltd.	2[illegible]
Wolf and Co., Ltd., F.	2[illegible]
Woodgate Bros.	1[illegible]
Wulfruna Eng. Co., Ltd.	2[illegible]
X'All, Ltd.	2[illegible]

A NOVEL BELT.

WE recently paid a visit to Mr. J. Graham, 29, Perham Road, West Kensington, W., and inspected a novel belt, which we illustrated herewith. It consists of two strips of chrome leather, between which are inserted lozenge-shaped sections of

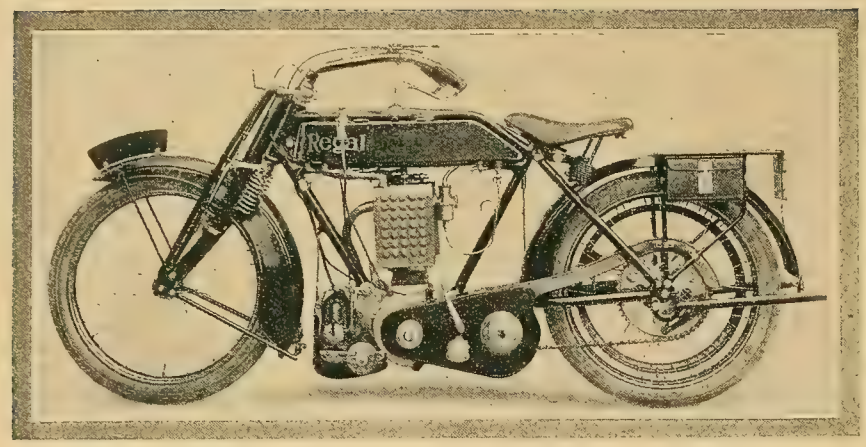


rubber and canvas. These are held together between the strips of chrome leather by means of chain links A, held in position by a fixed pin B and a loose pin C. The belt is flexible both vertically and laterally, and we very carefully examined its action on a 3½ h.p. Triumph.

NEXT WEEK!

THE MOTOR CYCLE SHOW REPORT.

Written and illustrated by our own staff after a stand to stand inspection of the exhibits.

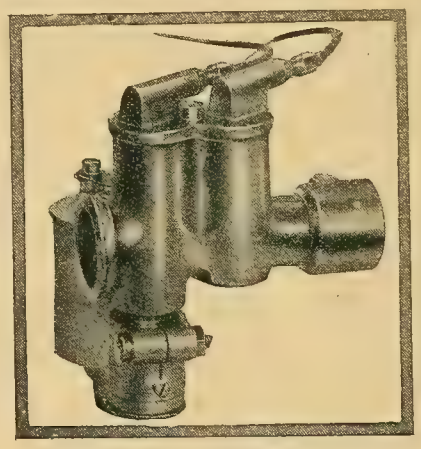


Transmission side of the latest single-cylinder chain-driven three-speed Regal-Green.

REGAL-GREEN FOR 1914.

An attractive and powerful mount is the three-speed chain-driven Regal Green. The engine is the well-known water-cooled Green-Precision 85×88 mm. bore and stroke, 499 cc. There is no change in this engine, the valves still being situated overhead, and the distinctive Green system of radiation remains unaltered. The transmission is by chain throughout, the gear box, the latest pattern Jardine G.H. three-speed counter-shaft gear being used. The front chain is entirely protected, and a neat top shield is fitted over the rear chain. Druid forks, Brooks B 170 saddle, and Bosch magneto and B. and L. drip feed semi-automatic lubrication are other features of an admirably designed machine.

These machines are being manufactured by Mr. Ernest Smith, 15, High Street, Saltley, Birmingham, and in addition to the 3½ h.p. Regal-Green he will market in 1914 a 2¾ h.p. Regal-Green and three other models fitted with Precision motors of various powers.



The new P. & M. carburetter is fitted with a special top, to enable the wires to lie out of sight under the tank. Fitted in the top are small pulleys over which the wires run.

THE FOUR-CYLINDER STELLITE.

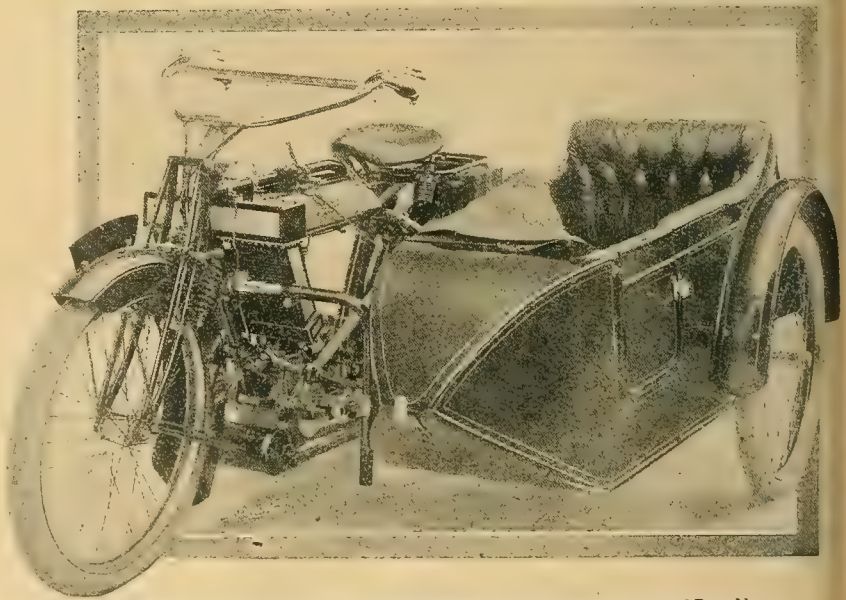
The Stellite cycle car (which is more correctly described as a light car) will make its first public appearance at the Olympia Motor Cycle Show, which opens on the 24th inst. It may be recalled that we first described this attractive vehicle in our issue of August 28th last. Its main features are a four-cylinder water-cooled engine of 62 × 89 mm., driving by shaft to a two-speed gear mounted on the worm driven back axle. We have recently been privileged to try this vehicle on the road, and during a week-end run of 300 miles had no occasion to use a tool. Petrol consumption we found to be at the rate of about 40 m.p.g., and that figure also represented the car's speed capabilities on the road. The engine is very flexible, and the Stellite is one of the most silent cycle cars we have yet driven. Though conforming to the A.C.U. definition of a cycle car in that its engine is under 1,100 c.c. and the chassis weight under 6 cwt., the Stellite is obviously on the border line of cycle car and light car, so we refrain from publishing a lengthy description of its running, but instead refer readers to *The Light Car* of November 11th.

HUMBER WATER-COOLED SIDE-CAR MODEL.

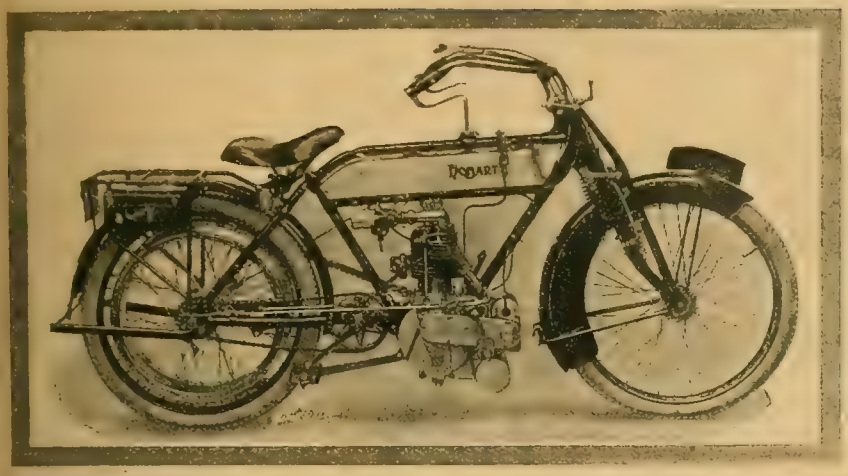
There are a great many riders who prefer the simplicity of a 3½ h.p. single cylinder machine, and numbers of these wish to attach sidecars to them. Messrs. Humber, Ltd., Coventry, have evidently recognised the limitations of such a machine's power, and have thus brought out a 3½ h.p. water-cooled model for next year. This is exceedingly taking in design, very neat honeycomb radiators being fitted on the front down tube with quite a substantially sized water tank at the top. Water circulation is, of course, on the thermo-syphon principle, and a machine of this type should stand long spells of hard driving without any bad effect on the engine, while, of course, such an engine will naturally prove itself a better hill-climber, especially on long gradients, than an air-cooled type. The sidecar attached is a very handsome, well upholstered model, and the whole outfit should prove extremely popular with those riders who desire considerable efficiency combined with simplicity. The gear employed is a Sturmey-Archer three-speed.

HOBART MODELS FOR 1914.

A newcomer among the Hobart models will be the new 6 h.p. passenger machine, which is fitted with a 75 × 85 mm. twin J.A.P. of the latest type, and an Enfield two-speed gear. The frame is very stoutly constructed and embodies the side-car lugs, a dropped top tube is employed, and the steering head is of particularly stout construction. Protection of both machine and rider have received careful attention, both front and rear guards having side wings for their full length. In addition to this, 24in. footboards are fitted and are adjustable for angle, and the front gear chains run in an oil bath. The rear chain is protected by a cover on its upper side, but is not entirely enclosed, so that rear wheel detachment is simplified. A feature of

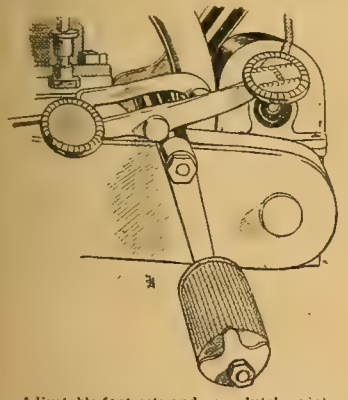


Threequarter front view of the 3½ h.p. single-cylinder water-cooled Humber and Bramble chassisless sidecar.



Valve side of the 4 h.p. single-cylinder Hobart with Sturmey-Archer three-speed gear.

the rear brake, which is of the internal V type, is the very long leverage on the actuating pedal, which enables great power to be applied with a minimum of exertion. The silencing arrangements

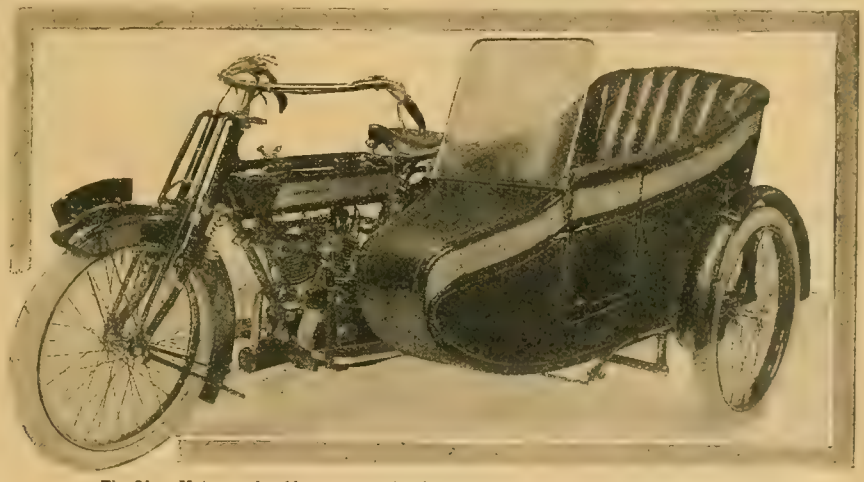


Adjustable footrests and new clutch pedal on 4 h.p. Hobart.

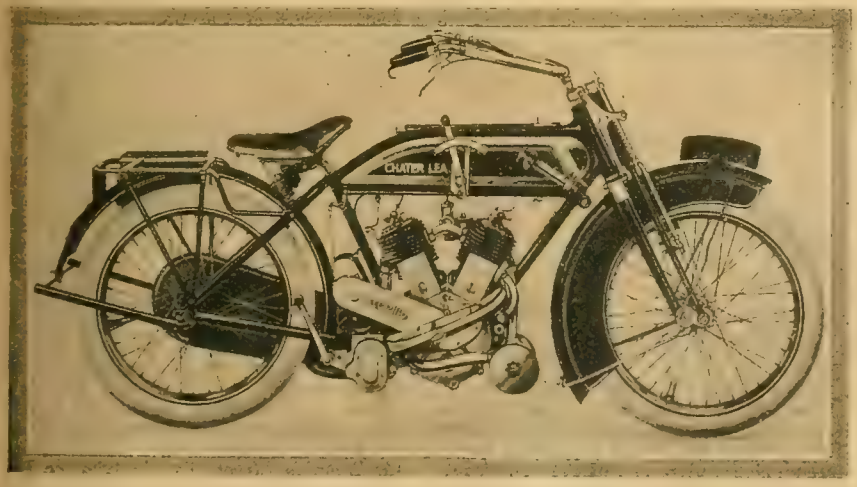
show great ingenuity, for the cast aluminium expansion box is carried rigidly on extensions of the crank case bolts and so cannot rattle. A short flattened extension pipe reaches forward, but the main egress is by a long tail pipe extending to the rear spindle. As with other Hobart models Best and Lloyd semi-automatic drip feed lubrication is used and the tank is finished in black with broad gold lines, giving the machine a very smart appearance. 26 × 2¼in. tyres are standard, and one model will be shown with all black finish.

The 4 h.p. machine, which is fitted with the single-cylinder 85×85 mm. Jap engine, has an overhead inlet valve, and has undergone only slight alterations which are chiefly in the nature of refinements. The frame has been lowered and the head-lug considerably improved. The front wheel guard now has extensions continued to the front end, and adjustable footrests will considerably increase the rider's comfort. A 2¾ h.p. engine of 74×81 mm. bore and stroke will in future replace the 2½ h.p. to a large degree, and the latest type has radiating fins arranged to give a pear-shaped look to the cylinder casting.

Handle-bar controlled magneto, glass top filler caps, enamelled fork springs, and encased pannier bags will be standard on all types, and pan seats will be fitted to all machines except the lightweight.



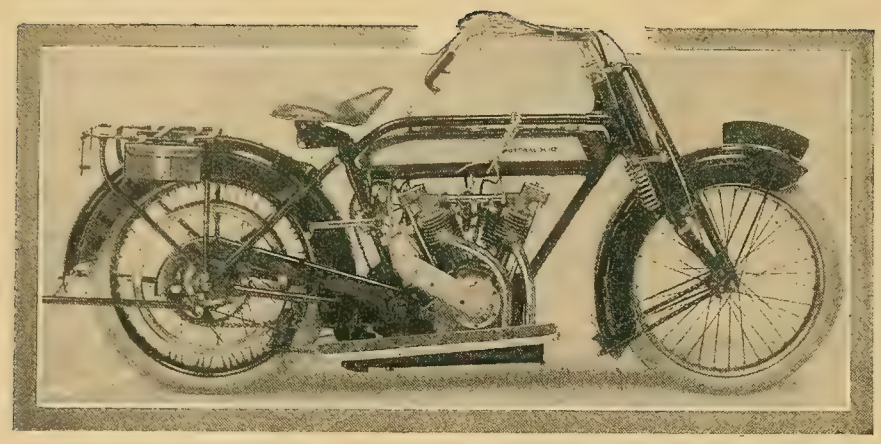
The 6 h.p. Motosacoche sidecar outfit, showing the exceedingly neat wind screen and well upholstered sidecar.



The 8 h.p. Chater-Lea has been entirely re-designed. The frame has a cut away top tube, thus affording lower riding position, a shorter wheel base, enclosed chain drive, and a three-speed counter-shaft gear.

6 h.p. MOTOSACOCHE SIDECAR.

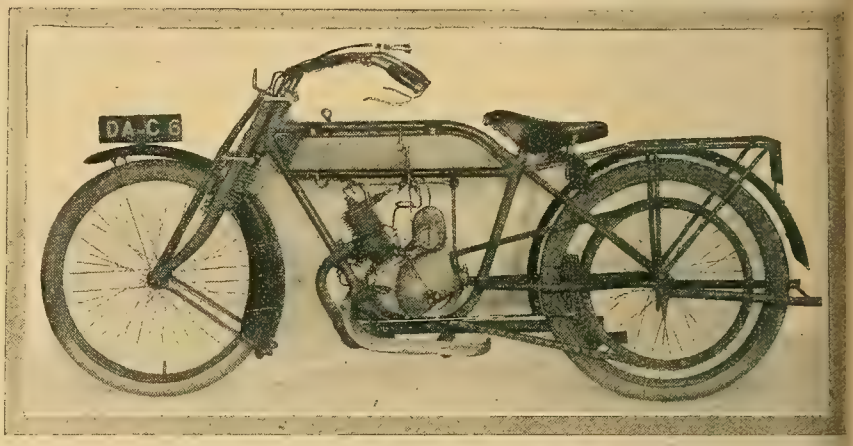
Fitted with the celebrated 6 h.p. M.A.G. twin-cylinder engine and a superbly finished sidecar, the combination sold by Motosacoche, Ltd., for 1914 must take rank as one of the finest passenger-carrying outfits on the road. Comfort for both driver and passenger has been most carefully studied, and the provision of an Xl'All saddle and dropped frame renders the driving position ideal. The M.A.G. engine has been so fully described in these pages that it is hardly necessary to refer to it again, but attention may be called to the exceedingly neat coverings to the inlet valve rockers, clearly shown in the illustration. 650×65 mm. light car type Hutchinson tyres are fitted to the machine. The sidecar is beautifully upholstered throughout, and one of the neatest wind screens we have inspected is fitted to protect the passenger. A neatly carried out cane border runs round the body, and the sidecar may be taken as typical of the high degree of excellence to which builders have brought sidecar construction at the present time.



Valve side of 6 h.p. Motosacoche, showing the neat manner in which the overhead valves are protected. The long footboards and hand starter are noticeable features.

THE TWO-STROKE CLYNO.

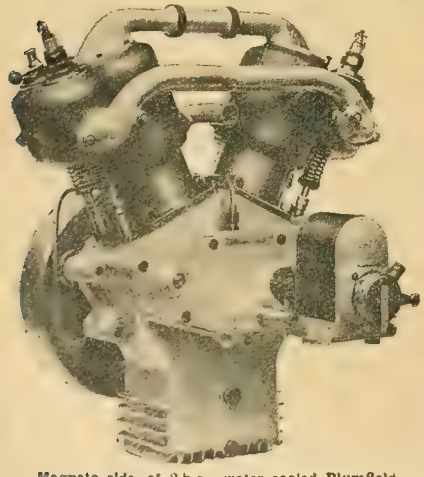
The lightweight two-stroke engine seems to be in for a run of great popularity during 1914. One of the most interesting designs is that of the Clyno, which embodies a power unit consisting of a two-stroke single-cylinder engine, with the cylinder sloping forward, and a two-speed gear box integral with the base chamber. The outside flywheel is covered by an aluminium shield. The Ruthardt magneto is carried on the top of the gear box. The drive is by belt on large diameter pulleys. The unit is bolted into a strong and neat loop frame. It will be remembered that this little machine has performed meritoriously on the notorious Alms Hill, near Henley. The original dimensions of this baby Clyno were 70 × 70 mm. bore and stroke, which gives a capacity of 269 c.c., but we understand that the makers are slightly enlarging the engine for the coming year.



Near side of the latest two-stroke Clyno which will make its debut at the Show.

TWIN BLUMFIELD ENGINE.

A big twin engine, which can be obtained with both air and water-cooled cylinders, is being manufactured for 1914 by Messrs. Blumfield, Ltd., Birmingham, specially for use on cycle cars. The b.h.p. of the engine at 2,300 is 18, and the total weight of the power unit is 100 lbs.



Magneto side of 8 h.p. water-cooled Blumfield engine. Observe the addition of radiating fins on the crank case.

It is a very solid job; the bore of the engine is 88 mm. and the stroke 90 mm., and has an outside flywheel fitted to a solid crankshaft. Lubrication is forced by a gear-driven pump fitted to the side of the crank case, the big ends of the connecting rods and main bearings having their supply of oil forced to them by this pump. The connecting rods have their ends split to enable any adjustment to the bearings to be made. The engine is most substantially constructed, and should be thoroughly up to the work for which it has been designed.

A SHOW RENDEZVOUS.

Mr. Norman Barrett, maker of the ingenious U and I sidecar, which we illustrated last week, informs us that his showrooms at 56, Oxford Street, W., the entrance of which is in Rathbone Place, are at the disposal of any motor-cyclists who care to avail themselves of the accommodation during Show week. Routes may be planned out, letters received, and the motor papers will be available.

1914 INDIAN ARRANGEMENTS.

Last Monday we visited the Hendee Company's new premises, 366-368, Euston Road, N.W., and found Mr. Wells superintending the fitting up of the new depôt. This is a building of five floors in the centre portion and three floors in front, with a frontage to the Euston Road of over 32ft. There is a side passage wide enough to admit a motor bicycle and sidecars, and two lifts. The showroom is being fitted up with black mahogany mouldings and birch panelling; the dados and ceiling are white; this should provide a striking effect when a good array of Red Indians are assembled on the floor. Part of the premises are fitted with machinery and benching for repair work, and we were very much struck with a little apparatus for cylinder lapping, which is responsible for the finely polished surface of the cylinders. This little apparatus is a jig which reciprocates the piston in the cylinder and revolves the cylinder at the same time, the polishing medium being crocus powder. The stores at this new depôt are splendidly arranged, and as complete as any in London.

A NEW TWIN-CYLINDER ARIEL.

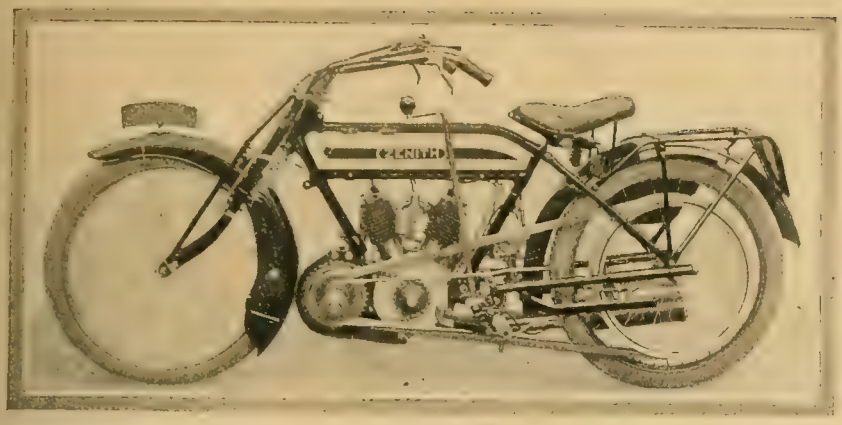
The 3½ h.p. Ariel has achieved extraordinary success in the big trials during this year, and for next year there will be a new model added to the list, a 5-6 h.p. twin, fitted with the Ariel countershaft, three-speed gear box, and free engine clutch. Combination chain and belt drive will be the method of transmission, and the machine is designed to be used as a powerful solo machine or for sidecar work. The new Ariel sidecar is a fine example of coachwork.

TWELVE-JET CARBURETTER.

Mr. J. H. Wilkinson, inventor of the twelve-jet carburetter bearing his name, informs us that his carburetter will be exhibited by Messrs. Rotherham and Sons, Ltd., Coventry, at Olympia. Readers interested should write either Messrs. Rotherham or the inventor, at 40, Jubilee Road, Doncaster.

Trade Excursion to Olympia.

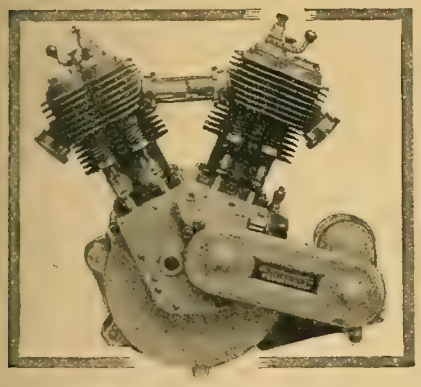
Arrangements have been made by the Birmingham centre of the Cycle and Motor Trades' Benevolent Fund, to run an excursion to London, on Saturday, November 29th, which is the last day of the Show at Olympia. Full particulars can be obtained from Mr. A. B. Williams, 13, Weaman Street, Birmingham, or Mr. J. Francis, Alexander [illegible] Cock's Green, Birmingham.



Showing the chain and belt drive of the 3½ h.p. 1914 Zenith, with counter-shaft gear mounted in front of the engine, and magneto placed high up to afford better protection.

THE TORMO MANUFACTURING COMPANY.

As well as the 2½ h.p. and 3½ h.p. single-cylinder engines, 5 h.p. and 6 h.p. twin-cylinder engines will also be marketed for 1914 by the Tormo Engineering Co., 67-68, Bunhill Row, London, E.C. The 5 h.p. has a bore of 74 mm. and a stroke of 85 mm.; the 6 h.p. a bore of 85 mm. and stroke of 85 mm. The valves are of the enclosed type, mechanically-



Valve side of the latest pattern 5-6 h.p. Sarolea twin-cylinder engine.

operated and side by side, and adjustable tappets are fitted. The angle of the cylinders is in both cases 50°. Ignition is by Bosch magneto driven by chain. The weight of the 5 h.p. engine with magneto is 88 lbs. and the 6 h.p. engine weighs 96 lbs. All the engines are beautifully finished, the radiating fins especially being cast very thin, enabling the engine to run very cool.

AUTO-WHEELS FOR 1914.

The auto-wheel has certainly arrived among that class of rider to whom the motor cycle proper does not appeal. During the year no fewer than 1,750 of these handy little attachments have been sold. For next year, however, 10,000 have been laid down, and of these 5,000 have been contracted for by the B.S.A. Co., which will be known as the B.S.A. auto-wheel modèle de luxe, and will command a slightly higher price. These will be ready for delivery in February. As regards alterations for 1914 these will be [illegible]

An efficient compression tap is now fitted to the top of the cylinder, and a quiet silencer will be incorporated in the crank chamber, while tyres of greatly improved quality are fitted.

The petrol tank is larger, and is secured to the frame by means of straps, while a sump has been added so that the last drop of petrol may be used. In the sump is a filter preventing any dirt from reaching the carburetter. The design of the exhaust valve lifter has been improved, and means for adjustment are now provided.

A new automatic carburetter, fitted with an easily adjustable jet, both dirt and waterproof, is now supplied with the *de luxe* model, All Wall auto-wheels are fitted with single lever control.

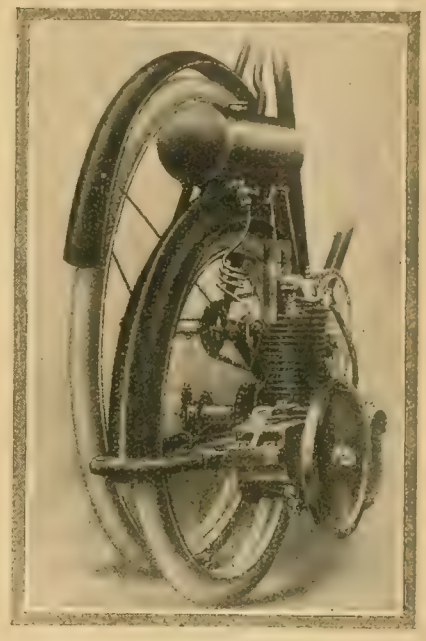
THE DAY-LEEDS.

The Day-Leeds machines, manufactured by Job Day and Sons, Ltd., Ellerby Lane, Leeds, claim attention. A new model is the chain-driven machine which is built for sidecar work or hard touring. The engine has a bore of 85 mm. and a stroke of 88 mm. and is fitted with an overhead inlet valve. Ignition is by Bosch magneto placed behind the cylinder. Transmission is by chain, a Phelon and Moore two-speed gear being fitted. Among other refinements are an easy-starting device, a Best and Lloyd lubricator, and footboards of a neat pattern.

OUTSIDE OLYMPIA.

The newest models of the Godiva sidecars will be on view in an upstairs showroom at 11, Hammersmith Road, during the forthcoming Olympia Show.

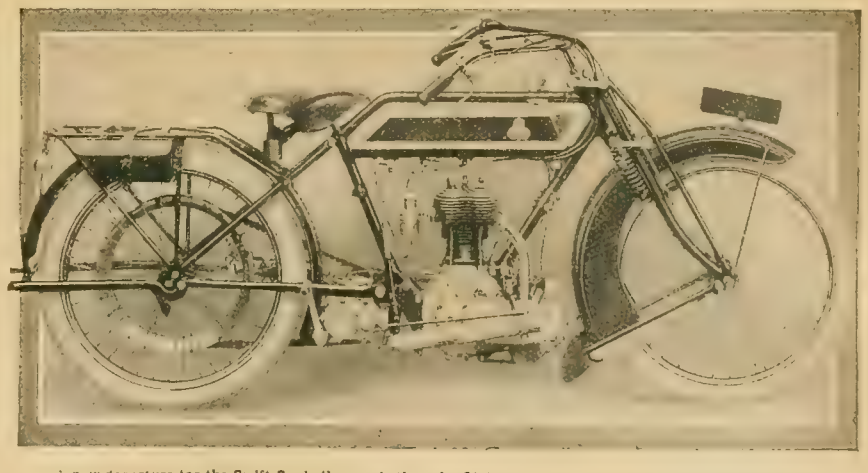
K. Portway and Co., Brantham, Manningtree, Essex, makers of the "Paragon" cycle car, have arranged to have a model on view during Show week, at the Olympia Garage, exactly opposite Olympia.



The Auto-wheel pedal cycle attachment.

The new Perry four-cylinder light car proves to be over the cycle car limit. It is to be outside Olympia next week.

A new two-stroke engined machine will be on view during the Show week at Burts, No. 8, Maclise Road, which faces Addison Road Station. Mr. W. T. Green, late of the Premier Cycle Co., is responsible for the design, which follows the most recent practice. The new Phaetonette sidecar will be on view at the same address.



[illegible] departure for the Swift Co. is the marketing of a 3½ h.p. three-speed counter-shaft geared model.

TIME TO LIGHT LAMPS.

Nov.	20th	...	5.2 p.m.
,,	22nd	...	5.0 ,,
,,	24th	...	4.58 ,,
,,	26th	...	4.56 ,,

84,579 Copies of "The Motor Cycle."

The circulation of our last issue was no less than 84,579 copies.

Olympia Show Report.

Next week's issue of this journal will contain a complete Show report in three sections, alphabetically arranged. The description of the various machines will be dictated by our own staff after a stand to stand inspection of the exhibits. The issue will be profusely illustrated.

A New Club in S.E. London.

The Blackheath and District M.C. was formed last week and has already thirty members. The opening run will take place on Saturday next to Leaves Green, and a paperchase will be held on December 6th. The hon. secretary is Mr. E. Lister Wilson, The Cedars, 8, Vanburgh Fields, Blackheath, S.E.

Olympia, THE Show.

Chicago, where things are generally done on a big scale, has just held a large motor cycle show, which an American contemporary describes as a great success. But when it mentions that on the opening day seven hundred persons paid for admission, and records the fact as something remarkable, we do not think the supremacy of Olympia as *the* Show of the world is likely to be seriously challenged. And it must be remembered that this Chicago Show is the show of the year in America.

Chief Constables and Rear Lighting.

The Auto Cycle Union has not allowed the grass to grow under its feet in connection with the imposition recently levelled at motor cyclists in connection with the rear red lighting alleged illegality. A few days ago Mr. T. W. Loughborough (secretary of the A.C.U.) addressed a circular letter to all the chief constables in the kingdom, asking them if it was their intention to prosecute motor cyclists until the Local Government Board had issued a fresh order on the subject. The chief constables of the following counties have replied stating that it is not their intention to prosecute motor cyclists until the Local Government Board issues a fresh order to cope with the recent decision of the Divisional Court: Denbighshire, Northumberland, Nottinghamshire, Monmouthshire, Durham, Shropshire, West Riding of Yorkshire, Huntingdonshire, Surrey, Staffordshire, and Essex

Sidecar Records.

Is it true that the A.C.U. intend to formulate a rule that all sidecar records must be accomplished with three wheels in contact with the ground?

Classification of Motor Cycles.

The A.C.U. has instituted a fresh class in connection with the classification of motor cycles, and in future Class A will be for 250 c.c. engines and Class A1 for 275 c.c. engines. This arrangement will be adhered to by all countries forming the F.I.C.M.

American Visitors to the Show.

Messrs. George N. Hendee and T. K. Hastings of the Hendee Co. will arrive in this country on Saturday next. Mr. Hastings will be remembered by some of our readers as a participant in the early A.C.U. trials on an Indian, first on a single-cylinder, and then on a twin. He is about to open an important branch in Australia for the Hendee Co.

Badges for Stand Attendants.

Our paragraph last week concerning the desirability of the attendants on stands at Olympia wearing distinctive badges has brought a reply from Messrs. F.N. (England), Ltd., who state that their salesmen will be equipped with a badge bearing the well-known F.N. trade mark. It is illustrated herewith. We understand that several other firms will adopt this useful method of enabling buyers and enquirers to locate those responsible for affording information.

REAR LIGHTS ON MOTOR CYCLES.

Important Announcement.

On going to press we learn from a most reliable source that the authorities are carefully considering the whole question regarding the regulations concerning red rear lights on *motor bicycles*, and we are pleased to be able to assure readers that in the very near future their anxieties in this direction will be over. We are in a position to state that the old order of things will most probably be reverted to. Although this exclusive announcement is in no sense official it is authoritatively believed in Government circles that the foregoing will be the outcome of the deliberations of the committee of the Local Government Board.

It will thus be seen that while there is a strong possibility that *motor bicycles* will be exempted from carrying red rear lights, it would appear that two track motor cycles will in the near future be required by law to show some form of rear warning light.

SPECIAL FEATURES:

BUYERS' GUIDE OF 1914 MODELS.
OPEN LETTER TO THE TRADE.
REAR LAMPS FOR MOTOR CYCLES.

Police Activity in Kent.

We understand from a reader that round Orpington, Kent, the police are very active, especially as regards "cut-outs." Several riders have been summoned lately for using a cut-out.

Club Life in the Antipodes.

The South Australian M.C.C. seems to be composed of a very active and enthusiastic number of members. The annual dinner took place on September 20th, and there was a record attendance. The opening run to the National Park followed on September 27th, and impromptu sports were held, over 300 motor vehicles of all sorts taking part. A hill-climb was held on October 8th on Sellicks Hill.

Rear Head Lights.

A correspondent writing to us in favour of rear lights says that he always carries a rear light because, no matter how slowly he rides he always finds someone else riding slower still. How his rear light helps him in such a case we are at a loss to imagine, unless he rides backwards and looks (as he talks) through the crown of his hat.

London-Exeter-London Christmas Run.

The following are the entries to date:

N. H. Pearson (7 Indian sc.)
C. W. Meredith (3½ Bradbury sc.)
R. Chesterfield (7 Indian sc.)
B. A. Hyem (18 Bedford)
H. Petty (10 Singer c.c.)
C. Dickinson (3½ Ariel sc.)
R. G. J. Charlesworth (5 Zenith sc.)
C. M. Keiller (8 G.W.K. c.c.)
A. T. Tamplin (8 G.W.K. c.c.)
J. T. Wood (8 G.W.K. c.c.)
J. A. Hilger (2¾ Douglas)
P. D. Panling (7 Swift c.c.)
W. G. Coleman (3½ B.S.A.)
P. D. Walker (8 Harding Summers c.c.)
A. G. Cocks (2½ Connaught sc.)
T. J. Ross (3½ Triumph)
J. A. Hoult (7 Matchless sc.)
H. G. Digby (4 Triumph)
Hugh Gibson (6 Bradbury sc.)
H. Karslake (3½ Rover sc.)
V. Olsson (7 Zenith sc.)
H. Bashall (Morris-Oxford light car.)
J. T. Bashall (6 A.J.S. sc.).
A. Bashall (8 Morgan cycle car).
F. Millar (sidecar).
B. Alan Hill (7 Indian sc.)

Riders who are not members of the M.C.C. should note that the date for the last election of members for this run is December 1st.

Cycle Car or Light Car?

A Midland firm of cycle car manufacturers has produced a four-cylinder four-seated light car, the chassis and engine capacity of which are within the A.C.U. definition of a cycle car.

A.C.U. Notes.

The governing body has granted permits to the Bristol M.C.C. to hold a twenty-four hours reliability trial on December 26th, 1913, and to the Liverpool A.C.C. to hold a reliability trial on January 23rd, 1914.

The Car Show.

If interest in the car exhibits during the exhibition at Olympia last week can be taken as a reliable guide of the enthusiasm in motoring generally, the Motor Cycle and Cycle Car Show at Olympia next week will be another huge success

Motor Cycling in South Africa.

A reader called at our office last week to enquire if the law with regard to lamp lighting is the same in South Africa as it is at home. We could not answer the query exactly, and shall be interested to hear from any reader who knows whether there are laws with regard to lamp lighting in South Africa on motor vehicles.

A Club for Ladies only.

We are informed that it is intended to form a ladies' motor cycle and cycle car club with London as the headquarters, whence trials and competitions will be run. It is hoped that gymkhanas will be organised, and that the intended club will have a team to represent them in open competitions. There will be open events in which men will be allowed to compete, and, if permission can be obtained, members will race at Brooklands. The club will be affiliated to the Auto Cycle Union. It is hoped that ladies who would like to join will send in their names to Miss Mary Ellis, 35, Portland Place, London, W.

FUTURE EVENTS.

Dec. 26-27.—MOTOR CYCLING CLUB Winter Run from London to Exeter and Back.
" 26-27.—Bristol M.C.C. Open 24 hour Trial.
" 27.—Birmingham M.C.C. Reliability Trial to York.

1914.

Jan. 14.—A.C.U. Annual Dinner.
Mar. 7.—A.C.U. Spring One Day Trial.

A Cow in a Sidecar.

One of the dailies last week published a paragraph headed "Kissed by a Cow in a Sidecar." The paragraph referred to a remarkable accident which occurred to a Mr. C Sims of Holbeach, Lincolnshire, while sidecaring in South Lincs. with Mrs. Sims in a sidecar. The paragraph states that a cow moved across the road in front of the motor cycle, and was taken up in the sidecar, where it reposed on Mrs. Sims's lap. The cow is alleged to have given Mrs. Sims a somewhat violent kiss on the cheek, which, it is said, "Left a headache." The paragraph goes on to say that the extra weight then tipped up the sidecar, and the cow slid off its seat. The above may be humour, but if the paragraph had said that the motor cycle and sidecar ran into the cow, which then collapsed on to the sidecar seat, and hit Mrs. Sims on the cheek, it would have been more to the point. This alleged humorous method of twisting ordinary road accidents into so-called amusing paragraphs is, to our mind, somewhat puerile, as the lady might easily have been seriously injured. Motor cyclists should always approach uncontrolled cattle on the highroad with the greatest caution, as one never knows when they will move right across the tracks of the machine.

Taxation of Cycle Cars.

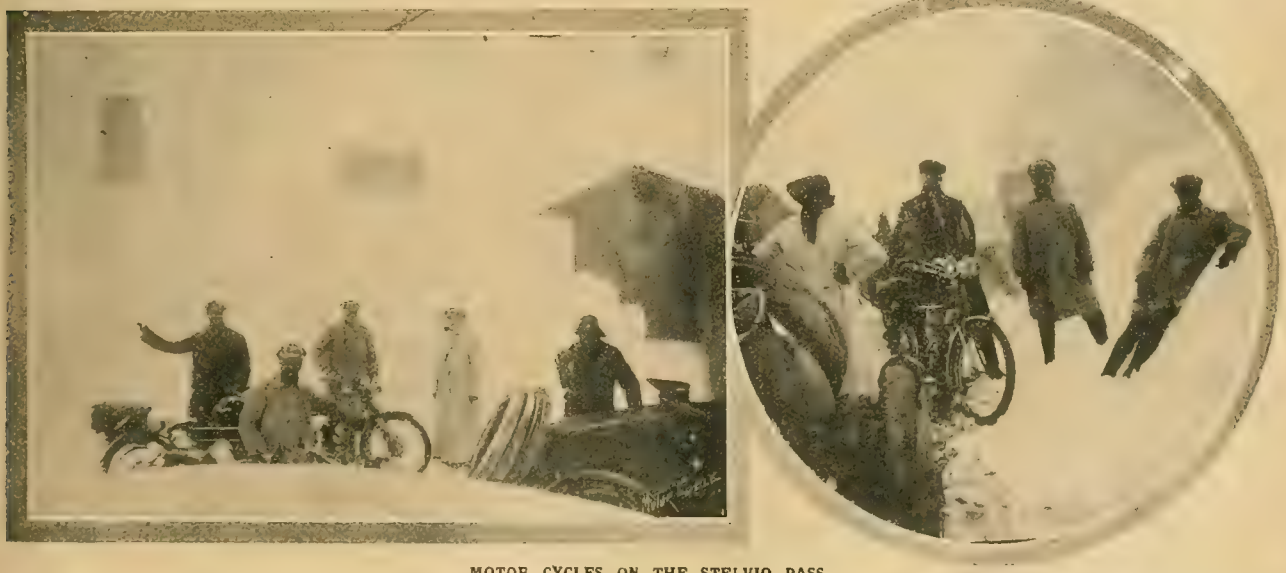
Readers who are contemplating the purchase of small cars or cycle cars will be interested to know that the maximum size allowed for a four-cylinder engine under the two guinea tax is 51 mm. bore, and for the three guinea tax 69 mm. bore. In other words the taxation for any small four-cylinder car with an engine over 51 mm. bore is three guineas.

Frivolous Police Interference.

Six motor cyclists were summoned at Auckland (Durham) last week for a technical breach of the Motor Car Act, to wit, having the identification mark on their motor cycles in the wrong position. It transpired that all six riders obtained their machines from the same dealer, who attached the numbers. The size of plate, letters,, and numbers were in strict accordance with the law, but they were too close to the base of the plate. Ye gods! Motorists beware! Your coat buttons will soon be the subject of legislation. Will the police soon be provided with micrometers to measure the sizes of registration marks?

Burmese Reliability Trial.

Reliability trials are almost as ubiquitous as motor cycles, and now we have particulars of a trial recently held in Burma, consisting of a speed trial, flexibility trial, and a distance trial, spread out over three days. Bat, Rudge, Triumph, and P. and M. machines performed conspicuously, and several other English makes figured in the competitions. It is interesting to note that in a very full report of the trials in *The Burma Magnet*, great stress is laid by the judges on the necessity for a good ground clearance, who say that footboards are a mistake for such countries Automatic carburetters are condemned as unsuitable for such varying conditions of climate, and chain drive is strongly approved of. Belts are stated to wear well, but slip in the wet season which renders them unsuitable for Burmese conditions.



MOTOR CYCLES ON THE STELVIO PASS.

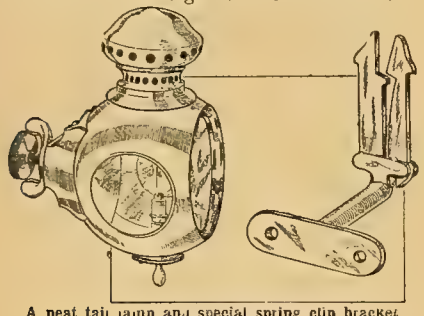
On the border line between Italy and Austria. The boundary stone is seen in the background.

Motosacoche, Sarolea and N.S.U. machines at the top of the pass—9,045 feet high. The photographs were kindly sent us by Mr. Oreste Casale of Geneva.

More Examples of Rear Lights for Motor Cycles.

A Neat Motor Cycle Tail Lamp.

QUITE one of the most solidly made and excellently designed tail lamps for motor cycles or cycle cars we have inspected is being marketed by Messrs. Rippingille's Albion Lamp Co., Ltd., Aston Road, Birmingham. Two features of this lamp that stand out prominently are the strength of its construction and the great ease with which it



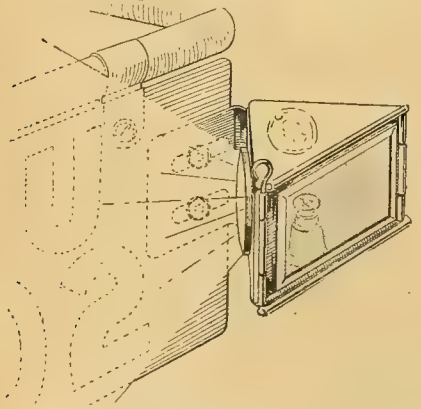
A neat tail lamp and special spring clip bracket made by Rippingille's Ltd.

can be cleaned, the whole lamp being constructed of one piece of solid brass. In view of the fact that anywhere in the neighbourhood of the back wheel of a motor cycle vibration is at its greatest, strength is a necessity in such lamps.

This firm also make a very smart patent tail lamp bracket. No screw fitment is required on the lamp, as the slot is merely pushed over the bracket, which expands by means of a spring, and the bracket being provided with notches near the end, the lamp cannot slip off when once fixed.

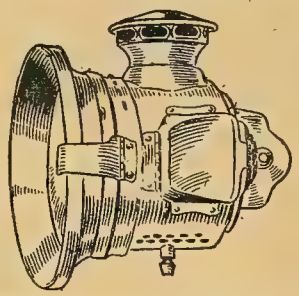
The F.R.S.

F.R.S. head lights have long been known as one of the most powerful front light givers on the market, and now the makers have turned their attention to the other end of the machine and produced an exceedingly neat tail lamp and number plate illuminator combined.



The F.R.S. rear light showing method of attachment.

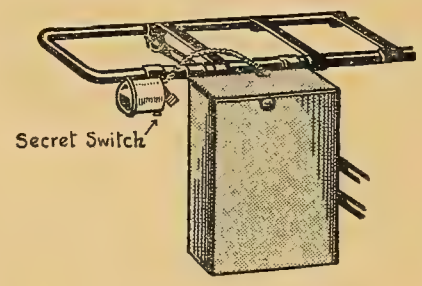
The light to the rear is red and the one shining on the plate is white. It is well constructed and can be very easily cleaned, both outside and inside. Our sketch shows clearly the construction and method of attachment of the new F.R.S. production.



Lucas sidecar lamp, which shows a white lamp forward and a red one to the rear.

An Electric Lamp.

A neat little electric tail lamp is sold by Messrs. A. H. Hunt, 115, Cannon Street, London, E.C., which has the advantage that it can be easily fixed to any machine, and is quite clean and does

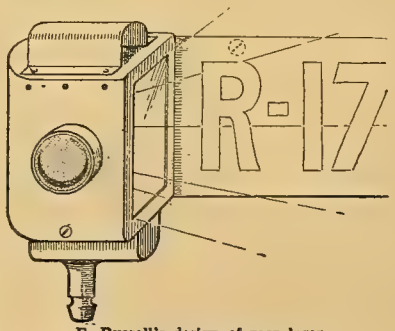


A. H. Hunt's electric rear lamps.

not interfere in any way with carriage of luggage. The lamp is provided with a secret switch under the lamp. The case carries a dry battery, which is able to withstand vibration and is of considerable capacity.

Russell's Rear Lamp.

We have received particulars of a simple rear lamp, the invention of Mr. E. Russell, who is open to negotiate with

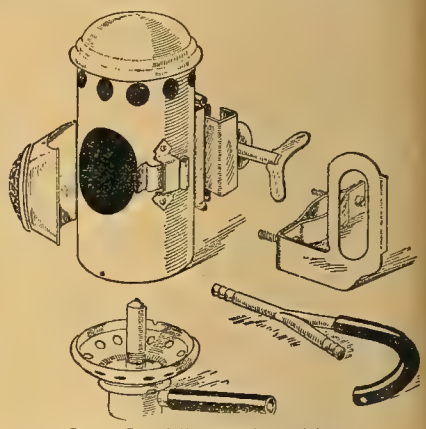


E. Russell's design of rear lamp.

manufacturers with a view to placing it on the market. The lamp is formed by bending an extension of the back number-plate and fitting a top and base. It therefore requires no fitting and should be very cheap to manufacture, at the same time, it cannot be loosened or dislodged by vibration.

A Lamp by Brown Bros.

The great firm of Brown Bros., Ltd., is ever to the fore with new ideas, and in view of the decision of the Courts *re* rear lights has now placed on the market a tiny acetylene rear lamp, so small as to be quite unobtrusive, but at the same time of sufficient size to give warning to an overtaking vehicle. To facilitate clean-



Brown Bros.' tiny acetylene tail lamp.

ing, the lamp is made with a number of detachable parts, so that it can be easily dismantled, as shown in the illustration. It is fed from the head light generator by means of a forked connection to the gas tube.

IMPORTS AND EXPORTS.

British imports and exports of motor cycles, as we have recorded many times in these columns, are still on the increase, and it will suffice to publish a bare list of the figures from which the various proportions will be noted.

IMPORTS.

	Month ended 31st Oct. 1911	1912	1913
	£	£	£
Motor Cycles ...	1,709	3,157	5,334
Parts thereof ...	3,018	38,433	9,733
Total ...	£4,727	£41,590	£15,067

	Ten months ended 31st Oct. 1911	1912	1913
	£	£	£
Motor Cycles ...	37,739	38,256	52,887
Parts thereof ...	54,847	134,862	160,847
Total ...	£92,586	173,118	213,734

EXPORTS.

	Month ended 31st Oct. 1911	1912	1913
	£	£	£
Motor Cycles ...	33,020	68,130	63,861
Parts thereof ...	7,844	26,195	26,855
Total ...	£40,864	94,325	90,716

	Ten months ended 31st Oct. 1911	1912	1913
	£	£	£
Motor Cycles ...	198,293	420,798	612,413
Parts thereof ...	56,568	151,267	208,231
Total ...	£254,861	572,065	820,644

THE NORTH-WESTERN AUTOMOBILE ASSOCIATION.

AT the meeting which we reported in our last issue, p. 1481, the following notes were adopted:

1. That the name of the Association shall be the North-Western Automobile Association.

2. That the Association shall be composed of motor and motor cycle clubs whose headquarters are in the North-western counties of England and Wales and the West Riding of Yorkshire.

3. That the objects of the Association shall be to hold social events and competitions.

4. That the competitions other than open events held by the Association shall only be open to *bona fide* members belonging to the Association.

5. That there shall be no individual member or members of the Association.

6. That the Association shall be governed by a management committee composed of representatives nominated by each club belonging to the Association, each club being entitled to one representative on the Management Committee.

6a. That the representative shall be appointed by each club for twelve months, but in the event of him being unable to attend the committee meetings a proxy can be nominated, this proxy having the right to vote instead of the official representative.

7. That the officials of the Association shall be appointed by the Management Committee out of their number, and their titles and duties fixed by the committee.

8. That a meeting shall be held once in every twelve months, at which everything in connection with the Association shall be open to discussion and shall be voted upon if necessary. That each club shall have the power to nominate three delegates to represent them.

9. That the annual payment to the Association required from each club shall be one guinea for the first fifty members or part thereof. Any additional members shall be paid for at the rate of 6d. per head.

10. That the Chairman of the Management Committee shall not have a casting vote, but shall only be entitled to his vote as a delegate.

11. That no club delegate can attend and vote until all moneys due to the Association from his club have been paid in full.

The first meeting of the Management Committee of the Association will be held on Saturday, December 6th, at five p.m. at the St. George's Restaurant, Redcross Street, Liverpool, and all clubs wishful to join the Association are requested to signify their intention in writing to appoint their delegates, and to remit one guinea. Mr. S. W. Carty has been asked to act as hon. sec. *pro tem.*

A.C.U. CERTIFICATE OF PERFORMANCE.

A Trial of a kick-starting device fitted to a 3½ h.p. Phelon & Moore motor bicycle.

DESCRIPTION OF KICK-STARTING DEVICE.—On the right-hand or outer face of the valve gear pinion on the crankshaft teeth are cut. Corresponding teeth are cut on the inner face of the sleeve mounted on a prolongation of the crankshaft, which are normally kept out of mesh with the pinion by a spring.

These teeth are undercut, so that when the sleeve is in engagement and rotating the crankshaft it tends to remain in engagement. Mounted on the frame of the machine to the rear of the engine is a semi-circular segment rotatable through about 45° by means of a crank with a hinged pedal pin. The periphery of the segment is smooth, and to each end of it is attached a chain which passes over a twelve-tooth chain wheel attached to the sleeve on the crankshaft. A movement of the crank therefore causes the sleeve to rotate, and at the same time a spring pawl on the outer end of the crank strikes against the outer end of the sleeve, forcing the sleeve into engagement with the crankshaft pinion. When pressure on the crank pin is removed the crank is returned by a spring to its normal position. Stops are provided to limit the travel of the crank in either direction, the backward stop taking the form of an adjustable spring buffer. Means of adjusting the tightness of the chain or the lateral position of the segment are also provided.

TRIAL.—On Wednesday, November 5th, a standard 3½ h.p. P. and M., cylinder dimensions 84.5 mm. bore, 88.9 mm. stroke, was selected at random by a representative of the Union from amongst five machines then in stock at the London showroom. This machine was immediately wheeled to the official garage and locked up.

At 10-30 a.m. on Thursday, November 6th, the garage was unlocked. The driver opened the oil drain tap and drained off the oil in the crank case. The lubricating oil and petrol tanks were also emptied. The petrol tank was then filled with petrol (Shell No. 1 brand, specific gravity .725 at 10.8° C. temp.) The oil tank was filled with one quart of Price's Motorine A oil, purchased from stock. Two pumpfuls of oil were injected.

About a teaspoonful of petrol was injected into the combustion head. The carburetter was flooded and the engine freed with three strokes of the kick-starting device, the exhaust valve lifter being raised. With the carburetter controls set with the gas full open and the air shut, the half-compression device in action and ignition fully advanced, an attempt was made to start the engine at 11.6 a.m., the atmospheric temperature being 11.3°C. After eight attempts the carburetter was again flooded. On the twenty-fifth attempt the engine fired continuously, two minutes having elapsed since the first attempt. Within the following two minutes and with the same carburetter, ignition, and half-compression settings, the engine was started by the kick-starting device twenty times in twenty-three attempts. The engine was then allowed to cool, until the exhaust valve cap temperature fell to 18°C. at 11.29 a.m. About a teaspoonful of petrol was injected. The carburetter was flooded, and the carburetter ignition, and half-compression device controls set as before. Within 45s. from the first attempt, and on the sixteenth attempt, the engine fired continuously. Between 11.30 a.m. and 11.32 a.m. the engine was started twenty-one times in twenty-two attempts, controls being set as previously, except that after the tenth attempt the air lever to the carburetter was slightly opened. The engine was again allowed to cool, until the exhaust valve cap temperature fell to 18°C. at 11.55 a.m. About a teaspoonful of petrol was injected. The carburetter was flooded, and all controls set as for the first test. Within 40s. from the first attempt and on the thirteenth attempt the engine fired continuously. Between 11.56 a.m. and 11.58 a.m. the engine was started twenty-five times in twenty-five attempts, the last fifteen attempts being with slightly open air lever.

At mid-day the machine left the official garage with a sidecar attached, which was occupied by the official observer. It proceeded by a circuitous route to the top of Netherhall Gardens, N.W., and back to the official garage.

During the above run eight traffic stops were encountered, and the machine was also stopped by direction of the observer on the steep part of Fitzjohns Avenue. In each of the above nine cases the engine was restarted by the kick-starting device on the first attempt.

The machine was locked up from 12.45 p.m. until 2.36 p.m., by which time the temperature of the exhaust valve cap had fallen to 16°C. About a teaspoonful of petrol was injected. The carburetter was flooded and the engine freed with three strokes of the kick-starting device, the exhaust valve lifter being raised. With controls set as for the morning's tests, an attempt was made to start the engine at 2.37 p.m. Within 26s. and at the sixth attempt, the engine fired continuously. Between 2.38 p.m. and 2.40 p.m. the engine was started twenty-five times in twenty-five attempts, no alteration being made.

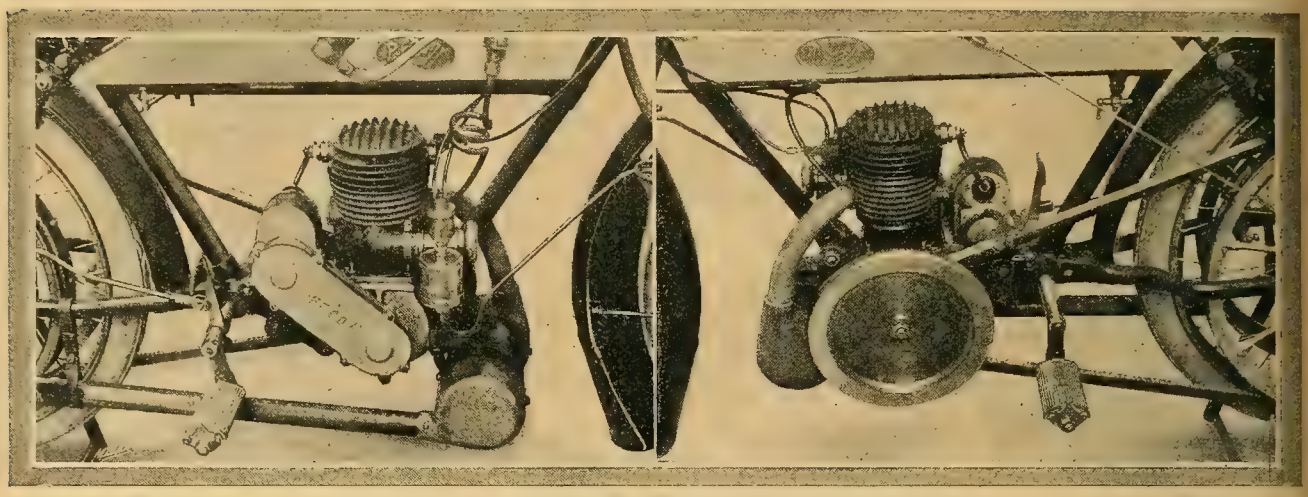
No adjustment or lubrication was made to the kick-starting device either before or after the trial. At the conclusion of the trial the sparking plug was examined, and the minimum spark-gap found to measure about .07in.

The weather throughout the trial was fine, the sun was shining, the atmosphere was humid, and the temperature was steady at about 11.5°C.

(Signed) E. PERCY GREENHILL.
Chairman, Competitions Committee.
(Signed) T. W. LOUGHBOROUGH.
Secretary.

D 2

NEW TWO-STROKE ENGINES.



Both sides of the Peco two-stroke single-cylinder engine described on this page.

DAYTON TWO-STROKE LIGHT-WEIGHT.

The Day Manufacturing Co., 221, High Street, Shoreditch, E., is marketing a 1½ h.p. motor cycle called the Dayton, the design of which is very thorough.

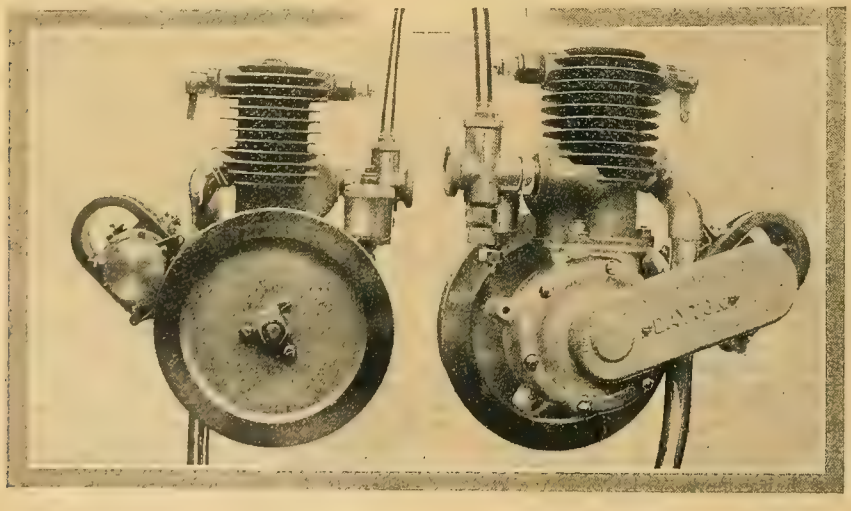
The engine is a 1½ h.p. two-stroke single-cylinder (57 mm. bore × 63.5 mm. stroke), and is fitted with caged ball bearings. Transmission is by a ⅝in. V belt, and there is no jockey pulley. An Amac two-lever carburetter is used. The outside flywheel is of ample dimensions and of the dished type. The diameter is 8½in. and the rim measures 1in. across the face, the thickness being ¾in. The engine has three-point suspension and is fitted to the frame by neat clips of ample strength, and the magneto, situated in front of the engine, is a U.H. The brake system also claims attention; the usual front brake is fitted, but the rear brake operates upon the rim of the wheel and the belt rim simultaneously and with equal force.

A special frame is being made to enable the engine to be fixed as low as possible. Lubrication is effected by a "foolproof" device, which prevents either too much or too small an amount of oil being given.

Altogether the machine is an engineer's job, and should appeal to those who go short journeys for either business or pleasure; also to those who study that important question, cost of upkeep and first cost, as the price is only twenty guineas.

THE PECO TWO-STROKE ENGINE UNIT.

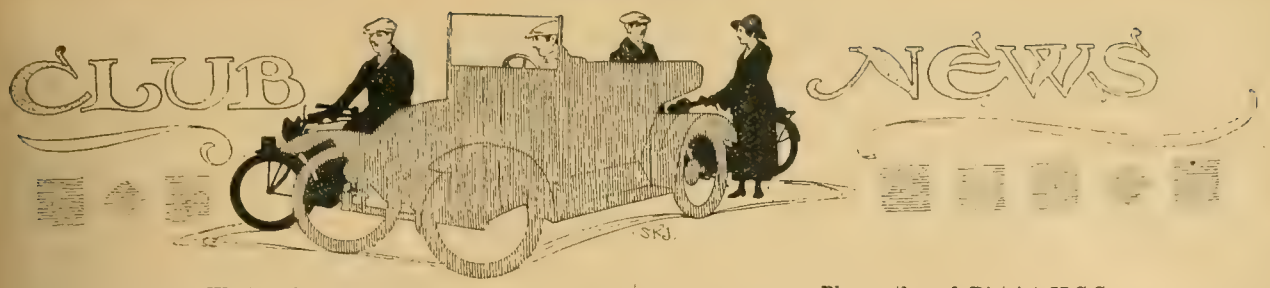
Yet another make of two-stroke engine will be exhibited at the forthcoming Motor Cycle Show, and it is an engine with some very interesting features. The Peco engine, which derives its name from Mr. D. A. Pearson and Mr. Cole, its sponsors, is rated at 2¾ h.p., and has a single-cylinder of 75 mm. bore and 79 mm. stroke. The three-port principle is employed, and the transfer pipe is cast with the cylinder, though provision is made for machining the port from the outside. The compression release is situated in the front of the head, and a passage in the casting leads to the exhaust pipe. The crankshaft is made in three pieces and roller bearings are employed throughout, auxiliary plain bearings being utilised to retain the crank case compression. A Bosch magneto is carried on an extension of the box chamber behind the cylinder, and an enclosed chain is used for its rotation. Lubrication is somewhat unusual, for oil is led from a drip feed to a ring round the outside of the cylinder. This ring is composed of two fins cast close together and closed by a piece of wire which is drawn into the intervening space. Oil holes from the ring allow the lubricant to pass straight to the piston, the surplus passing into a ring in the crank case castings and thence through leads to the main bearings. The latest type of Amac carburetter is fitted facing forwards, and in future models the float chamber will be carried on the inside. The complete engine unit with silencer, etc., will be marketed. Mr. Pearson's present address is School Road, Moseley, Birmingham, and he may be interviewed by those interested at Stand 181 at Olympia. We hear that the new Comet will show a model fitted with the Peco engine and that the Trump have an experimental model. As a test, the first model was taken over the old Wyche Cutting with ease on an 11 to 1 gear, which proves that these little engines possess plenty of pulling power.



Two aspects of the Dayton 1½ h.p. two-stroke engine, which has an outside flywheel and bore and stroke of 57 × 63.5.

In our mention of the new Rex-Jap models last week, Great Brook Street was mentioned as the site of the works wherein the machines are made. This should have been Aston Road. Druid forks are fitted as standard.

The new 6 h.p. twin-cylinder Star, described and illustrated in our last issue, has a three-speed counter-shaft gear box.



Westmorland M.C.C.

The annual dinner, prize distribution, and smoker will take place on December 11th.

Oxford M.C.C.

The annual dinner will take place on December 4th at the Hotel Buol, Oxford, at 7.30 p.m.

North Birmingham A.C.

The result of the last flexibility hill-climb was as follows: 1, E. H. Bayliss (8 Chater-Lea sc.); 2, R. W. Lovegrove (7 Indian); 3, F. Bowers (2½ Levis).

The second annual dinner and prize distribution will take place on Saturday, December 20th, at the Woolpack Hotel, Moor Street, at 7 p.m.

Public Schools M.C.C.

Speed trials for members only, will be held at Brooklands, at 2 p.m. on the 29th inst. By the courtesy of Major Lindsay Lloyd, each member will be officially timed over the flying kilometre. The following classes will be run off:

Machines not exceeding 350 c.c.
Machines not exceeding 500 c.c.
Machines not exceeding 1,000 c.c.

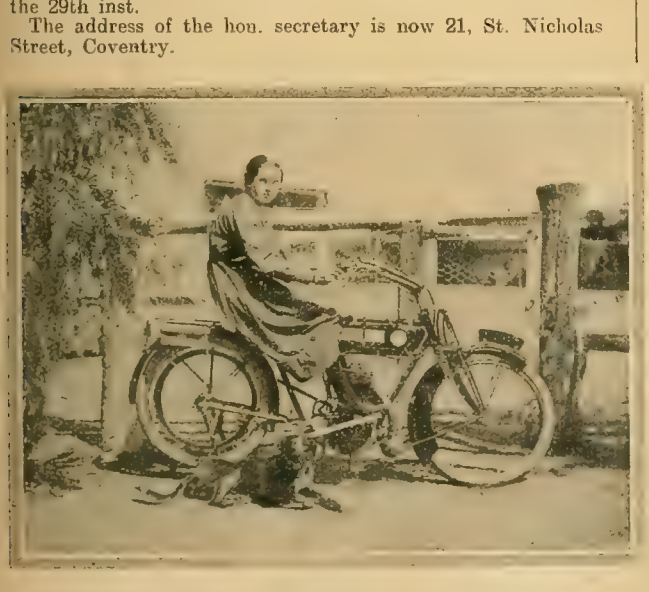
If there are sufficient entries, there will be two sidecar classes: (1) not exceeding 560 c.c., (2) not exceeding 1,000 c.c.

Suitable prizes will be given to winners of each class, together with the title of the Club Champion.

The first annual dinner will be held at the Waldorf Hotel at 7.30 p.m. on Friday, December 12th. The chair will be taken by Major F. Lindsay Lloyd, R.E. Tickets can be obtained from Mr. Clive Prean, 17, Basinghall Street, E.C.

Assuming that most members will be present at the Motor Cycle Show at Olympia next week, it is hoped that those living at a distance from headquarters may seize this opportunity of meeting one another. Members are therefore requested to meet at Stand No. 133 at 1.30 p.m. on Saturday, the 29th inst.

The address of the hon. secretary is now 21, St. Nicholas Street, Coventry.



Miss M. Weigh on the first 3½ h.p. Humber to arrive in Bonila, Queensland. The machine belongs to her brother, W. T. Weigh.

Plymouth and District M.C.C.

The distribution of prizes took place on the 12th inst. followed by whist and music.

Motor Cycling Club.

The annual dinner and presentation of prizes will take place at the Trocadero on Saturday, December 13th, at 6 p.m. The president, Mr. Charles Jarrott, will take the chair.

Brooklands A.R.C.

The following dates have been decided upon for Brooklands meetings for 1914: Easter Monday, April 13th; Whit Monday, June 1st; Saturday, June 27th; Bank Holiday, August 3rd; and Saturday, September 26th.

Coventry and Warwickshire M.C.

The first social evening in connection with the above club is announced for Thursday, January 1st, in the shape of a whist drive and dance at the Masonic Hall, Little Park Street, Coventry.

Essex M.C.

On Wednesday, December 3rd, at the Royal Automobile Club, Mr. Douglas Leechman will read a paper, giving his impressions of the Motor Cycle Show at Olympia, and this will be followed by a discussion. All motorists are cordially invited to attend and contribute to the discussion. Cards of invitation can be obtained from the hon. secretary, Mr. Harold Fuller, 51, Pulteney Road, South Woodford, Essex. The chair will be taken at 8 p.m.

The annual dinner will take place on January 3rd, at the Great Eastern Hotel, E.C. The chair will be occupied by Mr. Stenson Cooke.

LONDON-EXETER RUN.

Innovations in the M.C.C. Christmas Reliability Trial.

Several desirable alterations will be made in the regulations for the London-Exeter run this year. In the first place the start and finish will be at the Bridge House Hotel, Staines; thus the uninteresting and atrocious road from Hounslow will be cut out of the trial. In the case of passenger machines it will be necessary that a passenger accompany the driver throughout—no empty sidecars will be allowed. The silencer regulations will be more strictly enforced, the use of cut-outs and noisy driving will entail disqualification, and no machine which, in the opinion of the officials, is likely to cause annoyance will be allowed to start. In order to qualify for a gold medal entrants must sign the checking sheets at Exeter and the finishing sheet at Staines within fifteen minutes early or late of their schedule time. The ascents of Chard Hill on the outward journey and Trow Hill on the return must be made non-stop, without dismounting, and passengers must be carried on passenger machines. The checking sheets at the tops of these hills must be signed not more than fifteen minutes late of schedule time. Silver medals will be awarded to all finishing within twenty-four hours who do not qualify for gold medals.

The route will be as last year, including the detour through Lyme Regis and Bridport on the return journey. The club's competitions are open to members only; therefore, all riders, not already members, who wish to take part in the winter run, should at once apply to the hon. secretary, Mr. Southcomb May, 34, Gower Place, W.C., as no application for membership, for the purpose of participating in the winter run, will be entertained after the end of this month. For all information respecting the run application must be made to Mr. H. Karslake, 10, Grove Place, Hampstead, N.W.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Excessive Garage Charges.

Sir,—Relative to the letter in last week's issue, on "Excessive Garage Charges," I quite agree with your correspondent, Mr. A. H Hill, that 1s. per day for garaging a solo motor cycle is most excessive when spreading over a long period. Many firms only charge 1s. per day for cars; and at least half a dozen bicycles could be put in the space required for a car. Had it been for one day only no grumble would be necessary, but 7s. per week for two months is exorbitant.

When staying at Frinton this summer, where garage room is more scarce than house room, Messrs. Priest Bros. only charged me 3s. 6d. per week for housing my A.C. Sociable Mr. Wilson, of the Falcon Motor Works, says he is "not in business for his health," but should he charge all stray motorists as he did Mr. Hill's friend, the health of his business may not improve.

C. FERDINAND JESSOP.

Sir,—I would very much like to see the subject of garage charges ventilated in your columns. It is one which demands attention at your hands and I am sure that nothing but good to motor cyclists could result from your dealing with it, and allowing readers to voice their experiences in the matter Only quite recently I garaged my motor bicycle in the neighbourhood of Victoria station. I left it for barely two hours, pushing it into a corner out of everyone's way and removing it myself, so that none of the employees were asked to lift a little finger in attending to the machine. I was charged one shilling, and the foreman left me in no doubt whatever by the manner he adopted, that a tip was expected in addition to the charge. Having on innumerable occasions garaged machines in various parts of the country at the rate of 6d. *per diem* (viz., a whole day or any part thereof), I thought this rather "tall." It was at the rate of 6s. per day, not 6d. LIGHTWEIGHT.

Lubricating Two-stroke Engines.

Sir,—I notice the letter of the Bordesley Engineering Co. in your last issue, which bears out what I myself felt after reading your description of the Triumph two-stroke motor cycle, namely, that the article meant to convey that the system of lubrication—mixing oil with the petrol—constituted something new. Your editorial note at the foot of the letter referred to, however, disposes of the point and removes any misapprehension regarding it.

As a rider of the Connaught I am interested in this subject of lubrication and would say that, in my experience—comprising some 3,000 miles since June, practically all of it with coachbuilt sidecar and 9 stone passenger—this system of lubricating the engine is in every way satisfactory and more economical than the ordinary hand pump method.

I have had my cylinder off twice, and on each occasion have found an amplitude of oil on every part requiring it. It is best, I think, to use a thin grade of oil. Personally, I use Vacuum T.T. exclusively.

The work which can be got out of these very simple little two-stroke engines is marvellous, and the rate at which they will "rev." without heating up is equally to be wondered at. Tyres and belt (the latter only ¾in.) seem destined, like Tennyson's Brook, to "go on for ever" in spite of the sidecar and passenger. I have no interest of any kind in the production of the Connaught, but I am of opinion that the best of manufacturers will have a hard job to beat it. CHAS. S. LAKE.

Sidecar Alignment.

Sir,—Concerning the recent correspondence *re* "Drag" of sidecar, I have discovered that the only way to prevent this tendency, or rather, minimise it, is to adjust the sidecar wheel so that it is slightly out of the straight. This method, with the wheel pointing slightly inward, also lessens the tendency of the outfit to gravitate towards the kerb, but it has the one serious disadvantage of being harder on tyres and bearings, so that of the two evils the former is the lesser.

Now for one or two growls. Why is it makers are still fitting filler caps on the wrong side of the tank of sidecar machines? They should be fitted on the outside of machine (right side)—this would make the filling up process so much easier.

Why is it that in the majority of cases the radiators or fins of V engines are still of the old pattern, and not like the Motosacoche, as, for cooling purposes, the latter design far exceeds the former as regards efficiency?

When are makers going to coat their machines all over with a rustless composition pleasing to the eye, say French or engineers' grey?

Why are sidecars not fitted with a band brake, actuated by a Bowden wire? This is particularly desirable, considering the uselessness of the average front wheel brake, when nearly all the strain is borne by the back wheel brake.

How much longer will we have to wait for a really sensible motor cycle lamp, giving a maximum of light for at least ten hours, with a minimum of trouble?

By the way, will some unbiassed rider of a 1912 or 1913 four-cylinder F.N. with two-speed gear kindly give me some information concerning its general behaviour, whether it keeps its compression well, how often it is necessary to change the engine springs, inlet and exhaust, and if they are easy to change, etc. VICTOR TRAVERS.

Cycle Cars v. Light Cars.

Sir,—We are extremely interested to note the letter of Mr. H. G. Morgan on this subject, and, seeing the point is raised and our name mentioned, we think it may be of interest if we give our views on this somewhat perplexing question.

Really our attitude in regard to the cycle car definition is a somewhat independent one, as years before the term "cycle car" was coined, or its definition formulated, we had been producing in large numbers, our substantial little three-wheeled Sociable, which happens to conform to this definition.

Arising out of the cycle car boom, we have more recently produced a much more ambitious four-wheeled vehicle, which, by careful and compact design, we have succeeded in keeping within the cycle car definition without, we think, sacrificing any of the robustness and reliability which has always characterised all our vehicles.

We take some credit to ourselves for this, because most of our competitors in the four-cylinder field appear to have found it necessary to forsake the A.C.U. weight limit in order to obtain these qualities. This is not to say that we consider the A.C.U. definition of any great importance, and we do not think the public will ultimately trouble themselves to enquire if the vehicles they buy are within the definition or not, and we think they will not be far wrong. At the present moment, however, we find our position advantageous, in this respect, that a man who wants a vehicle of the "light car" type which is yet a "cycle car" obtains both in the four-cylinder A.C.

AUTO-CARRIERS (1911), LTD.

The Effect of Benzole on Tanks.

Sir,—Having read in your issue of the 30th ult. that you had been enquiring from your readers *re* the action of benzole on tanks, I thought my experience might be interesting. I used for a very short time a mixture of benzole and petrol, 50% of each, and found that my machine would not run owing to the jet continually choking up. I strained all the benzole after taking it from the tank through extra fine gauze, and found a tremendous lot of sediment, evidently composed of minute particles of tin, or of whatever the inside of the tank consists. It also spoilt the cork float by taking off the shellac covering and crumbling the cork itself. Since discontinuing the use of benzole I have had no further trouble in this direction. E.E.S.

An Undesirable Practice.

Sir,—I have been interested in the recent comments on carrier-riding which have appeared in *The Motor Cycle*.

As one who has had some experience in this so-called "Undesirable Practice" without the slightest mishap, may I say that I think much of what has been said is unfair to those who have derived much pleasure from the practice.

There are persons who give motoring generally a bad name; this does not conclude that the whole thing is bad, but the fault lies with a few who appear willing to risk their own necks as well as other people, by gross carelessness.

Anything can develop danger, and the fault lies with the user, not the use.

I think, provided the machine is suitable—good carrier-seat fitted, and clutch essential—there is no more risk than with the use of sidecar.

I find my machine is far more comfortable, and as a matter of fact, easier to steer, when I have the passenger on carrier. I have seen people riding in a manner dangerous to themselves and to others. The police are supposed to look after these.

It is not carrier riding that should be condemned, but random driving generally. J. BARKER.

Sir,—I have read with interest all the correspondence published in your paper on the subject of carrier riding, and should like (if I may claim a little of your valuable space) to support "CH 759" in his views on the subject. Although still practically an amateur at motor cycling I have ridden many miles with a passenger of the fair sex on my carrier, and my experience has been that the machine is as easy, if not easier, to control than when riding solo. I must admit that there is a slight danger on very greasy roads, but when negotiating traffic I do not experience the slightest difficulty in managing my machine. The increase in petrol consumption when riding two up is very slight indeed, and I find my 3½ h.p. Triumph will climb almost any hill with the load.

I think the practice (which, I regret to see, has been so denounced) is a distinct advantage to those who are not able to afford a sidecar, as one is able to enjoy the company of a passenger, with very little extra expense, and I should be more than sorry to see it prohibited by law.

KEEN MOTOR CYCLIST.

Sir,—I am not only a reader but a subscriber to your paper, and for some years now have enjoyed reading articles by "Ixion," but he should remember that it is not only the "Nut" who gives the loan of his carrier occasionally to a passenger. For instance, I myself own three cars, besides motor cycles, and upon any fine Sunday afternoon if I ask my wife if she would like a run down to Brighton or any other coast resort within, say, seventy or eighty miles, in a car or on the carrier of the "Zenith" or "Indian," she invariably answers, "On the carrier," and *she* knows the danger if such exists, just as well as "Ixion" does, if not better.

He cites as an instance a man on the carrier with a driver, probably quite green at such a pleasureable pastime, who on a very greasy road has a spill. Now does not a solo rider often get a spill, in fact even our crack riders at times on greasy roads come off, more or less ungracefully, and may not this rider have come off had he been riding solo under the same circumstances, and yet "solo riding," to use the words of Ixion, "is very tolerably safe." It would therefore be cruel, I think, to draw attention to what even "Ixion" himself says on the very next page (No. 1362, October 23rd).

Say for instance that carrier riding were made illegal, and a man is out sidecaring, which, "Ixion" does not object to; the sidecar axle breaks several miles from a railway station, the side-carist, being an expert motor cyclist, disconnects the sidecar and takes his passenger home on the carrier—would "Ixion" consider that he should be prosecuted and fined?

WITHAL AN "EIGHTEEN STONER."

A Medium-powered Twin

Sir,—As a regular reader of your most interesting journal I have derived much pleasure and useful information, and therefore gladly send you my experience of a 3¼ h.p. Lea Francis in reply to the query of "W.M.J.," but I can only speak of solo work.

Consumption, 3,420 miles, 38 gallons=90 m.p.g.

Reliability.—I find the machine absolutely reliable and use it on my journeys as a commercial traveller in the N.W. of England, including the Lake District.

Durability.—My only mechanical stop was through breaking a spring in the shock absorber, which threw off the magneto chain and sheared the key on the magneto shaft. Messrs. L. and F. made same good, free of charge.

Hill-climbing.—This machine will climb any hill that is rideable. I have ridden over Buttermere Hause from Buttermere to Keswick, and I weigh 14 stone.

I have ridden four makes of motor cycle, single and twins, and am simply delighted with the L. F. and especially with the *most excellent* way it is mudguarded.

With all good wishes for the continued success of *The Motor Cycle*. VAL. TAYELOR.

Some Experiences with a Big Twin.

Sir,—There has been such a lot of controversy lately on "the 3½ h.p. single *versus* 2¾ h.p twin" that the claims of the 7 h.p. twin for solo work have quite been eclipsed. I have had three 3½ h.p. T.T. Triumphs since 1910, which were wonderfully reliable, but not ideal in all weathers. Wanting more power I bought a 1913 h.p. T.T. clutch Indian, with single gear and unsprung rear wheel, and have never regretted it. Most of the present "big twin sidecar 'buses" are almost unrideable solo on greasy roads, owing to the great weight, but I have never ridden a twin to equal my Indian for all round work, including London traffic and occasional sidecaring over ordinary roads—not precipices!

The principal reason for abnormal wear on small engines is that they are often driven "all out" for long stretches at a time, but this is never the case with a big twin on average British roads. A big low compression twin, ticking round on quarter throttle, never overheats or "dries up"; and none of the working parts are stressed to their limit. The loads per square inch of bearing surface must be an infinitesimal fraction of those with a "konking" 3½ h.p. T.T. single or a small twin "revving at 3,000." The Indian mechanical oil pump keeps the front cylinder properly lubricated and the roller bearing big ends save undue wear, two very valuable points on most V twins.

Having previously owned an early twin of foreign make, which broke nearly everything possible—except its unfortunate owner's neck—I vowed never to get another V twin, as my bill for broken parts came to more than the machine cost me. *Mais nous avons changé tout cela.* There is an old Lancashire proverb to the effect that "Theer's nowt beats a good little 'un, except a good big 'un," and this is true with motors—cars or otherwise. The small super-efficient engine is never as comfortable, durable, or reliable as its big brother, and it requires far more attention to keep it in tune.

My first trip consisted of 250 miles in ten hours—two and a half days of cricket—and 150 miles of the return journey in five hours—and no trouble.

Personally, owing to business, I have little time to overhaul my machine or keep it in tune, and yet it has to be always ready to start off anywhere at very short notice. Last year I kept two 3½ h.p. T.T. Triumphs, now my 7 h.p. Indian has to do the work of both and haul a sidecar sometimes into the bargain. I find the high compression single wants the carbon removed, etc., every 500 or 600 miles. The twin has done 1,500 miles since last cleaned and still has the original tyres and chains after 2,500 miles, and they are good for much more; necessary replacements *nil;* only troubles, one choked jet, two punctures, and sooted back plug. Naturally,

the oil and petrol consumption are heavier than with a smaller engine, but pace and power must be paid for somehow, and they are well worth the small extra cost. A good big twin is the Rolls-Royce of motor cycles, and, until I can get a motor car proper (not a so-called cycle car, as I have done with belts and makeshifts), I hope to continue riding the most lively things on wheels. Usual disclaimer.

ROY. W. WALKER.

Scott Lubrication.

Sir,—During 1912, both myself and friends were much troubled with the lubrication, and it was a very common occurrence to consume a quart of Wakefield Castrol in 70 or 75 miles. Now after a series of experiments we get from 200 to 250 miles from the quart, and every part is continually and efficiently oiled, including the packing glands.

To begin with, the mushroom valve at the base of the pump is not sensitive enough, so I plug up the six small holes. Then sweat a collar on the valve stem. This stem is then turned a taper and the central hole in the valve is bored out to allow the valve just to drop on its seating; a fine spring may then be put in, and the appliance is now a drip feed and never need be opened more than a mere fraction of a turn. Never move the handle more than $\frac{1}{8}$in.

The above would not give a uniform feed on account of the weight of the plunger pressing on the valve, so to overcome this a collar is fitted on the upper part of its stem (the portion outside the barrel) so that on turning the small handle the piston is lifted up and the valve is free and allowed to open.

This can be regulated to allow about one drop every two seconds. I often run a whole day without touching either the pump or handle.

Another great advantage is to mix ten fluid ozs. of lubricating oil with two gallons of petrol.

I find the engine pulls stronger on equal parts of petrol and benzole, and for going all out all benzole, but it does not pick up so quickly. Since altering the pump and adding oil to the petrol it has been a real treat to drive, and with a heavy Montgomery sidecar passenger and $\frac{1}{4}$ cwt. of luggage will face any normal hill beyond speed limit.

F.S.Sc. (London).

Reckless Driving.

Sir,—I hope your old-established paper will do all it can to discourage the present reckless way in which so many youths drive motor cycles with and without sidecars. To this fraternity speed and noise seem the chief desiderata. If they only endangered themselves it would not matter so much, but the total lack of judgment displayed in passing cars which are themselves passing other vehicles, makes one doubt if such people ought to be allowed to drive at all. I am frequently on the Portsmouth Road between Pain's Hill and Godalming on Sundays when there is an immense amount of motor traffic about, in fact this road resembles a London street rather than a country road, and this is the occasion when the objectionable type I refer to abounds in considerable numbers.

It used to be, and, I believe, still is, an established custom that in certain circumstances, one must slow up behind a slower vehicle which is being passed or about to be passed by another, before attempting to overtake it. Not so, however, with the reckless motor cycle gentleman; he appears ready to go through anything, even when he has a girl with dangling legs across the carrier, a practice which I, having seen a bad accident through this, consider the last form of madness.

It is impossible, I am afraid, to prevent by law people abusing the pleasures of the road and endangering others. The only method is to create a sound public opinion on the matter and to educate these "nincompoops" to drive like gentlemen.

I am told that certain writers are much to blame, having always encouraged the lust of speed and opposed the silencing of motor cycles. I do not believe your paper has ever been guilty of this, and that is why I am writing to you, feeling sure that in the interest of the sport and for the comfort and safety of everyone who uses the roads, this form of recklessness will be discouraged by you.

I must add that I am an old motor cyclist myself, having had many machines since the early days, and am therefore in no possible way prejudiced against motor cycles as such

CAR-OWNER-DRIVER.

Small Twin and Sidecar.

Sir,—Doubtless many of your readers have noticed that the 3 h.p. Enfield, of 350 c.c. capacity, has covered 40$\frac{1}{2}$ miles in the hour with a sidecar on the track, and will have wondered what this machine can do with a sidecar on the road. My own machine is the standard type supplied to the public, having cylinders 60×75 bore and stroke, giving a capacity of 425 c.c., and with gears 5.16 and 8.94 to 1. I do not know what speed it is capable of on the level as I have never tried, but I have driven it up Handcross and Reigate hills with passenger in the sidecar, seated in the normal way. Reigate hill is, I think, about its limit in hill-climbing with these gears. I am fitting a smaller sprocket on countershaft, and this should result in faster average speed, as it will enable more hills to be climbed on top gear. As regard the running of this machine I can quite confirm everything stated by "Twin Enthusiast" in your issue of October 30th.

J. HART-SMITH.

Motor Cycles in Ceylon.

Sir,—Some little time ago a correspondent wanted to know what kind of machine to take out to Ceylon. As I intend returning thither myself in the near future, I have just obtained from Colombo the names of machines for which the two chief engineering firms are agents, as, personally, I prefer a machine well known in the island, and for two reasons: (1.) The engineers are more likely to be able to carry out satisfactory repairs, as they are more familiar with their own stock. (2.) Spares, unless in stock, take a month or six weeks to get from England. I remember riding up to the Triumph agency one day, and discovering with joy that the article I wanted was looking at me from a show case.

The names of the machines are as follow: Triumph, Indian, P. and M., Douglas, Humber, and Rover.

A two or three-speed gear should be used, as the central portion of the island is very mountainous, the chief sanatorium being at a height of 6,200 feet.

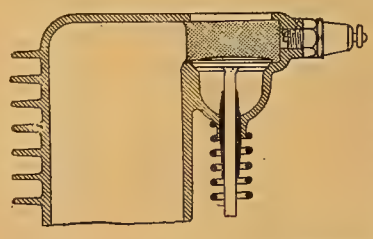
Finally, beware of bullock carts just out of sight round hairpin corners on steep gradients.

N 8134.

Conkitis.

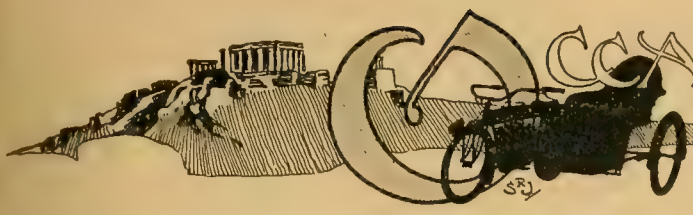
Sir,—In your issue of November 6th a problem is discussed by "Ixion," concerning a certain make of engine which is consistently prone to knocking. It is quite possible in this case, that neither the compression, nor the low power of the unit is responsible for the current state of affairs.

The design of the valve pockets is a very important factor, when cases such as this have to be considered, as when cramping in this direction is utilised, a phenomenon known as detonation often results. To explain clearly what detonation really is, it is necessary to make use of a diagram showing a section of a cylinder through the valve pocket. The principal point to be considered in this illustration is that the passage (shown shaded) between the sparking plug points and the cylinder proper is long and narrow, so much so, that the time taken for the gas filling it to burn sufficiently to transmit a flame to the main body of the charge is comparatively long. It is this slow combustion arising from badly designed ports that is the chief cause of detonation. When ignition occurs this little volume of mixture explodes, with a consequent expansion, which in its turn increases the compression of the main charge enormously.



The effect of this is such, that not only is explosion pressure very much greater, but it is also very much more rapid, owing to the large amount of heat generated from the extra compression. In fact, the force given to the piston by this ultra rapid combustion is so sudden that it can be compared with the blow of a hammer, and the noise produced is very similar. A plug, with a longer threaded portion, will often rectify this trouble, but if too long, pre-ignition through incandescent points will occur. Changing the position of the plug might rid the engine of this objectionable property, and the writer would suggest an exchange with the compression tap if it is possible.

T. W. PARKER



OCCASIONAL COMMENTS

BY 'IXION'

Do Sidecars Skid?

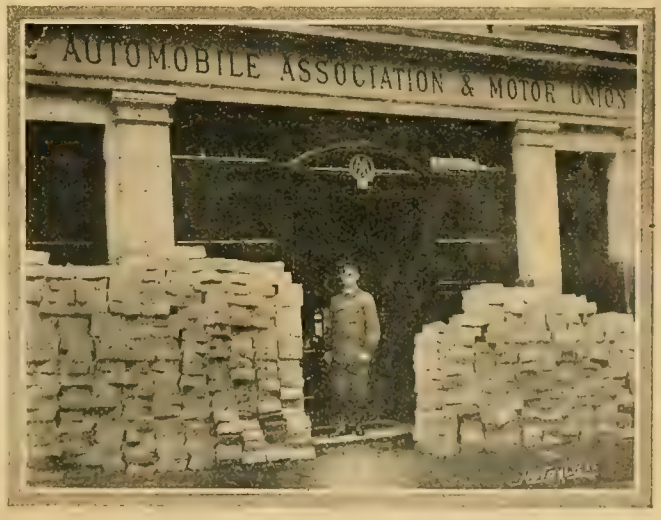
I have never been a great user of the sidecar, and my experience of it does not compare with that of many enthusiasts, but I can lay my hand on my heart and assert that in several thousand miles I have never had the tiniest semblance of a skid with a sidecar. Therefore I was a little astonished last week to hear a much practised sidecar driver assert that his sidecars skidded frequently. Pressed for details, he said that the tail of his outfits evinced strong desires to swing round whenever he was descending greasy hills with the valve lifted, and that the combination was very apt to slide across the road when he negotiated a sharp corner on grease, though neither occurrence produced quite such a state of utter helplessness as the drivers of two and four-wheelers may experience under similar circumstances. As it is commonly stated in technical journals that sidecars never skid, and as my own experiences confirm the disclaimer, it would be interesting to hear the careful statements of a few crack sidecar men. I will add that I have been present on most of the skiddiest days in the big trials, but I have yet to see any sidecar effect a genuine skid, though I have seen driving wheels revolve idly in the ascent of greasy hills.

"Twin-Jap's" Engine.

I am afraid that neither I nor anybody else can help "Twin-Jap" on paper. The theoretic explanations have been outlined for him, and he denies that they fit. He may have overlooked some simple application of the obvious principles, in which case he will probably kick himself and fail to inform us of the cure when he arrives at it; or he may be up against some rare and curious derangement which little short of a microscopic examination of his engine or ignition could detect. His best plan—short of a lucky encounter with an owner of a similar machine who has had the same trouble—would be to consult his manufacturers, who are uniformly courteous to clients in honest difficulties. Only one loophole is suggested by his last letter. He says that he has eased his pistons—I will not insult him by imagining that they are now too sloppy a fit; but *friction in any part of the engine* would produce just the symptoms he describes; if his crankshaft or camshaft is too tight, if the machining of any moving parts is untrue, if a valve stem is bent, if a spindle of the timing gear is short of oil, etc., etc., the engine will only rev. under the most favourable circumstances. A similar complaint was made to me in respect of a car last week, and after much tinkering we found that the last adjustment of the side brakes had left them a little "on" when the lever was "off." In the light of his last letter, friction in the engine or transmission is the most plausible diagnosis; but if he is habitually over-lubricating and can get no oil up past his piston rings (as shown by the engine's obstinate refusal to smoke), his flywheels may be braked by excess of oil.

What it Costs to Run a Cycle Car.

I have no objection to a balance-sheet which omits the items of insurance and garage, for many riders remain uninsured, and lots of us enjoy free garage. But I strongly object to any balance-sheet which does not so much as mention depreciation, though for obvious reasons the exact figures may not be procurable when the accounts are made up. On page 1452 in the issue of November 6th Mr. T. Wadsworth illustrates the running economy of a good cycle car; and his figures are emphasised in their interest by the fact that the standard Singer now exceeds the cycle car definition. He shows that a good sample of the miniature or light car can be run for its first season at an actual cost of less than 2d. a mile. But his accounts give us no information of the depreciation costs; there are very few second-hand Singers on the market as yet, which suggests that they wear sufficiently well for their owners to anticipate at least a second season with some confidence; but I have looked up the ruling prices asked for the few samples on offer, and the vendors' estimate of depreciation averages about 25%, an estimate which would increase Mr. Wadsworth's figures to nearer 3d. per mile, supposing the buyers agreed with the vendors, though my experience is that vendors normally quote higher prices than they expect to receive. Furthermore, he does not describe the potential mileage remaining in his tyres; as he has expended £8 on tyres during the season, I should expect him to hand over some very serviceable covers to the next owner, which would reduce his costs if he is not a seller. Once again, if a car is to be sold or used but little during the winter, either the whole, or nearly the whole, cost of licences, tax, and insurance should obviously be debited against the summer mileage. Otherwise the accounts should



A stack of pamphlets sent out by the A.A. and M.U. in favour of their new scheme of signposting. (See previous page.)

Occasional Comments—

include footnotes on these points. I hope others who send us similar experiences will make them complete, and a few instances of actual prices realised would be specially interesting. My own experience goes to suggest that the complete expense of running a light car can never be less than 4d. a mile, and that 6d. a mile is usually nearer the mark; but these figures allow of the heavy depreciation charges due to an annual sale. Some of the genuine cycle cars can show a far superior economy. For example, I know of a Morgan, which ran colossal distances on its tyres, and seldom fell below 50 m.p.g., and fetched £70 towards the end of its second season.

The Design of Chain Cases.

I have always felt proud of the fact that British machines are far more harmonious and artistic than the general ruck of machines produced by any other country; they are as beautiful as they are good. Of late I have felt a little uneasy when I have surveyed some of the extremely ugly chain cases adopted by too many devotees of the rigid transmission. Some of them afflicted me with a nightmare, in which I saw the offspring of a banjo and a dumb-bell reeling about in extreme intoxication; and my æsthetic soul has grown so sensitive that I am half afraid to visit Olympia. A badly dropped bottom bracket is usually the basic culprit. Don't let us imitate the bizarre aberrations of the smaller American makers by a complete disregard of appearance!

Inefficient Mudguards.

A careful scrutiny of the photographs of 1914 sidecars and cycle cars appearing in this journal will show that some designers are obviously fair weather riders, or don't ride at all. Every issue of this paper contains pictures of machines which are unfit for bad weather, and intending purchasers should keep the point well in mind at Olympia—the brilliant polish and glittering appurtenances of a Show stand are apt to banish mud and rain from one's mind. A sidecar outfit with inefficient mudguarding is a terrible thing to own, for it is the most difficult vehicle on the road to cleanse properly; inaccessibility is its bugbear in this matter. With cycle cars the case is altered a little. They possess a large superficial area, and the work of cleaning will absorb time, but every square inch is accessible. The sting of bad mudguards on cycle cars lies in the risk of the passengers being bespattered—I took a large clob of mixed filth bang on my mouth last week—and in the fact that the paint is seldom too good; some economy must be observed in the manufacture of a £100 vehicle, and the finish is seldom equal to that of a high-grade car. Furthermore, few cycle carists have the patience—some have not the hose and sponges—to sop the mud off; quite a common method is to take a handful of damp waste and wipe the dirt away when it is half dried, rubbing any obstinate patches with "neat" petrol or paraffin, both of which are fatal to varnish, though a very *little* paraffin in the dowsing water is useful. Consequently, an ill-mudguarded cycle car is likely to look extremely shabby after brief use; and its shabbiness will increase depreciation charges, both by deciding a wavering owner to sell after six months, and by reducing the market price. Cycle car coachwork should be cleaned very carefully.

Ixion and the W.P.B.

It is only once in a century that one of my comments is relegated to the w.p.b., but only lavish sub-editing saved me the other week. I had not been employed on the advance Show work, and so remained in complete ignorance of the 1914 Hendee programme. Simultaneously I was attacked by one of my prophetic moods, and in my innocence and pride I handed the editor what I regarded as a positively inspired paragraph, outlining the vast possibilities of electric lighting and starting dynamos as applied to motor bicycles. He mutely handed me galleys of the new Indian de luxe, and peered anxiously at his overflowing waste paper basket. Great minds obviously think alike.

It is a fair sample of fortune's cynicism that the welcome innovation must be confined for a time to the machines that need it least. When I bestride a high-powered sidecar outfit I can easily accommodate a car-size generator, two big cycle generators, or a cylinder of dissolved acetylene; but when I sniff the night air on a high-compression, stripped chassis, single-geared T.T., I am practically limited to a single generator of modest dimensions. Towards midnight, or a little later, according to the season, the lamp burns low, stinks, bobs up and down, and generally misbehaves itself. Failing the aid of a kindly moon, I face the noisome task of replenishing in Cimmerian darkness. I gouge out the odorous slush from the sump of the generator, and cover my clothes and hands with evil-smelling deposits; I remove the spare canister of carbide from my little Chemico holster, and a fine powder, never intended to be used as snuff, is wafted up my nose. I hope designers will not forget the medium-weight tourists—how we should revel in a compact little lighting dynamo about the size of a magneto! I particularly look forward to the solution of the lamp problem on these lines. We ought to arrive at a compact little head light capable of being mounted so low down on the front mudguard that it will dodge damage in the event of a fall.

Miss Dorothy Maxwell, of Barrow-in-Furness, on her 2¾ h.p. open frame Douglas, with her younger sister as passenger. They have ridden many hundreds of miles in this fashion.

SIDECARS

What to look for at Dunhill's Stands at the Show.

(No. 21 on Ground Floor and No. 229 in Gallery.)

Readers visiting the Motor Cycle Show should not miss calling at Messrs. Dunhill's Stands, where an extremely attractive selection of sidecars and accessories is being displayed. As every motor cyclist knows, Messrs. Dunhill's, as *Specialists* in motor equipment, are in a unique position to offer the most up-to-date and reliable innovations for the convenience of the motoring public; hence, purchasers of any of their exhibits at the Show have the confident assurance that the goods they buy are of first rate quality and are splendidly effective in use.

At Stand No. 21 on the Ground Floor, for instance, a show of Sidecars of great variety is to be seen. The visitor in search of a sidecar combination of undoubted dependability will find what he wants here —at Stand 21. These sidecars are exceptionally good specimens of skilled craftsmanship, and are certain to please by their attractive designs and their guarantee of strength and durability.

The Dunhill Chassis should on no account be missed. It is light, very strong, well-sprung, and thoroughly tested, and fitted with best quality tyres. The bodies are wrought in cane, or coachbuilt, with plenty of storing space, and can be upholstered to suit the requirements of the purchaser.

At Stand No. 229 in the Gallery Messrs. Dunhill's exhibit a selection of the latest accessories—all peculiarly attractive by reason of their extreme usefulness.

All Motor Cyclists will agree that paramount importance attaches to the kind of accessories carried when out for a run. The question of accessories enters largely into whether the trip is successful or disappointing. The right kind, in great variety, is to be seen at this Stand, and we mention a few of the newest items for the benefit of our readers.

An invention which ministers to the comfort of the passenger in the Sidecar is the new one-person Wind Screen, which is held firmly in position a few inches in front of the wearer by means of a very simple attachment. To ladies, especially, the new Wind Screen should prove a great boon.

The "Pharos" M.C. Head Light is an attractive accessory. This lamp is one of exceptional power, and its unique method of construction places it at once in the forefront of anything yet manufactured.

The lamp is made of stout gauge metal, heavily nickel-plated. Every joint and attachment is strongly riveted. The reflector is of the lens type, and is reinforced by a strong lens which takes the place of the front glass, thus giving a long and powerful beam. The Dunhill adjustable bracket enables the lamp to be always regulated to the point of maximum advantage.

A most interesting item is the patent "Lukin" Carburetter. The "Lukin" has the throttle on the atmospheric side, and NOT on the engine side, thus ensuring a correct proportion of petrol and air before they are mixed. The vacuum in the mixing chamber increases as the throttle is closed, providing a medium for the instant volatilisation of the petrol when it is most needed. It is absolutely automatic at all speeds, has no tuned jets, but is tuned for every speed by means of a shaped valve. There is but one moving part. Needles, dash-pots, tuned springs, and other delicate mechanisms are entirely dispensed with. It is a petrol saver of unique value, and will save its own price in a month. Adaptors are obtainable for almost every make of motor cycle.

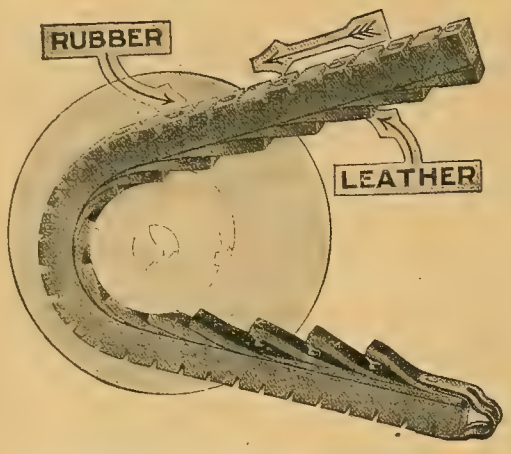
Two prominent novelties are an adjustable reed, called the "Amplificator," which, when introduced to the ordinary horn, is capable of trebling its sound; and a Petrol Brush for cleaning clothing or renovating the upholstery of the car.

The Tail Lights are undoubtedly the best thing on the market to-day, and will interest Motor Cyclists as being the requirement of the moment.

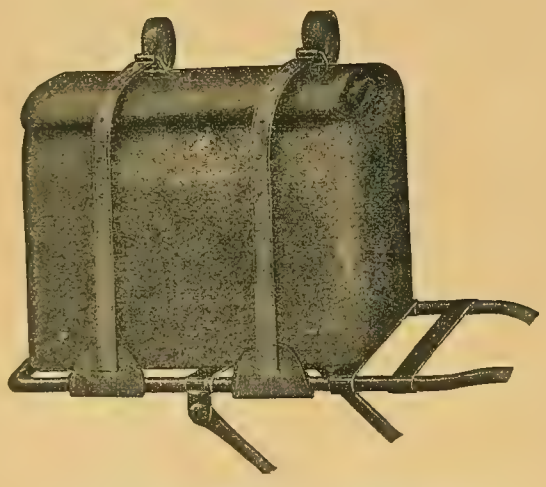
In the clothing section the new pattern Oilskins are a popular attraction. For clean finish, lightness, flexibility, and hard wear the new M.C. Oilskins are unrivalled anywhere, and motor cyclists will find them an extremely valuable part of their equipment. A new Cap of the same material should not be overlooked.

Fresh patterns in Racing Helmets are also prominently displayed, and there are other original exhibits which combine to make one of the most attractive and comprehensive selections of accessories that we have witnessed for some time.

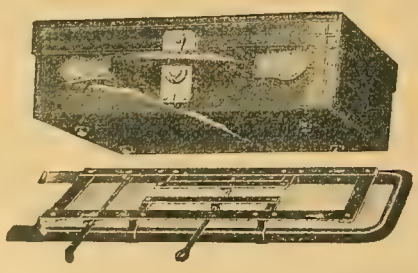
A great boon to the Motor Cyclist is the new Magneto Lighting Attachment. It cannot be overdriven, and gives an ample light from four miles an hour upwards.



LYCETT'S "RELIABLE" Belt.
Guaranteed for 2,000 miles minimum.



LYCETT'S Handy "SWAG-BAG."



LYCETT'S Patent "Attache" Carrier Bag.

Call at Stand

—THAT'S the Stand to make for when visit g
find the latest and best productions in Sadd

"The Good L

are being shown—the lines that are recogni
—Remember, the name "LYCETT" is y
VALUE in equipment—every item of "
finest selected materials—and guaranteed
—We have a host of good things to sh
lines that embody exclusive and valua
and comfort of the rider awheel.
—Chiefly to be noted amongst "The Good Ly

The "RELIABLE" Belt. Built of Rubber and Leather expressly designed to afford greater grip, flexibility, strengt speed, long life, and absolute reliability under all conditions. T "RELIABLE" Belt has proved its supremacy indisputably— the A.C.U. 6 Days' Trials, machines fitted with the "RELIABLE gained 11 GOLD MEDALS, 5 SILVER and 10 BRONZE—a tot of 26 out of 61 medals that were gained by Belt-driven machine

The "SWAG-BAG." This is a very useful collapsib Tourist's Handy Bag, being adjustable to size of contents. Remarl able capacity for holding clothes, etc. Dustproof and Waterproo Made in two sizes, and three qualites. Prices 5/7 to 15/-.

The "ATTACHE" Carrier Bag. Strongly made best selected leather. Securely fastened with Spring Lock. Ca be opened on Carrier, or removed complete, instantly, by releasin clips. No straps to undo. Price 17/3.

—Come and examine "The Good Ly
marked superiority in Quality and Value—a
—Don't fail to call—remember it's "Sta
—If not visiting the Show, please write
and describes all our many lines, and

LYCETT'S Saddle & Motor Acc

In answering this advertisement it is desirable to mention "The Motor Cycle."

An Open Letter to the Trade.

By B. H. DAVIES.

ONCE again it is my pleasant duty to thank you, gentlemen, who direct the industry, for providing the readers of this paper with an exceedingly pleasant summer's riding. The machines with which you have furnished us have evinced a marked average increase in efficiency, reliability, comfort and economy, and we trust that our satisfaction is suitably reflected in your balance sheets. We desire to single out a few special causes for congratulation. We have never had so little trouble with our valves. You have contrived to introduce practically the whole community to the delights of variable gears. You have managed to fit us with better tyres without raising your prices. You have been singularly ingenious in devising engines that can stand long spells of work under heavy loads without getting tired. Here are three stiff problems solved; and your success inspires us with the liveliest anticipations for the future.

We are true Oliver Twists in that our gratitude for past favours does not prevent us asking for more: and we hope your response will be more generous than the workhouse master's.

Last year we asked for better springing; and alas, roads remain as pot-holey and frames as unyielding as ever. Until you have perfected your sprung frames, may we implore you to give a little more clearance under the saddle, so that we can sit low without indenting the print of the carrier on a part of our anatomy which, we admit, was designed to receive chastisement?

The Question of Transmission.

In the matter of transmission you have been exceptionally thoughtful. There are just two points we may timidly mention. One is that some of you, who are devotees of truly excellent chain drives, retain a singular prejudice in favour of the single-cylinder engine. A single-cylinder is delightful with belt drive; but surely, beyond all contradiction, a twin-cylinder is preferable with a rigid drive, no matter how cleverly the cushioning devices are executed. The other is that it is quite possible to fix up a three-speed hub so that a cover may be changed in less than sixty minutes, but I hear you have this point in hand.

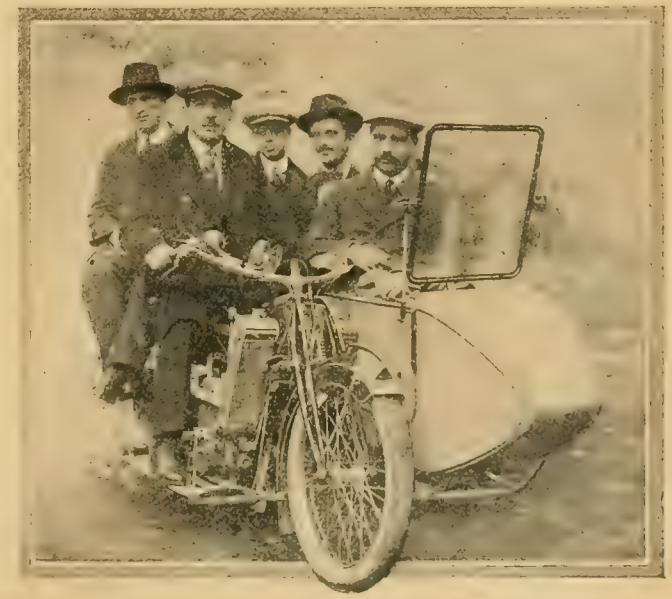
You are still of opinion that the days are not ripe for a general reduction of prices, and we cannot claim such a mastery of finance as you possess. But when we read the profits that some of you have made, we consider that motor cycling for the million is a little overdue, and we fear that a determined Yankee importation at cut prices may disturb the even tenor of your course before long. We venture to think that some of you pay ridiculously high commissions to your agents. Ten years ago an agent deserved a big "spiff," for his customers worried the life out of him: to-day, the sale of a good motor cycle causes an agent very little more trouble, either beforehand or afterwards, than the sale of a push bicycle, and we think his remuneration might be reduced a little.

The £100 Cycle Car.

We are a little disappointed with your comparative callousness towards the cycle car movement. The prices which some of you obtain for high-powered sidecar outfits *de luxe* prove the existence of a wide market for £100 outfits. Believe us, that when a £100 sidecar outfit has to compete with a £100 cycle car of equal efficiency, economy, and reliability, the cycle car will get the cheque every time because of its superior protection from weather, and comfort for the driver. We think some of your larger firms, which are in a healthy financial position, might have launched out more boldly into the cycle car sphere.

The 100 lbs. Motor Cycle.

We are charmed to see you displaying so much interest in the new bantam-weight class, and we agree with you that the two-speeded two-stroke has a tremendous future, no less in the 300 c.c. single-cylinder class than upon Scott lines. But we are the wee'est shade disappointed at the weight some of you pile on to these handy little runabouts. At 125 lbs. or so, they are really too heavy for our more corpulent constituents. Don't you think a hub gear, very little heavier than push bicycle types, might suffice for these even-pulling little engines? And if you could sling these gears on a counter-shaft so much the better. When you can produce a machine on these lines to scale no more than 100 lbs. at the outside, and to sell at £30, or better still £25, the day of leviathan outputs will dawn. At 125 lbs. you are getting perilously near the medium weight class,



A Williamson quintette in Italy. The owner, M. Lanfranchi, of Milan, is driving.

An Open Letter to the Trade.—

which is apt to grow too heavy and to remain too costly for the classes we want you to touch. Moreover, a £25 runabout would sell as a tender to big twins and 500 c.c. roadsters; lots of us could just afford to keep a dinghy as supplementing our present yachts, and we should prefer it for winter work.

Electric Lighting Installation.

We fear many of you have been caught napping by the 1914 Hendee programme—beg pardon, "program." We do not like to see our home makers outstripped even in that small department of the industry which caters for the ultra-heavy, high-priced outfit *de luxe*. We venture the opinion that electric lighting and electric starting have a big future in this class; and we implore you to see that electric lighting, at any rate, is applied as soon as possible to ordinary roadsters, while we trust your characteristic restraint not to saddle us with untested complications.

Don't think us petty if we linger awhile on a few minor details. We dislike miniature key-locks that jam under strain or at the entry of dust. We are

J. Woodhouse, on the 7 h.p. Quadrant on which he competed in the Streatham and District M.C.C. trial. The sidecar is one of his own design.

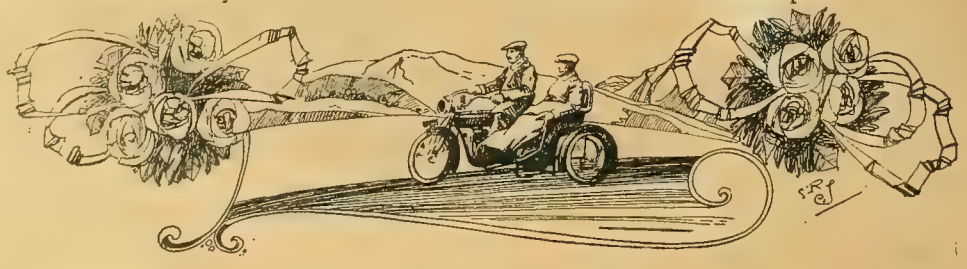
sick to death of hand pump lubrication, in which some of you carry conservatism too far. We should like to see more machines sold completely equipped and ready for the road. When we take delivery we have to hurry round to the nearest accessory shop and load up our handle-bars with a job lot of odds and ends, which spoil the neat *tout ensemble* planned by your designers. Please list and quote for equipped machines, if only as an option. It is difficult to clip a speedometer gear wheel to your front wheel spokes in absolute truth; please standardise a fitting on a hub flange and deliver it to all your customers. Some of your back brakes are not too powerful, and we might have scrapped front brakes long ago but for the law, as the expert seldom uses them, and they are perilous for the novice; please increase the power of the belt rim shoe where necessary.

Handle-bar Controls.

Your handle-bar control of the ignition is seldom genuinely satisfactory, and our numbers include many duffers who are completely puzzled when it jams, as it usually does after one wet ride. Many of your petrol tanks are too small. Some of your gauges don't gauge; what is the matter with the three-way "warning tap"? Engines are growing a little cleaner, but we still await the clean crank case, cast smooth and devoid of mechanical excrescences and embossed advertisements. Tall riders encounter the old difficulty in housing their legs, despite adjustable footrests. The merits of the handle-bar clutch are still unrecognised by your majority; the foot clutch ought to join the dodo immediately, or, if possible, sooner. Some of you take too little account of weight; we can put up with 180 lbs. on solo machines, but the 250 lbs. solo is obviously designed by a man who doesn't ride. Please make all your designers do their 5,000 miles per annum on the products of their own brains. We consider that every sidecar should be fitted with check clips to facilitate its being driven with an empty chair. Surely there are better spring forks to be invented than those which some of you refuse to surrender? We believe in a low emergency gear ratio as opposed to piling up power, which includes piling up weight. We could wish a few of you were more honest in stating delivery dates, for disappointments in this respect are very trying.

The Shamateur.

We think some of you are too liberal in providing the lesser lights among competition riders with cheap machines. Two years ago one of your number fitted out the speed merchant of every tuppenny ha'penny club with a half-price machine, and there are rumours that there have been other sinners. We respectfully suggest that we have to pay the cost of these concessions, and that they produce an artificial drop in second-hand prices, which hits us in turn at the end of the season. The shamateur is no true friend to us or to you. Some of you deliver your machines in very poor tune, in some cases because you leave us to run the engine in, in others because the viewing is careless, and the testing scamped. Believe us, nothing will pay you better than to give every engine a most scrupulous bench test, to be most thorough in your shop gauging, and to maintain a well paid corps of clever roadmen. The machines you deliver should be every whit as good as those you enter for a Six Days; and the more successful of you have proved that this policy pays—righteousness *always* pays. These concluding grumbles must not be taken as diminishing aught from either our gratitude or esteem; we would not change you for the directors of any other industry in the world; you have won, and you will retain, our confidence and our respect.



THE MOTOR CYCLE BUYERS' GUIDE OF 1914 MODELS

COMPLETE SPECIFICATIONS of all MOTOR CYCLES, SIDECARS, and CYCLE CARS on the BRITISH MARKET.

This Guide, first published in 1906, has become a regular and popular feature of the issue of "THE MOTOR CYCLE" preceding the annual Show. The possession of this copy will enable readers to make a thorough examination of the various exhibits without asking the busy stand attendants for information, which, even if they are able to give, they must be very tired of giving. A straight-edge or piece of folded paper renders the line more easy to follow. In studying the guide, the following notes should be borne in mind: when only one gear ratio follows the name of a three-speed gear it must be understood that the high gear only is given and that the usual ratios given by that gear are provided. The Armstrong Hub has ratios 1, 1.49 and 2.30, giving gears roughly 5, 7½ and 11½; the Sturmey-Archer ratios are 1, 1.57 and 2.42 or 5, 7⅞ and 12. All information has been supplied by the makers, and every effort has been made to avoid inaccuracies, but we cannot be held responsible for any errors which may have occurred.

KEY TO ABBREVIATIONS.

VALVES.—S.S.=Side by side. O.=Overhead. A.=Automatic.
LUBRICATION.—F.=Forced to bearings. M.=Mechanical to crank case. S.A.=Semi-automatic. H.P.=Hand pump.
TRANSMISSION.—Com.=Combination of two systems.

CARBURETTERS.—A.=Automatic. H.C.=Hand controlled air.
VARIABLE GEARS.—C.=Counter-shaft. Com.=Combination. E.=Engine shaft. H.=Hub.

TYRES.—A.=Avon. B.=Bates. C.=Clincher. Con.=Continental. D.=Dunlop. Dy.=Dynamic. H.=Hutchinson. J.B.=John Bull. K.=Kempshall. L.=Liberty. M.=Michelin. P.=Palmer. P.C.=Palmer Cord. Ped.=Pedley.

SINGLE-CYLINDER BICYCLES.

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Name of Carburetter.	Change Speed Gear.	Transmission.	Gear Ratios to 1.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.		in.	in.	in.			lbs.	
A.J.S.	2¾ A.J.S.	70 × 91	350	S.S.	S.A.	Amac	A.J.S., C.	Chain	5¼, 10½	30	5¼	51	26×2¼ H.	Rigid	180	£49 7
A.J.S.	2¾ A.J.S.	70 × 91	350	S.S.	S.A.	Amac	A.J.S., C.	Chain	5, 7½, 12	30	5¼	51	26×2¼ H.	Rigid	180	£52 10
Alcyon	2½ Alcyon	62 × 82	250	S.S.	H.P.	Claudel	—	Belt	5	—	—	—	24×2	Rigid	—	£36 0
Alcyon	3½ Alcyon	65 ×105	350	S.S.	H.P.	Claudel	—	Belt	5	—	—	—	24×2	Rigid	—	£44 0
*Alldays	3½ Alldays	85 × 88	499	S.S.	S.A.	Senspray, H.C.	3-speed Alldays	Chain	4.8, 6.8, 11	30	4¾	56	26×2¼ D.	Rigid	220	£54 12
Ariel	3½ Ariel	86.4× 85	498	S.S.	S.A.	B. & B., H.C.	Ariel, C.	Com.	5¼, 8½, 16	29	4½	55	26×2½ L.	Rigid	240	£60 15
Ariel	3½ Ariel	86.4× 85	498	S.S.	S.A.	B. & B., H.C.	Single-speed	Belt ⅞	4 to 5½	29	4½	53¾	26×2½ L.	Rigid	198	£47 10
A.S.L.	3½ Precision	85 × 88	499	S.S.	S.A.	B. & B., H.C.	Sturmey-A., H.	Belt ⅞	4½, 7, 11	30½	5½	51	26×2¼ H.	Spring	216	£54 0
Blackburne	3½ Blackburne	85 × 88	499	S.S.	H.P.	B. & B., H.C.	Sturmey-A., H.	Belt 1	4, 6¼, 9¾	30	4½	51	26×2¼ K.	Rigid	220	£63 0
Bradbury	3½ Bradbury	89 × 89	554	S.S.	H.P.	B. & B., H.C.	To order	Belt 1	—	29	5	51½	26×2½	Rigid	220	£48 0
Brough	3½ Brough	85 × 88	499	S.S.	S.A.	B. & B., H.C.	Arms. Mk. 7, H.	Belt 1	5, 7½, 10	29	4⅜	52	26×2½ J.B.	Rigid	165	£56 10
Brown	2½ Precision	70 × 76	292	S.S.	H.P.	B. & B., H.C.	To order, H.	Belt ¾	5 to 14.5	30	6	51	26×2 D.	Rigid	110	£46 0
Brown	3½ Brown	86 × 86	499	S.S.	H.P.	B. & B., H.C.	To order, H.	Belt ⅞	4 to 13.5	31	6½	55	26×2½ C.	Rigid	200	£57 0
*B.S.A., T.T.	3½ B.S.A.	85 × 88	499	S.S.	S.A.	B.S.A., H.C.	—	Belt ⅞	4⅛ to 5¼	—	3½	—	26×2½ P.	Rigid	190	£48 10
*B.S.A.	3½ B.S.A.	85 × 88	499	S.S.	S.A.	B.S.A., H.C.	B.S.A., C.	Belt ⅞	5, 8, 11	—	4½	—	26×2½ P.	Rigid	236	£63 0

* Alldays: Three-speed hub and belt drive, £2 2s. less. B.S.A.: 3½ h.p. with free-engine clutch, £7 extra; 3½ h.p. standard with chain and belt drive, £3 5s. less.

SINGLE-CYLINDER BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Name of Carburetter.	Change Speed Gear.	Transmission.	Gear Ratios to 1.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.		in.	in.	in.			lbs.	
Calcott	2½ Calcott	70 × 76	292	S.S.	H.P.	B. & B.	Sturmey-A., H.	Belt ¾	5½ to 13	32	6½	50	26×2 D.	Rigid	140	£34 13
Campion	4½ Precision	89 × 96	597	S.S.	S.A.	B. & B., H.C.	Sturmey-A., H.	Belt 1	4	30	4½	52	26×2½ D.	Rigid	230	£58 0
Centaur	2 Centaur	60 × 70	198	S.S.	H.P.	B. & B.	To order	Belt	5	30	4½	48	26×1¾ D.	Rigid	—	—
Centaur	3½ Centaur	84 × 90	499	S.S.	S.A.	B. & B.	To order	Belt	5	28½	4½	53½	26×2⅜ D.	Rigid	—	—
*Clyde	4 Jap	85 × 85	482	S.S.	SA HP	B. & B., H.C.	G.H., C.	Ch. ⅝	4½, 8	29	4¼	58	26×2¼ H.	Rigid	186	£59 0
Clyno	2½ Clyno, 2-str.	70 × 70	269	Valveless	Auto.	H.C.	Clyno	Belt ¾	5¼, 9⅓	30	8	53	26×2 H.	Rigid	125	—
Connaught	Connaught, 2-str	73 × 70	293	Valveless	Mech.	To order	To order	Belt ¾	5	30	6	50	26×2 H.	Rigid	125	£33 10
*Day-Leeds	3¾ Day-Leeds	85 × 88	499	O., inlet	M.	B. & B.	P. & M., C.	Chain	3.1 to 9.1	31	4½	53	26×2½	Rigid	—	£58 0
Dene	1¾ Precision	60 × 60	170	S.S.	H.P.	B. & B.	Precision 2-sp.	Belt ¾	6, 12	30	6	50	Hutchinson	Rigid	105	£30 0
Dene	3½ Precision	85 × 88	499	S.S.	H.P.	B. & B.	Armstrong, H.	Belt 1	4	30	4½	51	Hutchinson	Rigid	200	£55 0
Dene	4½ Precision	89 × 96	597	S.S.	H.P.	B. & B.	Armstrong	Belt 1	4	30	4½	51	Hutchinson	Rigid	217	£61 0
Diamond	2¾ Diamond	75 × 79	349	O., inlet	H.P.	A. or S., H.C.	Diamond, C.	S and C	5½, 9⅝	29½	6½	49½	26×2¼ H.	Rigid	145	£52 10
Elswick	1¾ Elswick	60 × 60	170	—	H.P.	H.C.	2-speed, C.	Belt ¾	6, 11	29	5	51	26×1¾ C.	Rigid	89	£30 0
Elswick	2½ Elswick	70 × 76	293	S.S.	H.P.	H.C.	Sturmey-A., H.	Belt ¾	5 to 7¼	30	5	53	26×2 P.C.	Rigid	178	£50 10
Elswick	3½ Elswick	85 × 88	499	S.S.	S.A.	H.C.	Armstrong, H.	Belt ⅝	3½ to 5½	31	4½	56	26×2½ P.C.	Rigid	215	£58 10
Elswick	4¼ Elswick	89 × 96	597	S.S.	S.A.	H.C.	—	Belt 1	—	31	4½	56	26×2⅝ P.C.	Rigid	230	£63 15
Excelsior	3½ Excelsior	85 × 88	499	S.S.	S.A.	Senspray, H.C.	Sturmey-A.	Belt 1	4¼, 7, 10¾	31	5½	54½	26×2¼ P.C.	Rigid	236	£57 0
*Excelsior	4½ Excelsior	86 × 112	650	S.S.	S.A.	Senspray, H.C.	3-speed, C.	Chain	4½, 8, 13	31	5½	56	26×2¼ P.C.	Rigid	260	£68 10
*Excelsior	5-6 Excelsior	96 × 112	800	S.S.	S.A.	Senspray, H.C.	3-speed, C.	Chain	4½, 8, 13	31	5½	56	650×65 P.C.	Rigid	268	£69 15
F.N.	2½ F.N.	65 × 85	286	S.S.	S.A.	F.N., H.C.	F.N.	Shaft	6, 10	31	5	51½	Clincher	Rigid	150	£49 0
Gamage	2¾ Gamage	70 × 76	292	S.S.	H.P.	B. & B., H.C.	Sturmey-A., H.	Belt ¾	5	30	8	50	26×2 H.	Rigid	140	£38 10
Gamage	2¾ Gamage	70 × 76	292	S.S.	H.P.	B. & B., H.C.	—	Belt ¾	6	30	8	50	Hutchinson	Rigid	132	£29 10
Grandex	2¾ Green	70 × 90	349	O.	S.A.	Amac	To order	Belt	—	27	5½	—	26×2½ H.	Rigid	140	£41 0
Grandex	3¾ Precision	85 × 88	499	S.S.	S.A.	Amac	To order	Belt	—	27	5½	—	26×2¼ H.	Rigid	160	£38 0
Hazlewood	2¾ J.A.P.	70 × 76	292	S.S.	H.P.	B. & B., H.C.	Armstrong	Belt ⅞	4	39	7	55	26×2 H.	Rigid	145	£45 3
Hobart	2¾ Hobart	74 × 81	348	S.S.	S.A.	B. & B., H.C.	To order	Belt ¾	5	29¾	5½	51	26×2 H.	Rigid	135	£37 16
Hobart	3¾ J.A.P.	85 × 85	482	O., inlet	S.A.	B. & B., H.C.	To order	Belt 1	4	30	4½	52½	26×2¼ H.	Rigid	195	£47 5
Humber	2 Humber	60 × 70	198	S.S.	H.P.	B. & B., H.C.	To order	Belt ⅝	5½, 8	30	6½	—	26×1¾ D.	Rigid	—	£35 0
*Humber	3½ Humber	84 × 90	499	S.S.	S.A.	B. & B., H.C.	Sturmey-A., H.	Belt 1	5, 7¾, 12	28½	4½	53½	26×2⅜ D.	Rigid	—	£52 10
*Indian	3½ Indian	82½ × 93	497	O., inlet	F.	Indian, A.	Indian, C.	Chain	To order	31	5	—	28×2½ K.	Spring	210	£60 0
†Ivy	1¾ Precision	60 × 62	175	S.S.	S.A.	Amac, H.C.	Precision, 2-sp.	Com.	5 and 12	31	4½	52	26×1¾ D.	Rigid	94	£26 5
*Ivy	3½ Precision	85 × 88	499	S.S.	S.A.	B. & B., H.C.	Sturmey-A., H.	Belt 1	4	30	4½	54	26×2¼ D.	Rigid	180	£52 0
Ivy	4¼ Precision	89 × 96	597	S.S.	S.A.	Amac, H.C.	Sturmey-A., H.	Belt 1	4	31	4½	57	650×65 D.	Rigid	230	£56 10
Ixion	Two-stroke	70 × 70	269	Valveless	S.A.	Amac	To order	Belt ¾	6	28	4½	50	26×2	Rigid	105	£28 10
Ixion	2¾ Villiers	74½ × 88	383	O., inlet	S.A.	Amac	Com.	Belt ⅞	5 to 10	29	4½	52	26×2¼	Rigid	190	£48 0
*Ixion	3½ Precision	85 × 88	499	S.S.	S.A.	Amac	Sturmey-A., H.	Belt ⅞	4½	30½	4½	52	26×2¼	Rigid	210	£52 10
*James	4¼ James	86 × 103	599	S.S.	S.A.	B. & B., H.C.	James, C., 2-sp.	Chain ⅝	5 to 9	31	4½	54½	26×2⅜ D.	Rigid	250	£59 10
Juno	2½ Precision	70 × 76	292	S.S.	F.F.	B. & B.	—	Belt	4½ to 6	32	4¾	46	Dunlop	Spring	—	£36 0
Juno	4 Jap	85 × 85	482	S.S.	S.A.	B. & B.	—	Belt	4½ to 6	32	4¾	50	Hutchinson	Spring	—	£47 0

* Clyde: Single gear free engine clutch, £15 less. * Day-Leeds: Single gear, £10 less; three-speed hub, £2 less. * Excelsior: Sturmey-Archer three-speed hub or two-speed counter-shaft to order at lower price. * Humber: 2 h.p. with Armstrong hub gear to order, £10 10s. extra; 3½ h.p. can be supplied with water-cooled engine. * Indian: Complete with lamps, horn, and speedometer. † Ivy: Or Ivy two-stroke, 1¾ h.p. * Ivy: T.T. machine, single-speed, £7 less. * Ixion: With 4¼ h.p. engine, £5 10s. extra. * James: With three-speed counter-shaft, £3 10s. extra; belt drive and three-speed hub to order.

SINGLE-CYLINDER BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Name of Carburetter.	Change Speed Gear.	Transmission.	Gear Ratios to 1.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.		in.	in.	in.			lbs.	
Kerry-Abingdon ..	3½ Abingdon ..	85 × 88	499	S.S. ...	H.P.	Amac, H.C. .	To order	Belt	4½, 6½ ...	31½	4¾	52½	26×2¼ H.	Rigid	—	£46 0
Levis	2¼ Levis	62 × 70	211	Valveless	Auto.	Amac, H.C. .	—	Belt ¾	6	28	4½	49	24×2 H.	Rigid	86	£33 10
Levis	2½ Levis	73 × 70	293	Valveless	Auto.	Amac, H.C. .	To order	Belt ¾	6, 9	29½	4½	53	26×2 H.	Rigid	100	£38 10
Levis	2¾ Levis	75 × 79	349	Valveless	Auto.	Amac, H.C. .	Levis, C.	Belt ¾	5½, 8½ ...	29½	4	53	26×2 H.	Rigid	125	£42 0
Lincoln-Elk	2¾ Lincoln-Elk .	76 × 77	349	S.S. ...	H.P.	B. & B., H.C.	To order	Belt ¾	5½	30	5	50	26×2 P.	Rigid	130	£30 0
Lincoln-Elk	3 Lincoln-Elk .	79 × 82	402	S.S. ...	H.P.	B. & B., H.C.	To order	Belt ⅞	5	30	5	53	26×2 P.	Rigid	150	£31 10
Lincoln-Elk	3½ Lincoln-Elk .	85 × 88	499	S.S. ...	H.P.	B. & B., H.C.	To order	Belt ⅞	4½	30	5	53	26×2¼ P.	Rigid	160	£35 0
Lincoln-Elk	4¼ Lincoln-Elk .	89 × 96	597	S.S. ...	H.P.	B. & B., H.C.	Lincoln-Elk, C.	Com.	4½, 8½ ...	30	5	56	26×2½ P.	Rigid	230	£46 0
*L.M.C.	3½ L.M.C.	85 × 88	499	S.S. ...	H.P.	B. & B., H.C.	C.	Com.	4, 10	31	4¾	50	2½ to order	Rigid	220	£60 0
*L.M.C.	4 L.M.C.	89 × 92	572	S.S. ...	H.P.	B. & B., H.C.	C.	Com.	4, 10	31	4¾	50	2½ to order	Rigid	230	£63 0
Mead	2½ Precision ...	70 × 76	293	S.S. ...	H.P.	Amac, H.C. .	To order	Belt 1	To order .	30	5	50	26×2	Rigid	150	£32 10
Mead	3¾ Precision ...	85 × 88	499	S.S. ...	H.P.	Amac, H.C. .	To order	Belt 1	To order .	30	5	50	26×2¼	Rigid	180	£39 10
Mead	4¼ Precision ...	89 × 96	597	S.S. ...	H.P.	Amac, H.C. .	To order	Belt 1	To order .	30	5	50	26×2½	Rigid	210	£42 10
Monopole	2¼ Precision ...	70 × 76	293	S.S. ...	H.P.	B. & B., H.C.	Sturmey-A., H.	Belt ¾	4½	31	6	52	26×2 D.	Rigid	145	£45 0
Monopole	3¼ Precision ...	85 × 88	499	S.S. ...	S.A.	B. & B., H.C.	Sturmey-A., H.	Belt ⅞	4½	31	5¼	55	26×2¼ D.	Rigid	220	£55 0
*Motosacoche	2¼ M.A.G.	64 × 90	290	S.S. ...	H.P.	Motosacoche .	Motosacoche, E	Belt ⅞	5 to 9	31	10	49	Avon	Rigid	—	£43 0
M.R.	2 M.R.	62 × 85	257	—	F.	M.R.	To order	Belt	—	30	9	51	26×2	Rigid	90	£24 3
M.R.	2½ M.R.	67 × 85	300	O.	M. ..	B. & B.	3-speed, H. ...	Belt ¾	4¼, 6¼, 8¾	29¾	7½	53	26×2	Rigid	—	—
New Comet	2½ Precision ...	70 × 76	292	S.S. ...	H.P.	Optional	To order	Belt ¾	—	31	4½–6	52	Dunlop ...	Rigid	—	£33 0
New Comet	3¾ Green	85 × 88	499	O.	Opt'l	Optional	To order	Belt 1	—	32	4–5½	53	Dunlop ...	Rigid	—	£57 0
New Comet	4¼ Precision ...	89 × 96	597	S.S. ...	H.P.	Optional	To order	Belt 1	—	32	4–5	54	Dunlop ...	Rigid	—	£46 10
New Hudson	3½ New Hudson	85 × 88	499	S.S. ...	H.P.	B. & B., H.C.	Armstrong, H.	Belt 1	4½, 6¾, 10½	31	4½	52	26×2¼	Rigid	220	£57 15
New Hudson	3½ New Hudson	85 × 88	499	S.S. ...	H.P.	B. & B., H.C.	Armstrong, H.	Ch. & B.	5, 7¾, 11½	31	4½	52	26×2½ ...	Rigid	235	£60 18
New Imperial	2½ Jap	70 × 76	293	S.S. ...	M.	Amac, H.C. .	—	Belt	4	—	5½	50	26×2 H.	Rigid	165	£30 0
*New Imperial	3½ Jap	85 × 85	482	S.S. ...	M.	Amac, H.C. .	To order	Com.	—	—	5	56	26×2¼ H.	Rigid	215	£54 0
New Imperial	4½ Jap	90 × 93	593	S.S. ...	M.	Amac, H.C. .	To order	Com.	4	—	5	56	26×2½ H.	Rigid	230	£60 0
N.L.G.	4 Jap	85 ×85.5	485	S.S. ...	M, HP	B. & B., H.C.	Armstrong, H.	Belt 1	4	29	4½	45	26×2¼ H.	Rigid	250	£55 10
Norton	3½ Norton	79 ×100	490	S.S. ...	S.A.	Amac, H.C. .	To order	Belt 1	4 to 14½ ..	29½	4	56	26×2½ D.	Rigid	180	£48 10
Norton	5 Norton	82 ×120	636	S.S. ...	S.A.	Amac, H.C.	Sturmey-A., H.	Belt 1	4 to 14½ ..	29½	4	56	26×2½ D.	Rigid	210	£62 0
Oakleigh	3½ Jap	85 × 85	482	S.S. ...	H.P.	B. & B., H.C.	—	Belt	4½	—	—	—	Michelin ..	—	—	£35 0
*O.K. Junior	2 O.K.	58 × 72	190	O., inlet	S.A.	Amac, H.C. .	O.K., 2-sp., C.	Com.	6 to 12 ...	36	9	50	2 D.	Rigid	120	£30 0
O.K.	3½ O.K.	85 × 85	482	O., inlet	M.	Amac, H.C. .	Sturmey-A. ..	Belt 1	5	27	5½	53	26×2¼ D.	Rigid	160	—
Overseas	3½ Overseas ...	85 × 88	499	S.S. ...	H.P.	B. & B., H.C.	Sturmey-A., H.	Belt 1	4	31	5¼	51	26×2½	Rigid	190	£49 0
P. & M.	3½ P. & M.	84.5× 88.9	498	S.S. ...	S.A.	P. & M., H.C.	P. & M., C. ...	Chain	4½ and 8 .	29½	9	53½	26×2¼ K.	Rigid	200	£60 0
P.D.M.-Illston	2¾ Illston	76 × 65	298	O., inlet	S.A.	Amac, H.C. .	—	Belt	4⅝ to 8 ..	29	5	46	26×2¼ C.	Rigid	110	£40 0
P.D.M.-Illston	3 Illston	76 × 76	350	O., inlet	S.A.	Amac, H.C. .	Illston, C.	Com.	4, 6, 8 ...	29	5	48	26×2¼ C.	Rigid	130	£47 0
Pilot-Precision ...	2¾ Precision ...	70 × 90	346	S.S. ...	H.P.	Amac	—	Belt ⅞	4 to 6½ ...	30½	5	50	26×2¼ H.	Rigid	—	£36 0
*Pilot-Precision ...	3¾ Precision ...	85 × 88	499	S.S. ...	H.P.	Amac	To order	Belt 1	4, 5½	30½	4⅝	51	26×2¼ H.	Rigid	—	£44 0
Premier	2½ Premier	66 × 72	246	S.S. ...	H.P.	B. & B.	To order	Belt ¾	—	30	7½	44	26×2 C.	Rigid	124	£36 0
Premier	3½ Premier	85 × 88	499	S.S. ...	H.P.	B. & B.	To order	Belt 1	—	30	6	48	26×2¼ C.	Rigid	192	£48 15
Quadrant	3½ Quadrant ...	85 × 88	499	O. or S.S	S.A.	To order	Armstrong, H.	Belt 1	5, 8, 12½ .	30	4⅓	—	26×2¼ D.	Rigid	200	£56 0
Quadrant	4½ Quadrant ...	87 × 95	564	O. or S.S	S.A.	To order	C.	Chain	4 and 9 ..	30	4½	—	26×2¼ D.	Rigid	210	£65 0

* L.M.C.: With belt drive and three-speed hub, £2 less. * O.K.: Single gear and belt drive, £3 10s. less.

* Motosacoche: Single-speed, £4 less; De Lissa exhaust valve. * Pilot-Precision: 4¼ h.p. engine and Armstrong hub, £12 extra.

* New Imperial: Including three-speed hub.

SINGLE-CYLINDER BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Name of Carburetter.	Change Speed Gear.	Transmission.	Gear Ratios to 1.	Saddle Height from Ground	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.		in.	in.	in.			lbs.	
Raglan	3½ Raglan	85 × 88	499	—	H.P.	Senspray,H.C.	To order	Belt 1	4, 8	30	6½	—	26×2¼ D.	Rigid	197	£43 0
Roulette	2½ Roulette	70 × 76	292	S.S.	H.P.	B. & B., H.C.	—	Belt ¾	5½	32	6½	50	26×2 D.	Rigid	140	£34 0
Rover	3½ Rover	85 × 88	499	S.S.	H.P.	B. & B., H.C.	Sturmey-A., H.	Belt ⅞	4¾, 7¼, 11⅛	30	4¾	52	26×2⅜ D.	Rigid	250	£58 0
Royal Ruby	3½-4 Jap	85 × 85	482	S.S.	Auto.	B. & B., H.C.	Sturmey-A., H.	Belt ⅞	4½, 7, 11	31	5½	52	26×2⅜ H.	Rigid	—	£56 14
Royal Ruby	3½-4 Jap	90 × 77.5	498	O.	Auto.	B. & B., H.C.	—	Belt ⅞	—	—	4¾	50	26×2¼ H.	Rigid	—	£51 9
Rudge	3½ Rudge	85 × 88	499	O., inlet	Ft. P.	Senspray,H.C.	—	Belt ⅞	—	31	4⅜	54⅝	650×65 D.	Rigid	192	£48 15
Rudge Multi	3½ Rudge	85 × 88	499	O., inlet	Ft. P.	Senspray,H.C.	Variable pulleys	Belt ⅞	3½ to 7½	31	4⅜	54⅝	650×65 D.	Rigid	224	£58 15
Rudge Multi	5-6 Rudge	85 × 132	749	O., inlet	Ft. P.	Senspray,H.C.	Variable pulleys	Belt 1	3½ to 7½	31	4	54⅝	650×65 D.	Rigid	240	£63 15
Singer	2½ Singer	69 × 80	299	S.S.	H.P.	B. & B., H.C.	Sturmey-A., H.	Belt ¾	5	30	5½	50	26×2 D.	Rigid	168	£49 0
Singer	3½ Singer	85 × 88	499	S.S.	H.P.	B. & B., H.C.	Sturmey-A., H.	Belt ⅞	4½	31	4	51½	26×2¼ D.	Rigid	216	£58 0
Singer	4½ Singer	88 × 95	578	S.S.	H.P.	B. & B., H.C.	2-speed, C.	B or Ch.	5½, 7¾	31	4	51½	26×2⅜ D.	Rigid	230	£65 0
Star	4½ Star	89 × 100	622	S.S.	SA HP	Amac	Star, C.	Chain	5⅛, 7¾, 11½	31	6	58	26×2½ D.	Rigid	—	£68 5
*Sun	2¼ Villiers	70 × 70	269	None	H.P.	Amac	—	Belt ¾	5½	31	5	50	26×1¾ D.	Rigid	—	£26 5
*†Sun	2¾ Precision	70 × 90	350	S.S.	H.P.	B. & B.	—	Belt ⅞	5½	31	6	50	26×2 D.	Rigid	—	£35 0
*†Sun	3¾ Precision	85 × 88	499	S.S.	H.P.	B. & B.	Sturmey-A., H.	Belt ⅞	4	31	4½	50	26×2½ D.	Rigid	—	£52 10
Sunbeam	2¾ Sunbeam	75 × 79	350	S.S.	S.A.	Amac	2-speed, C.	Chain	5¼ and 10½	30	5	52½	26×2¼ H.	Rigid	185	£59 17
Sunbeam	3½ Sunbeam	85 × 88	499	S.S.	S.A.	Amac	3-speed, C.	Chain	4½, 7¾, 12	30	4½	55½	26×2½ B.	Rigid	220	£69 6
Swift	3½ Swift	86 × 85	498	S.S.	S.A.	B. & B., H.C.	C.	Com.	5¼, 8½, 16	29½	4¼	55	26×2¼ D.	Rigid	240	£60 15
Swift	3½ Swift	86 × 85	498	S.S.	S.A.	B. & B., H.C.	To order	Belt ⅞	4 to 5½	29½	4¼	55	26×2¼ D.	Rigid	198	£47 10
Torpedo	2½ Torpedo	70 × 76	293	S.S.	H.P.	H.C.	Sturmey-A., H.	Belt ¾	3¾ to 5½	30	5	53	26×2 C.	Rigid	175	£47 10
Torpedo	3½ Torpedo	85 × 88	499	S.S.	S.A.	H.C.	Armstrong VII.	Belt ⅞	3¾ to 5½	31	4½	56	26×2¼ D.	Rigid	210	£56 10
Torpedo	4½ Torpedo	89 × 96	597	S.S.	S.A.	H.C.	Armstrong VII.	Belt 1	3¾ to 5½	31	4½	56	26×2½ D.	Rigid	225	£61 15
Triumph	2¼ Triumph	—	—	None	M.	Triumph, H.C.	Triumph 2-sp.	Belt ¾	—	28½	4½	48½	26×2 D.	Rigid	120	£42 0
Triumph	4 Triumph	85 × 97	550	S.S.	S.A.	Triumph, H.C.	Sturmey-A., H.	Belt 1	4	29½	4½	51	26×2⅜ C.	Rigid	210	£57 10
Trump	4 Jap	85 × 85	482	S.S.	HP SA	To order	To order	Belt ⅞	4	31	5⅛	54½	26×2¼ H.	Rigid	220	£48 5
*Veloce	2 Veloce	60.5×73	206	Valveless	M.	Senspray,H.C.	Veloce, C.	Chain	5½ and 11	29	5½	49	24×2 H.	Rigid	90	£31 10
*Veloce	2½ Veloce	70 × 76	292	O., inlet	F.	Senspray,H.C.	Veloce	Belt ¾	6 and 10.2	31	5	52	26×2¼ D.	Rigid	175	£48 6
Veloce	3½ Veloce	85 × 88	499	S.S.	H.P.	B. & B., H.C.	Sturmey-A., H.	Belt ⅞	4	31	4½	51	26×2¼ D.	Rigid	224	£42 0
Victoria	2½ Precision	70 × 76	293	S.S.	H.P.	B. & B., H.C.	—	Belt ¾	4, 6	30	6	51	26×2¼ D.	Rigid	—	£33 0
Victoria	3½ Precision	85 × 88	499	S.S.	H.P.	B. & B., H.C.	To order	Belt 1	3½ to 5½	31	6	54	26×2⅜ D.	Rigid	195	£38 0
Victoria	4¼ Precision	89 × 96	597	S.S.	H.P.	B. & B., H.C.	Armstrong, H.	Belt 1	4	31	6	54	26×2⅜ D.	Rigid	230	£58 0
Win-Precision	3¾ Precision	85 × 88	499	S.S.	H.P.	B. & B., H.C.	Armstrong, H.	Belt ⅞	—	31	5	53	26×2¼ H.	Rigid	196	£51 0
Win-Precision	4¼ Precision	89 × 96	597	S.S.	H.P.	B. & B., H.C.	Armstrong, H.	Belt 1	—	32	4½	54	26×2⅜ H.	Rigid	220	£55 10
*Wolf	2½ Wolf	76 × 65	298	O.	H.P.	Senspray,H.C.	—	Belt ⅞	5 to 8	28	7	52	26×2 H.	Rigid	125	£25 4
*Wulfruna	3½ Arno	84 × 89	499	S.S.	H.P.	B. & B.	—	Belt ⅞	—	29	6½	54	26×2¼ H.	Rigid	190	£35 14

*Sun: 1¼ h.p. Precision engine and counter-shaft two-speed gear, same price. *† Sun: 2¾ h.p. Villiers engine and counter-shaft two-speed gear, £10 10s. extra. *† Sun: 4¼ h.p. Precision engine, £3 10s. extra. * Veloce: 2 h.p. single-gear model, 25 guineas; 2½ h.p. may be fitted with 2¾ h.p. engine at £2 2s. extra. * Wolf: 2½ h.p. Wolf, with counter-shaft gear, belt, and chain drive, £8 8s. extra. * Wulfruna: 3½ h.p. Wulfruna with counter-shaft gear and chain drive, £10 10s. extra.

MULTI-CYLINDER BICYCLES.

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Name of Carburetter.	Change Speed Gear.	Transmission.	Gear Ratios to 1.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.		in.	in.	in.			lbs.	
A.J.S.	6 A.J.S. 50°	74 × 81	696	S.S.	F.	Amac	A.J.S., C.	Chain	4¾, 7½, 16	30	4	56½	650×65 A.	Rigid	276	£73 10
*Alcyon	3½ Alcyon	52 × 82	350	O.	M.	Claudel	Alcyon 2-sp.	Chain	4, 6	—	—	—	26×2	R., S.	—	£64 0
Alcyon	5 Alcyon	62 × 82	500	O.	S.A.	Claudel	Alcyon 2-sp.	Chain	4, 6	—	—	—	26×2½	R., S.	—	£68 0
Alldays	6-8 Alldays	85 × 88	998	S.S.	S.A.	Senspray, H.C.	3-sp. gear box C	Chains	4.3, 5.8, 10	30	4½	58	650×65 D.	Rigid	—	£73 10
Ariel	5-6 Ariel	74 × 87	748	S.S.	S.A.	Amac, H.C.	Ariel, C.	Com.	4¼, 7¼, 13½	29	6	55	26×2½ L.	Rigid	260	£70 15
A.S.L.	3½ Precision 50°	85 × 88	499	S.S.	S.A.	B. & B., H.C.	Sturmey-A., H.	Belt ⅞	4½, 7, 11	30½	5½	51	26×2¼ H.	Spring	216	£55 0
A.S.L.	5-6 Fafnir 54°	70 × 80	—	S.S.	S.A.	B. & B., H.C.	Sturmey-A., H.	Belt ⅞	4½, 7, 11	30½	6	51	26×2¼ H.	Spring	220	£62 0
Bat	4 Bat 50°	70 × 85	654	S.S.	M.	Amac, H.C.	Bat, C.	Com.	4¼, 9	29	5¾	56½	26×2¼ K.	Rigid	195	£57 10
*Bat	6 Bat 50°	76 × 85	770	S.S.	M.	Amac, H.C.	Bat, C.	Chain	4¾, 7, 10¾	30½	4½	55¾	650×65	Spring	250	£73 0
Bradbury	3½ Bradb'y 180°	68 × 68.7	499	S.S.	S.A.	B. & B., H.C.	Bradbury	Chain	4, 7, 12	30	4½	54	26×2¾	Rigid	—	£65 0
Brough	3½ Brough 180°	70 × 64.5	496	O.	S.A.	Senspray, H.C.	Brough, C.	Com.	4½ to 7	29	4¼	50	26×2¼ J.B.	Rigid	154	£56 0
*Brough	6 Brough 50°	77 × 88	820	S.S.	S.A.	Senspray, H.C.	—	Belt 1	3¾	29	4½	52	26×2½ J.B.	Rigid	170	£56 0
Brown	3½ Brown 50°	63 × 80	498	O.	H.P.	B. & B., H.C.	To order, H.	Belt ⅞	4 to 13.5	31	6½	55	26×2¼ C.	Rigid	200	£58 0
Calthorpe	4 Precision	70 × 70	538	S.S.	M.	Senspray	Sturmey-A., H.	Belt ⅞	—	31	4½	58	Michelin	Rigid	225	£60 0
Campion	6 Jap 50°	76 × 85	770	S.S.	S.A.	B. & B., H.C.	Jardine, C.	Chain	4 to 8	30	4¼	55	26×2½ D.	Rigid	—	£69 10
Campion	8 Jap 50°	85 × 85	964	S.S.	S.A.	B. & B., H.C.	Jardine, C.	Chain	3¾, 5½, 8½	30	4¼	55	650×65 D.	Rigid	—	£73 0
Centaur	2¾ Centaur	60 × 60	340	S.S.	S.A.	B. & B.	—	Belt	5, 7¾, 12	—	6	51	26×2 D.	Rigid	—	—
Charles Edmund	3½ M.A.G.	64 × 77	496	O., inlet	S.A.	Amac, H.C.	Enfield, C.	Chain	5¼, 8	30	5½	53	26×2½ H.	Spring	—	£63 0
Charles Edmund	6 M.A.G.	72 × 91	742	O., inlet	S.A.	Amac, H.C.	Enfield, C.	Chain	—	30	5½	53	26×2½ H.	Spring	—	£73 10
Chater-Lea	8 Ch.-Lea 50°V	85 × 85	964	S.S.	S.A.	B. & B.	Chater-Lea, C.	Chain	4 to 12	26	5½	—	650×65 C.	Rigid	250	£78 15
Clyde	3 Jap 50°	60 × 76	430	S.S.	SA HP	B. & B., H.C.	G.H., C.	Chain ⅝	4½, 8	29	4¼	60	26×2¼ H.	Rigid	188	£62 0
Clyde	6 Jap 50°	76 × 85	770	S.S.	SA HP	B. & B., H.C.	G.H., C.	Chain ⅝	4¼, 8	29	4¼	60	26×2½ H.	Rigid	208	£73 10
Clyno	5-6 Clyno 55°	76 × 82	744	S.S.	S.A.	Amac	Clyno, C.	Chain	5, 9, 15	31	5¾	59	26×3 H.	Rigid	265	£75 0
Dene	4 Precision 50°	60 × 88	499	S.S.	M.	B. & B.	Armstrong	Belt 1	4	30	4¾	50	Hutchinson	Rigid	180	£58 10
Dene	8 Precision 50°	85 × 88	998	S.S.	M.	B. & B.	Armstrong	Belt 1	3½	30	4¼	51	Hutchinson	Rigid	215	£70 0
Douglas	2¾ Douglas 180°	60.8× 60	349	S.S.	M.	Amac, H.C.	—	B. & C.	5½	30	4¼	53	26×2	Rigid	135	£42 0
Douglas	2¾ Douglas 180°	60.8× 60	349	S.S.	M.	Amac, H.C.	Douglas, C.	B. & C.	5½, 8½	30	4¼	53	26×2	Rigid	145	£48 0
Douglas	2¾ Douglas 180°	60.8× 60	349	S.S.	M.	Amac, H.C.	Douglas, C.	B. & C.	5½, 8½	30	4¼	53	26×2	Open	145	£53 0
Douglas	3½ Douglas 180°	68 × 68	494	S.S.	M.	Amac, H.C.	Douglas, C.	B. & C.	4½, 7½	30	5	55	26×2⅜	Rigid	180	£62 0
Elswick	3½ Elswick	—	—	S.S.	S.A.	H.C.	Armstrong 3-sp	Belt ⅞	3¾ to 5½	30	5	55	26×2¼ P.C.	Rigid	184	£65 0
F.N.	5 F.N., 4-cyl.	52.5 × 57	496	O.	S.A.	F.N., H.C.	F.N., selective	Shaft	6 to 10	31	6	54	26×2½	Rigid	235	£65 0
F.N.	7 F.N., 4-cyl.	52 × 88	748	O.	F.& M.	F.N.	F.N., selective	Shaft	4½, 7, 11	31	5	61	26×3	Rigid	250	£78 0
Forward	2¾ Forward 50°	56 × 70	345	S.S.	S.A.	Amac	To order	Belt ¾	—	28½	7	50½	26×2 H.	Rigid	130	£40 19
Forward	2¾ Forward 50°	56 × 70	345	S.S.	S.A.	Amac	To order	Belt ¾	—	28½	7	50½	26×2 H.	Open	—	£44 2
Forward	3½ Forward 50°	64.5× 76	497	S.S.	S.A.	Amac	To order	Belt ⅞	—	28½	6½	50½	26×2⅜ H.	Rigid	140	£45 3
Grandex	6 Precision	75 × 85	750	S.S.	S.A.	Amac	To order	Belt	—	27	5½	—	650×65 M.	Rigid	210	£50 0
Hazlewood	3¼ Jap 50°	60 × 76	430	S.S.	H.P.	B. & B., H.C.	Armstrong	Belt ⅞	4, 7, 10	39	7	55	26×2½ H.	Rigid	168	£55 13
Hazlewood	5-6 Jap 50°	70 × 85	655	S.S.	M.	B. & B., H.C.	Armstrong	C. & B.	4, 7, 10	42	7	57	26×2½ H.	Rigid	200	£68 5
Henderson	8-10 H'son, 4-cyl	67 × 76	1085	O.	S.A.	Schebler, A.	Henderson, H.	Chain	4, 6	31	5	65	28×3	Rigid	290	£81 18
Hobart	4 Hobart 50°	68 × 76	552	O.	S.A.	B. & B., H.C.	To order	Belt 1	4	30	5½	52	26×2¼ H.	Rigid	187	£49 7
Humber	2¾ Humber 45°	60.7× 60	349	S.S.	S.A.	B. & B., H.C.	To order	Belt ⅞	—	28	6	51	26×2 D.	Rigid	—	£43 10

* Alcyon: With belt drive, single gear, and 24in. wheels, £16 less. * Bat: 8 h.p. engine £2 extra, Armstrong hub £5 10s. less. * Brough: Three-speed hub, £10 10s. extra.

MULTI-CYLINDER BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Name of Carburetter.	Change Speed Gear.	Transmission.	Gear Ratios to 1.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.		in.	in.	in.			lbs.	
Indian	7 Indian	82.5 × 93	994	O., inlet	F.	Indian, A.	Clutch	Chain	—	30	5	—	28 × 2½ K.	Rigid	190	†£59 0
*Indian	7 Indian	82.5 × 93	994	O., inlet	F.	Indian, A.	Indian, C.	Chain	To order	31	5	—	28 × 3 K.	Spring	220	†£70 0
Ivy	4 Precision 50°	60 × 88	596	O.	S.A.	Amac	Sturmey-A., H.	Belt 1	5	30	4½	56	26 × 2¼ D.	Rigid	180	£55 0
Ivy	5-6 Jap 50°	76 × 85	770	O.	S.A.	B. & B., H.C.	Jardine, C.	Com.	4, 8	31	4½	57	650 × 65 D.	Rigid	230	£65 0
*James	3½ James	64 × 77	496	S.S.	S.A.	B. & B., H.C.	James 3-sp., C.	Chain ⅝	5, 8½, 13	29½	4½	52	26 × 2⅜ D.	Rigid	200	£63 0
Kerry-Abingdon	5-6 King Dick	67 × 95	675	S.S.	H.P.	B. & B., H.C.	To order	Belt	4.5, 6.5	31½	5¾	55	26 × 2½ H.	Rigid	—	£57 0
Lea-Francis	3½ Jap 50°	60 × 76	430	S.S.	S.A.	Amac, A.	Lea-Francis, C.	Chain	5, 9	29	5	54	26 × 2¼ P.C.	Rigid	—	£68 5
Lincoln-Elk	6 Lincoln-Elk	76 × 85	770	S.S.	H.P.	B. & B., H.C.	Lincoln-Elk, C.	Com.	4½, 8½	30	4½	56	26 × 2½ P.	Rigid	265	£55 0
Martin	3½ Jap 50°	70 × 64.5	494	O.	M.	Martin-Amac	Com.	Com.	4 to 7½	30	5½	55	26 × 2⅜ H.	Spring	185	—
Matchless	3½ Jap 50°	70 × 64.5	494	O.	S.A.	Amac, H.B.	Armstrong 3-sp	Com.	5	30	5	54	26 × 2¼ H.	Spring	175	£63 0
Matchless	7 Matchless 45°	82 × 94	996	O.	S.A.	Amac, H.B.	3-speed, C.	Chain	4½, 7½, 11½	30	5	58	650 × 75 H.	Spring	280	£75 0
Matchless	8 Jap 50°	85 × 85	964	O.	S.A.	Amac, H.B.	2-speed, C.	Chain	4½, 8½	30	5	56	650 × 65 H.	Spring	275	£68 5
Mead	6 Precision	75 × 85	750	S.S.	H.P.	Amac, H.C.	To order	Com.	To order	32	5	60	26 × 2½	Rigid	230	£50 0
Mead	8 Precision	85 × 85	964	S.S.	H.P.	Amac, H.C.	—	Com.	To order	32	5	60	26 × 2½	Rigid	240	£52 0
Motosacoche	2¾ M.A.G. 60°	54 × 75	344	S.S.	H.P.	Amac	Enfield, C.	Chain	5¾, 8	30	5	54½	26 × 2¼ H.	Rigid	—	£52 0
Motosacoche	3½ M.A.G. 60°	64 × 77	496	S.S.	H.P.	Amac	Enfield, C.	Chain	5¼, 8	30	5	54½	26 × 2¼ H.	Rigid	—	£60 0
*Motosacoche	6 M.A.G. 45°	72 × 91	742	O., inlet	S.A.	Amac	Enfield, C.	Chain	—	—	—	—	26 × 2½ H.	Rigid	—	—
M.R.	4 M.R.	—	—	O.	M.	B. & B.	2-speed, C.	Chain	5½, 8	29¾	5½	53	26 × 2¼	—	200	—
New Comet	6 Jap 50°	76 × 85	770	S.S.	H.P.	Optional	To order	Belt 1	—	31	4 or 5	54	Dunlop	Rigid	—	£60 0
New Hudson	3 New Hudson	—	367	S.S.	H.P.	B. & B., H.C.	Armstrong, H.	Belt	4½, 6¾, 10½	31	4¾	50	26 × 2	Rigid	150	£52 10
New Hudson	6 New Hudson	76 × 85	770	S.S.	S.A.	B. & B., H.C.	Armstrong, H.	C. & B.	5, 7¾, 11½	31	4½	54	650 × 65	Rigid	270	£71 8
New Imperial	6 Jap 50°	76 × 85	770	S.S.	M, HP	Amac	3-speed, C.	Chain	4	—	5	56	26 × 2½ H.	Rigid	264	£72 0
New Imperial	8 Jap 50°	85 × 85	964	S.S.	M, HP	Amac	3-speed, C.	Chain	4	—	5	56	26 × 2½ H.	Rigid	264	£72 0
*N.L.G.	6 Jap 50°	76 × 85	770	S.S.	H.P.	B. & B., H.C.	Armstrong, H.	Belt 1	4	29	4½	45	26 × 2½ H.	Rigid	260	£68 10
N.S.U.	3½ N.S.U.	63 × 80	499	O.	M.	N.S.U., H.C.	N.S.U., E.	Belt ⅞	4½, 7	29	6	—	26 × 2¼	Spring	160	—
N.S.U.	6-7 N.S.U.	75 × 94	830	O.	M.	N.S.U., H.C.	N.S.U., C.	Chain ⅝	4, 7, 10	29	6	—	26 × 3	Spring	190	—
N.S.U.	7-9 N.S.U.	80 × 99	995	O.	M.	N.S.U., H.C.	N.S.U., C.	Chain	4, 7, 10	29	6	—	28 × 3	Spring	210	—
*N.U.T.	2¾ Jap 50°	60 × 61.5	350	O.	S.A.	Amac	Armstrong, H.	Belt ⅞	4, 5, 7¾	30	4½	51	26 × 2	Rigid	170	£60 10
N.U.T.	3 Jap 50°	60 × 76	430	S.S.	S.A.	Amac	Armstrong, H.	Belt ⅞	4, 5, 7¾	30	4½	51	26 × 2	Rigid	170	£60 10
*N.U.T.	3½ Jap 50°	70 × 64.5	500	S.S.	S.A.	Amac	Armstrong, H.	Belt 1	4, 5, 9	30	4½	51	26 × 2¼	Rigid	190	£60 10
O.K.	3 O.K. 50°	52 × 75	395	O., inlet	M.	Amac, H.C.	O.K. 2-sp., C.	Com.	6, 12	28	6½	53	26 × 2¼ D.	Rigid	140	—
P.D.M.-Illston	5-6 Illston 50°	76 × 76	690	O., inlet	SA HP	Amac, H.C.	Illston, C.	Com.	4, 6, 8	30	5	48	26 × 2¼ Con.	Rigid	180	£55 0
Pilot-Precision	6 Precision	75 × 85	750	S.S.	Dual	Amac	Armstrong 3-sp	Belt 1⅛	4, 5½	30½	4½	52	26 × 2⅛ H.	Rigid	—	£67 10
Premier	7-9 Premier 50°	85 × 88	998	S.S.	H.P.	B. & B.	Premier, C.	Chain	4½, 8¾	30	4½	58	26 × 2½ C.	Rigid	314	£75 0
Quadrant	8-9 Quadrant 50°	87 × 95	1129	O.	S.A.	To order	C.	Chain	4, 9	30	4½	—	650 × 65 D.	Rigid	292	£70 0
Rex-Jap	6 Jap 50°	76 × 85	770	S.S.	S.A. F.	H.C.	Rex, C.	Chain	4¾, 7½, 12¼	32	5	58	650 × 65	Spring	260	£75 12
Rex-Jap	8 Jap 50°	85 × 85	964	S.S.	S.A. F.	H.C.	Rex, C.	Chain	4¾, 7½, 12¼	32	5	58	650 × 65	Spring	278	£77 14

* Indian: Hendee Special, with electric starting and lighting, £77. †Indian: Complete with lamps, horn, and speedometer. * James: Belt drive and three-speed hub to order. * Motosacoche: De Lissa exhaust valves. * N.L.G.: 8 h.p. J.A.P. engine, £2 extra. * N.U.T.: Single-geared racing models, £10 10s. less.

MULTI-CYLINDER BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Name of Carburetter.	Change Speed Gear.	Transmission.	Gear Ratios to 1.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.		in.	in.	in.			lbs.	
Royal Enfield	2¾ Enfield 60° .	54 × 75	343	S.S. ...	S.A.	Amac, H.C. .	Royal Enfield C	Chain	5.7, 7.8 ..	30	4¾	5 5	26×2¼ D.	Rigid	180	£45 0
*Royal Enfield	3 Enfield 60° .	60 × 75	425	O., inlet	F.	Amac, H.C.	Royal Enfield C	Chain	5.1, 8.9 ..	30	4¾	55	26×2¼ P.C.	Rigid	180	£52 10
*Royal Ruby	3 Jap 50°	60 × 76	430	S.S. ...	—	B. & B., H.C.	Sturmey-A., H.	Belt ⅞	4½, 7, 11	31	5¾	52	26×2⅜ D.	Rigid	—	£54 12
Scott	3¾ Scott	73 × 63.5	532.5	Valveless	M. SA.	Scott, Semi-A.	Scott, C.	Chain	4.125, 7.6	29	5	53½	26×2¼ P.C.	Open	196	£68 5
Star	6 Jap 50°	76 × 85	770	S.S. ...	SA HP	Amac, H.C. .	Star, C.	Chain	4¾, 7¼, 11	30	6½	58	26×2½ D.	Rigid	—	£78 15
Sun	4 Precision ...	60 × 88	499	O.	H.P.	Amac.	Sturmey-A. ..	Belt 1	4	30	4½	50	26×2¼ D.	Rigid	—	£56 0
Sun	5 Jap 50°	70 × 85	630	O.	H.P.	Amac	Sturmey-A. ..	Belt 1	4	30	4½	50	26×2½ D.	Rigid	—	£60 15
Sunbeam	6 Jap 50°	76 × 85	770	S.S. ...	S.A.	B. & B.	3-speed, C. ...	Chain	4½, 7½, 10½	30	5	57	650×65 D.	Rigid	260	£84 0
Torpedo	3½ Torpedo ...	—	—	S.S. ...	S.A.	H.C.	Armstrong V.	Belt ⅞	3¾ to 5½ ..	30	5	55	26×2¼ D.	Rigid	180	£63 0
Trump	6 Jap 50°	76 × 85	770	S.S. ...	HP SA	To order	To order	Belt 1	4	32	5	56½	26×2½ H.	Rigid	240	£60 5
Victoria	4 Precision ...	60 × 88	498	S.S. ...	H.P.	B.&B., H.C.	Sturmey-A., H.	Belt 1	4	31	6	54	26×2⅜ D.	Rigid	230	£55 0
*Williamson	8 Douglas	85 × 85	964	S.S. ...	S.A.	—	Douglas, C. ...	Chains	4¼, 9½ ...	29½	6½	60½	26×3	Rigid	280	£75 0
*Zenith	3½ Jap	70 × 64½	496	S.S. ...	H.P.	B. & B.	Gradua	Belt	4 to 7½ ..	29½	5	56	26×2¼ H.	Rigid	—	£56 14
†Zenith	6½ Jap	76 × 85	770	S.S. ...	H.P.	B. & B.	Gradua	Belt	3½ to 7 ..	29½	4½	56	26×2½ H.	Rigid	—	£69 6
Zenith	6½ Jap	76 × 85	770	S.S. ...	H.P.	B. & B.	Gradua, C. ...	Com.	4 to 10½	29½	4½	56	26×2½ H.	Rigid	—	£75 12

* Royal Enfield: T.T. roadster same price. * Royal Ruby: With 4 h.p. J.A.P. engine, same price. * Williamson: Water-cooling, £7 extra. *Zenith: Gradua counter-shaft gear, with belt and chain drive, £5 5s. to £6 6s. extra. † Zenith: 8 h.p. engine, £1 1s. extra.

SIDECARS AND THREE-WHEELED CYCLE CARS.

Sc. = Sidecar. C.c. = Cycle Car.

Name of Machine and No. of Cylinders.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Cooling.	Lubrication.	Name of Carburetter.	No. of Speeds	Gear Ratios to 1.	Transmission.	Dimensions. Extreme Height	Extreme L'ngth	Extreme Width	Gro'nd Clearance.	Wheelbase.	Track.	Make and Size of Tyres.	Weight Complete.	Price.
		mm.	c.c.							ft. in.	ft. in.	ft. in.	in.	ft. in.	ft. in.		lbs.	
A.C. C.c. (1)	5-6 A.C.	95×102	723	Air ...	S.A.	B. & B., H.C.	2	4½, 12⅜ ...	Chain	3 6	9 0	5 2	6	5 9	4 6	650×65 C.	656	£78 15
A.J.S. (1)	6 A.J.S. 50° ...	74× 81	696	Air ...	F.	Amac	3	4¾, 7½, 16	Chain	3 4	7 1	—	4	—	3 8	650×65 A.	—	—
Alldays Sc. (2) ..	6-8 Alldays	85× 88	998	Air ...	S.A.	Senspray, H.C.	3	4.3, 5.8, 10	Chain	—	—	—	—	—	—	650×65 D.	—	£89 5
Ariel Sc. (1)	3½ Ariel	86.4×85	498	Air ...	S.A.	B. & B., H.C.	3	5¼, 8½, 16	Com.	3 5	7 0	4 9½	4½	4 7	3 5½	26×2¼ L.	392	£76 10
Ariel Sc. (2)	5-6 Ariel	74× 87	748	Air ...	S.A.	Amac, H.C. .	3	4¼, 7¼, 13½	Com.	3 5	7 0	4 9½	6	4 7	3 5½	26×2½ L.	412	£86 10
Bradbury Sc. (2)	6 Bradbury ...	74.5×86	750	Air ...	S.A.	B. & B., H.C.	3	4½, 7½, 13½	Chain	—	—	—	—	—	—	650×65 ..	—	£91 0
Brough Sc. (1) ..	3½ Brough	85× 88	499	Air ...	S.A.	B. & B., H.C.	3	5, 7½, 10	Belt 1	—	—	—	—	—	—	26×2¼ J.B.	235	£66 10
*Brough Sc. (2) ..	6 Brough 50° ..	77× 88	820	Air ...	S.A.	B. & B., H.C.	3	4, 8, 12 ..	Chain	—	—	—	—	—	—	26×2½ J.B.	320	£82 10
C. & H. C.c. (2) .	5-6 Fafnir 60° ..	70× 80	616	Water	H.P.	B. & B.	3	4½, 7, 10½	Chain	4 0	9 6	4 9	9	6 6	4 3	700×75 M.	448	£99 15
Calthorpe Sc. (2)	5-6 Precision ...	75× 85	750	Air ...	M.	Senspray	2	5, 9	Com.	2 7	7 2	4 2	4½	4 10	3 3	Michelin ..	—	£77 10
Campion Sc. (2) .	6 Jap 50°	76× 85	770	Air ...	F.	B. & B., H.C.	3	3¾, 5½, 8½	Chain	2 6	—	—	—	4 7	—	650×65 D.	—	£83 10
Clyde Sc. (1)	4 Jap 50°	85× 85	482	Air ...	SA HP	B. & B., H.C.	2	4¾, 9	Chain	3 1	6 3	4 5	4¼	4 10	3 8	26×2¼ H.	308	£70 0
Clyde Sc. (2)	6-8 Jap 50°	76× 85	770	Air ...	SA HP	B. & B., H.C.	2	4¾, 9	Chain	3 1	6 6	4 5	4¼	5 0	3 8	650×65 H.	308	£86 10
Clyno Sc. (2)	5-6 Clyno 55° ...	76× 82	744	Air ...	S.A.	Amac, H.C. .	3	5, 9, 15 ..	Chain	3 9	7 5	4 6½	5	4 11	—	26×3 H.	385	£90 0

* Brough: Belt drive, £6 10s. less.

SIDECARS AND THREE-WHEELED CYCLE CARS (*Continued*).

Name of Machine and No. of Cylinders.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Cooling.	Lubrication.	Name of Carburetter.	No. of Speeds	Gear Ratios to 1.	Transmission.	Dimensions. Extreme Height	Extreme L'ngth	Extreme Width	Gro'nd Clearance.	Wheelbase.	Track.	Make and Size of Tyres.	Weight Complete.	Price.
		mm.	c.c.							ft. in.	ft. in.	ft. in.	in..	ft. in.	ft. in.		lbs.	
Eric C.c. (4)	8.1 Eric	56× 76	747	Water	F.	Sthenos, H.C.	3 & R.	5, 9, 17 ..	Bevel	—	10 6	5 3	7	7 9	4 7	700×80 D.	560	£141 15
Hobart Sc. (2) ...	6 Jap 50°	76× 85	770	Air ...	S.A.	B. & B., H.C.	2	4, 8½	Chain	3 9	8 0	4 4	4	4 7	—	650×65 H.	—	—
*Humber Sc. (3) ..	6 Humber 180°	—	743	Air ...	S.A.	B. & B.	3	4½, 7, 10¼	Chain	2 7½	—	—	4½	4 9	—	26×2½ D.	—	—
Indian Sc. (2) ...	7 Indian	82.5 ×93	994	Air ...	F.	Indian, A.	2	To order .	Chain	—	—	—	5	—	—	28×3 K.	—	—
Ixion Sc. (1)	4¼ Precision	89 ×96	597	Air ...	S.A.	Amac	3	4½, 7, 10	Belt	—	—	—	4¼	4 5	—	26×2½ ...	298	£72 0
*James Sc. (1) ...	4¼ James	86×103	599	Air ...	S.A.	B. & B.	3	5, 8½, 13..	Chain	3 11	7 3	4 8	4½	4 6½	3 4	26×2½ & 2⅜	360	£76 13
L.M.C. Sc. (1) ...	4 L.M.C.	89× 92	572	Air ...	H.P.	B. & B., H.C.	2	4, 12	Com.	—	—	—	5	—	—	650×65 ..		£75 0
Matchless Sc. (2)	3½ Jap 50°	70× 64.5	494	Air ...	S.A.	Amac, H.C. .	3	5 to 10 ..	Com.	4 6	6 9	4 6	5	4 6	4 0	26×2¼ H.	336	£80 17
Matchless Sc. (2)	7 Matchless 45°	82× 94	996	Air ...	S.A.	Amac, H.C. .	3	4½, 7⅓, 11½	Chain	4 6	7 0	4 6	5	4 9	4 0	650×75 H.	392	£92 17
Matchless Sc. (2)	8 Jap 50°	85× 85	994	Air ...	S.A.	Amac, H.C. .	2	4½, 8½ ...	Chain	4 6	7 0	4 6	5	4 8	4 0	650×65 H.	392	£86 2
Morgan C.c. (2) ..	8 Jap 50°	85× 85	964	Air ...	—	Binks's 3-jet .	2	4½, 13 ...	Chain	3 2	8 10	5 0	6	6 0	4 0	650×65 ..	308	£89 15
*Morgan C.c. (2) ..	8 Jap 50°	85× 85	964	Water	—	Binks's 3-jet .	2	4½, 13 ...	Chain	3 0	9 10	5 3	6	6 11	4 3	650×65 ..	364	£105 0
Motorette C.c. (1)	7 Motorette ...	95×102	723	Water	S.A.	Jap, A.	2	4½, 13¼ ..	Chain	3 6	8 9	5 0	8	5 6	4 2	700×80 ..	420	£78 15
Motosacoche Sc. (2	6 M.A.G. 45° ..	72× 91	742	Air ...	S.A.	Amac	2	4.4, 8.5 ..	Chain	3 4	6 11	4 9	5	4 8	3 5	—	—	£88 0
N. Hudson Sc. (2)	6 New Hudson .	76× 85	770	Air ...	S.A.	B. & B., H.C.	3	5, 7¾, 11½	C. & B.	—	6 10	4 6	4½	4 6	3 6	650×65 ..	—	£84 0
Norton Sc. (1) ...	4 Norton	82×120	636	Air ...	SA HP	Amac	3	4, 14½ ...	Belt	—	6 10	—	5	4 8	—	26×2½ D.	—	£74 12
Overseas Sc. (1) .	3½ Overseas	85× 88	499	Air ...	H.P.	B. & B., H.C.	3	5, 7½, 10 .	Belt 1	—	—	—	5¼	—		26×2½ ...	—	£60 0
P. & M. Sc. (1) ..	3½ P. & M.	84.5 ×90	498	Air ...	S.A.	P. & M., H.C.	2	5, 9	Chain	3 4	6 9½	4 7½	6	4 5½	3 6	26×2¼ K.	—	£80 15
*Pilot Sc. (1)	3⅜ Precision	85× 88	499	Air ...	H.P.	Amac	3	4½, 9, 13 .	Belt	—	—	4 9	4½	—	—	26×2¼ H.	—	£66 0
Pilot Sc. (2)	6 Precision	75× 85	750	Air ...	Dual	Amac	3	4½, 9, 13 .	Belt	—	—	4 9	4½	—	—	26×2½ H.	—	£79 10
Premier Sc. (2) ..	7-9 Premier 50° .	85× 88	998	Air ...	H.P.	B. & B., H.C.	2	4½, 9	Com.	—	—	4 0	4½	4 10	—	650×65 ..	—	—
*Rex Sc. (2)	6 Rex	80× 95	940	Air ...	S.A.	B. & B., H.C.	3	4½, 7½, 12	Chain	3 4	7 0	4 9	4	4 10	—	650×65Con	336	£84 0
*Rex-Jap Sc. (2) .	6 Jap	76× 85	770	Air ...	S.A. F.	—	3	4¾, 7½, 12¼	Chain	3 9	7 1	4 6	5	4 10	3 6	650×65 ..		£91 7
Rover Sc. (1) ...	3½ Rover	85× 88	499	Air ...	H.P.	B. & B., H.C.	3	4¾, 7⅛, 11⅛	Belt 1	3 3	7 1	4 5	4¾	4 4	3 2⅜	26×2⅜ D.	—	£73 15
Royal Enfi'd Sc.(2	6 Jap 50°	76× 85	770	Air ...	SA HP	Amac, H.C. .	2	4.6, 8.3 ..	Chain	3 6½	7 0	4 11	4¾	4 7½	3 7½	650×65 P.C	—	£84 0
*Royal Ruby Sc. (2)	6 Jap 50°	76× 85	770	Air ...	Auto.	B. & B., H.C.	3	—	Belt	—	7 0	4 10	4½	—	4 4	26×2½ D.	—	£73 10
Rudge Mul. Sc. (1)	3½ Rudge	85× 88	499	Air ...	Ft. P.	Senspray,H.C.	20	3½ to 7½ .	Belt ⅞	—	—	4 6	4⅜	4 6⅝	3 5	650×65 D.	—	£75 11
Rudge Mul. Sc. (1)	5-6 Rudge	85×132	749	Air ...	Ft. P.	Senspray,H.C.	20	3½ to 7½ .	Belt 1	—	—	4 6	4	4 6⅝	3 5	650×65 D.	—	£80 11
*Sparkbrook Sc. (2)	6 Jap 50°	76× 85	770	Air ...	M.	B. & B.	2	5, 9.....	Com.	—	—	—	4½	4 10	—	650×65 D.	350	£87 10
Sunbeam Sc. (1) .	3½ Sunbeam	85× 88	499	Air ...	S.A.	B. & B.	3	5, 8½, 13½	Chain	3 7	7 1	4 9	4½	4 7½	—	26×2⅜ B.	—	—
Sunbeam Sc. (2) .	6 Jap 50°	76× 85	770	Air ...	S.A.	Amac	3	4½, 7½, 10½	Chain	3 7	7 2	4 10	5	4 9	—	650×65 D.	—	—
Wall Tricarr'ge (1)	4¼ Precision	89× 96	—	Air ...	S.A.	Amac, H.C. .	2	5⅜, 10 ...	Bevel	—	—	—	—	—	—	650×65 D.	336	£94 10
Wall Tricarr'ge (2)	8 Precision	85× 85	—	Air ...	S.A.	Amac, H.C. .	2	5¼, 9¼ ...	Bevel	—	—	—	—	—	—	650×65 D.	336	£101 17

*Humber : One cylinder 78 × 78 mm. opposed to two cylinders 55 × 78 mm. * James : Two-speed, £3 10s. less. * Morgan : With Jap racing overhead valve engine, 986 c.c. and Amac carburetter, £10 extra. * Pilot : With 4¼ h.p. engine, £4 extra. * Rex : With two-speed and belt drive, £9 less. * Rex-Jap : With 8 h.p. engine, £2 2s. extra. * Royal Ruby : Can be supplied with two-speed gear and chain drive ; 8 h.p. engine, same price. *Sparkbrook : 8 h.p. engine, £2 10s. extra.

FOUR-WHEELED CYCLE CARS.

NO. OF SPEEDS.—R. = Reverse. TRANSMISSION.—G. = Gear. S. = Shaft. C. = Chain.

Name of Machine and No. of Cylinders.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Cooling.	Lubrication.	Name of Carburetter.	No. of Speeds	Gear Ratios to 1.	Transmission.	Dimensions. Extreme Height	Extreme L'ngth	Extreme Width	Gro'nd Clearance.	Wheelbase.	Track.	Make and Size of Tyres.	Weight of Chassis.	Price.
		mm.	c.c.							ft. in.	ft. in.	ft. in.	in.	ft. in.	ft. in.		cwt.	
A.C. (1)	5-6 A.C.	95×102	723	Air	S.A.	B. & B.	2 & R.	4½, 12⅜ ..	Chain	4 0	9 8	4 3	6	7 0	3 8	650×65 C.	7½	£100 0
A.C. (4)	10 A.C.	59×100	1096	Water	F.	Zenith; A.	3 & R.	3⅞, 7, 12½	Worm	4 9	10 6	4 6	7	8 3	3 10	700×80 C.	8½	£175 0
Ace (4)	8.1 Salmon	56× 76	747	Water	F.	Sthenos 2-jet	3 & R.	—	Chain	—	10 0	4 2	10	7 2	3 9	700×65 A.	—	£125 0
Alldays Midget (2)	8-10 Alldays	86× 92	1068	Water	S.A.	Zenith, A.	3 & R.	4.5,7.8,11.6	Worm	4 1	9 9	4 9	7½	7 0	4 0	650×65 D.	7¾	£130 0
Alldays Midget (4)	10 Alldays	59×100	1094	Water	F.	Zenith, A.	3 & R.	4.5,7.8,11.6	Worm	4 1	10 6	4 9	7½	7 9	4 0	700×80 D.	8¼	£165 0
*Arden (2)	10 Arden	85.8× 95	1099	Water	S.A.	Solex, A	3 & R	4, 8, 13½	Bevel	3 7	10 3	4 5	8	7 6	3 8	650×75 ..	5¼	£145 0
*Arden (4)	10 Arden	59×100	1094	Water	F.	Sthenos	3 & R.	4, 8, 13½	Bevel	3 7	10 3	4 5	8	7 6	3 8	650×75 ..	5½	£160 0
*Armstrong (2)	8 Precision	85× 85	964	Air	S.A.	Amac, H.C.	4 & R.	4½ to 12½	Chain	4 0	10 0	4 10	9	7 3	3 10	650×65 M.	5½	£95 0
Autocrat (2)	Autocrat	85.8× 95	1099	Water	S.A.	Solex	3 & R.	4¼, 7½, 12	Bevel	3 6	10 3	4 3	9	7 6	3 10	650×65 M.	7	£141 15
Autocrat (4)	Autocrat	59×100	1094	Water	F.	Zenith	3 & R.	4½, 7½, 12	Bevel	3 6	10 3	4 3	9	7 6	3 10	650×65 M.	7	£168 0
Beacon (2)	10 Beacon 50° ..	85× 96	1090	Air	S.A.	Zenith, A.	3 & R.	4⅛, 7¾, 10½	Worm	4 0	10 6	4 6	8	7 6	3 10	650×65 A.	6	£135 0
*Buckingham (1)	6-8 Buckingham	89×120	746	Air	H.P.	Buckingham,A	2	4, 8	Com.	—	9 3	4 4	—	6 10	3 8	650×65 ..	4¾	£115 10
*Buckingham (2)	12 Buckingham	89× 88	1095	Water	H.P.	Buckingham,A	2	4, 8	Com.	—	10 0	4 4	—	7 2	3 8	650×65 ..	5¾	£141 15
Carden (1)	3½ Jap	85× 85	482	Air	S.A.	Amac, H.C.	1	5½	Chain	3 1	10 4	3 1	6	6 6	2 8	26×2 M. ..	2¾	£59 10
Carden (2)	4 Jap 50°	70× 64.5	496	Air	S.A.	Amac, H.C.	2	5, 10	Chain	3 1	10 4	3 1	8	6 6	2 8	26×2 M. ..	2¾	£72 10
Carden (2)	5-6 Jap 50°	70× 84	644	Air	S.A.	Amac, H.C.	1	5	Chain	3 1	10 4	3 1	6	6 6	2 8	26×2 M. ..	2¾	£67 0
*Chater-Lea (2)	Chater-Lea 50° ..	85× 85	964	Water	S.A.	Zenith	3 & R.	4¼, 12	Worm	4 6	10 0	4 6	8½	7 6	3 10	650×65 C.	5½	£142 16
Chater-Lea (4)	Chater-Lea	59×100	1094	Water	S.A.	Zenith	3 & R.	4¼, 12	Worm	4 6	10 0	4 6	8½	7 6	3 10	700×75 C.	7	£173 5
*Crouch Carette (2)	7-9 Crouch 60°	80× 90	994	Water	SA HP	Solex	3 & R.	4¼, 8, 14	C. & G.	4 0	10 0	5 0	7	8 0	4 0	650×65 M.	6	£132 15
Cumbria (2)	7 Cumbria 50°	76× 95	862	Air	S.A.	To order	3	4¼, 6¾, 10½	Com.	4 6	10 4	4 4	7	7 6	3 8	700×75	4¾	£107 2
Cumbria (2)	8 Jap 50°	85× 95	964	Air	S.A.	To order	3 & R.	4½, 8, 12½	Chain	4 6	10 4	4 4	9	7 6	3 8	700×75	5¼	£128 2
*Day-Leeds (4)	10 Day-Leeds	59×100	1094	Water	Tr'ugh	S.U.	3 & R.	4.5, 7, 12.8	Bevel	4 6	10 4	4 5	9	7 9	3 9	700×75 ..	—	£150 0
D.E.P. Duo (2)	9 Blumfield 50°	86× 90	1094	Water	M.F.	Claudel, A.	2 & R.	4-6, 9-14	Com.	4 2	10 10	4 4	10½	8 2	3 6	650×65 Dy	5½	£130 0
D.E.W. (1)	4¼ Precision	89× 96	597	Air	S.A.	Amac	2	5, 8.5	Com.	3 6	9 0	3 2	11	7 0	2 10	26×2½ M.	4¾	£75 0
*D.E.W. (2)	8 Precision	85× 85	964	Air	S.A.	Cox	2	4.5, 9.7	Com.	3 6	10 0	4 3	11	7 0	3 6½	650×65 M.	5½	£95 0
*Douglas (2)	9 Douglas 180°	88× 88	1070	Water	M.	Solex, H.C.	3 & R.	4½, 7, 12½	Bevel	4 0	10 0	4 0	8	7 3½	3 11	700×80 ..	6½	£160 0
*G.N. (2)	8-10 G.N.	84× 98	1086	Air	SA HP	B. & B.	2	4, 8½	Com.	4 0	10 3	4 2	9	8 0	3 6	650×65 M.	4¾	£103 19
*Gordon (2)	10 Jap	85× 95	1096	Air	S.A.	Gordon, A,HC	2 & R.	4½, 10	Chain	4 0	10 0	4 6	5	7 6	3 8	650×65 M.	6	£105 0
G.W.K. (2)	8 G.W.K.	85.8× 92	1065	Water	H.P.	Solex, A.	4 & R.	4.3 to 11	Bevel	—	10 6	4 8	9	7 7	3 9	650×65 M.	5¾	£150 0
*Humberette (2)	8 Humber 50°	84× 90	998	Air	S.A.	Smith 4-jet, A.	3 & R.	4½, 7¾, 13½	Bevel	—	10 0	4 4	8	7 5	3 6	650×60 D.	7	£120 0
Jackson (2)	Eagle	—	1090	Water	F.	Senspray	3	—	Worm	3 9	8 9	4 0	9	8 0	4 0	710×90 D.	6	—
J.B.S. (2)	8 Jap 50°	85× 85	964	Air	SA HP	Lukin	4 & R.	4¼, 6½, 9,14	Bevel	3 9	10 3½	4 9	8½	7 6	4 0	26×2½ Ped.	5¼	£120 0
*Jowett (2)	6-10 Jowett 180°	72×101	815¾	Water	F.	Stewart-Prec.	3 & R.	4½, 6½, 12	Bevel	4 0	8 10	4 5	7½	6 0	3 9	650×65Con	6½	£125 0
*L.M. (2)	8 Jap 50°	85× 85	964	Air	F,H.P.	B. & B., H.C.	2	4⅞, 10¼ ..	Chain	4 3	10 3	3 8	7⅛	7 9	3 3	26×2½ M.	5¼	£99 15
*L.M. (2)	8 Jap 50°	85× 85	964	Water	F,H.P.	B. & B., H.C.	3 & R.	4½, 7¾, 11	Chain	4 3	10 3	3 8	7½	7 9	3 3	26×2½ M.	5½	£141 15
Marshall-Arter (2)	8 Jap 50°	85× 85	964	Water	F.	Solex	2 & R.	4.63, 11.9	Bevel	3 10	11 4	4 4	7¼	8 6	3 7	650× M.	5½	£141 15
Marshall-Arter (4)	10-12 Chapuis-D.	59×100	1094	Water	F.	Zenith	2 & R.	4.63, 11.9	Bevel	3 10	11 7	4 4	7¼	8 9	3 7	650× M.	5¾	£157 10

*Arden: The prices include hood, screen, lamps, horn, tools, pump, etc. *Armstrong: Water-cooled, £10 extra. *Buckingham: Price includes hood, screen, lamps, horn, etc. *Chater-Lea: Air-cooled, £16 16s. less. *Crouch: Price includes hood, screen, lamps, horn, etc. *Day-Leeds: Price includes extra wheel, hood, screen, and lamps. *D.E.W.: Water-cooled, £20 extra. *Douglas: Price includes Riley detachable wheels and one spare wheel. *G.N.: Three speeds, £4 4s. extra. *Gordon: Weight complete; water-cooled model, £10 extra. *Humberette: Water-cooled, £15 extra. *Jowett: Weight complete. *L.M.: Weight is of complete car.

FOUR-WHEELED CYCLE CARS (*Continued*)

Name of Machine and No. of Cylinders.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Cooling.	Lubrication.	Name of Carburetter.	No. of Speeds	Gear Ratios to 1.	Transmission.	Dimensions. Extreme Height	Extreme L'ngth	Extreme Width	Gro'nd Clearance.	Wheelbase.	Track.	Make and Size of Tyres.	Weight of Chassis.	Price.
		mm.	c.c.							ft. in.	ft. in.	ft. in.	in.	ft. in.	ft. in.		cwt.	
*Morris-Oxford (4)	10 White & P.	60 × 90	1018	Water	F.	White & P.	3 & R.	4, 6, 14 ..	Worm	—	11 0	4 5	9	7 6	3 9	700 × 80 D.	8½	£199 10
New Imperial (4)	10 New Imperial	64 × 85	1093	Water	F.	Cox, H.C. ...	3 & R.	4½, 9, 14 .	Bevel	—	10 0	5 0	8	7 6	3 10	700 × 80 ..	5	£150 0
Paragon (2)	10 Jap	85 × 95	1076	Air ...	SA HP	Service B.C.B.	8	5, 10	Com.	4 6	10 0	4 6	10	7 6	4 0	650 × 60Con	4½	£115 0
P.D.A. (1)	6 Fafnir	80 × 120	602	Water	S.A.	Fafnir, A. ...	2 & R.	5, 11	Bevel	4 0	9 0	4 3	7½	6 10	3 8	650 × 65 M.	5	£105 0
P.D.A. (2)	10 Precision 50°	85 × 96	1098	Water	S.A.	Amac	2 & R.	4¾, 10¾ ..	Bevel	4 0	9 0	4 3	7½	6 10	3 8	650 × 65 M.	—	£120 0
Pyramid (2)	8 Jap 50°	85 × 85	964	Air ...	S.A.	Jap, A.	4 & R.	4½, 6¾, 11, 21	Belt	4 6	9 3	4 1	8	7 0	3 6	650 × 65 A.	4¾	£125 0
Ranger (2)	8 Precision 50°	85 × 85	964	Water	M. HP.	Polyrhoe, H.C	2 & R.	5, 10	Com.	4 7	9 10½	4 4	10	7 3	3 10½	650 × 65 A.	5¼	£127 0
Swift (2)	7 Swift	75 × 110	972	Water	M. HP.	—	3 & R.	4.2, 7⅛, 16¾	Bevel	4 6	10 1	4 2	7½	7 3	3 7	700 × 80 D.	—	—
Tiny Car (2)	8 Precision 50°	85 × 85	964	Water	S.A.	Lukin	3 & R.	4½, 7, 12 .	Bevel	4 6	10 6	4 10	9	8 0	3 8	650 × 65 P.	4¾	£135 0
*Warne	8 Precision ...	85 × 85	964	Water	S.A.	Binks, A.	3 & R.	4, 7½, 14 .	Bevel	3 7	9 6	4 2	10	7 0	3 6	26 × 2½ M.	—	£135 0
Warren-Lam't (2)	9 Blumfield 50°	88 × 90	1094	Water	F.	A.	3 & R.	4¼, 7, 14 .	Bevel	4 0	9 6	4 2	10	6 6	3 6	650 Voitur.	4	£126 0
Wilton (4)	10 Wilton	59 × 100	1094	Water	M.	Zenith	3 & R.	4, 7, 13¼ .	Bevel	—	11 4	5 0	8	9 0	4 0	750 × 75 ..	5¾	£185 0
Winco (2)	9 Winco	86 × 92	1061	Water	M.	Zenith	3 & R.	4¾, 7½, 10½	Bevel	—	12 3	5 0	9	9 6	4 0	750 × 85 C.	6	£150 0
*Winter (2)	9 Blumfield 50°	88 × 90	1094	Water	F.	Lukin, H.C. .	2 & R.	5¼, 9	Bevel	3 7	9 6	4 0	9¾	7 0	3 8	650 × 65Con	5¼	£115 0

*Morris-Oxford: Price includes spare wheel. *Warne: Air-cooled engine and belt drive, £15 less. *Winter: Belt or chain drive, £16 less.

LADIES' MOTOR BICYCLES.

Name of Motor Bicycle and No. of Cylinders.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Name of Carburetter.	Change Speed Gear.	Transmission.	Gear Ratios to 1.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.		in.	in.	in.			lbs.	
Brough (1)	3½ Brough	85 × 88	499	S.S. ...	S.A.	B. & B., H.C.	Arms. Mk. 7, H.	Belt 1	5	29	4¾	52	26 × 2½ J.B.	Rigid	165	£56 10
Centaur (1)	2 Centaur	60 × 70	198	S.S. ...	H.P.	B. & B., H.C.	To order	Belt ⅝	5	30	4½	48	26 × 1¾ D.	Rigid	—	—
Douglas (2)	2¾ Douglas 180°	60.8 × 60	349	S.S. ...	M.	Amac, H.C. .	Douglas, C. ...	B. & C.	5½, 8½ ...	30	4¼	53	26 × 2	Rigid	145	£52 0
Forward (2)	2¾ Forward 50°	56 × 70	345	S.S. ...	S.A.	Amac	To order	Belt ¾	5	28½	7	50½	26 × 2 H.	Rigid	130	£40 19
Hobart (1)	2¾ Hobart	74 × 91	348	S.S. ...	S.A.	B. & B., H.C.	To order	Belt ¾	5	29¾	5½	51	26 × 2 H.	Rigid	135	—
Humber (1)	2 Humber	60 × 70	198	S.S. ...	H.P.	B. & B., H.C.	To order	Belt ⅝	5½	30	6½	48	26 × 1¾ D.	Rigid	—	—
Motosacoche (1) ..	2½ M.A.G.	64 × 90	290	S.S. ...	H.P.	Motosacoche .	Motosacoche, E	Belt ⅝	5 to 9 ...	31	10	49	Avon	Rigid	—	£43 0
Scott (2)	3¾ Scott	73 × 63.5	532½	Valveless	M.S.A.	Scott, S.A. ..	Scott, C.	Chain	4⅛, 7.6 ...	29	5	53½	26 × 2½ P.C.	Rigid	196	£68 5
Veloce (1)	2½ Veloce	70 × 76	292	O., inlet	F.	Senspray, H.C.	Veloce	Belt ¾	6, 10.2 ...	31	5	52	26 × 2¼ D.	Rigid	175	£48 6

Some Sidecar Attachments for the Show.

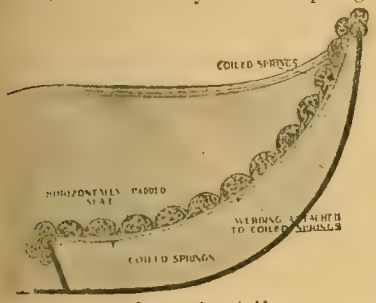
Supreme Sidecars.

A luxurious addition to the range of "Supreme" sidecars takes the form of a new seating arrangement, which is carried out on the lines of a hammock.

The firm's quick attachment is, of course, retained, and also the adjustable

Supreme Sidecar Co.'s coach built model.

wind screen which is one of their specialities. A cheaper line in coach-built sidecars is also to be listed for next year. This new model forms the subject of our illustration, and, in spite of the reduction in price, it retains all the best features of the more expensive models. Four points of attachment are provided, and the body is well sprung,



The Supreme hammock seat sidecar.

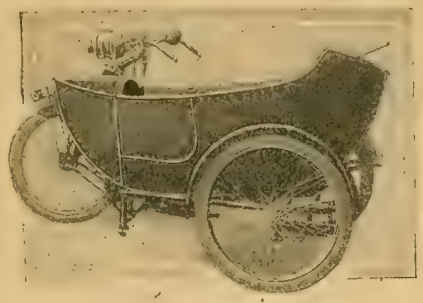
the upholstery being in Pegamoid of any shade desired. The two standard colours for the body are dark green and French grey. A map pocket is fitted in the side of the body and a lamp bracket is part and parcel of every chassis. The wheel is well guarded, a large valance protecting the body. A special line in box carriers will also be supplied.

A Clever Sidecar Coupling.

A well-designed, safe, and neat sidecar coupling is marketed by the County Cycle Co., 307, Broad Street, Birmingham. Our illustration shows clearly how this simple device works. A peg and hole coincide on the two halves, and, when fitted together, a spring-controlled sleeve slides over the two halves, holding them firmly together. Small handles are provided to pull back the spring, which is naturally a strong one, and the whole device is very compact and has practically no part to give trouble.

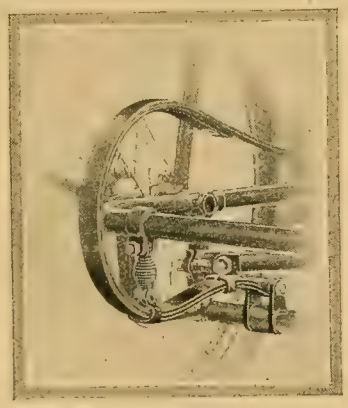
A Folding Sidecar.

Those sidecar users who are forced, through possession of narrow gateways, to detach their sidecar every time they take their machines in or out will be



Watsonian coach-built folding sidecar.

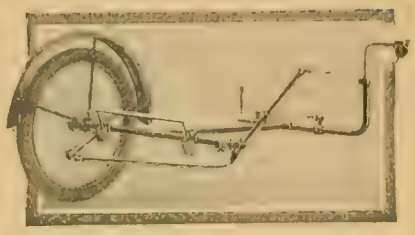
glad to hear of the patent folding sidecar made by the Watsonian Folding Sidecar Co., Ltd., Conybere Street, Birmingham. This machine has a folding body and chassis which enables it when folded to pass through a doorway 2ft.



Novel method of springing the rear of the Watsonian sidecar.

8in. in width, thus making it possible to take the combination through practically any doorway. The folding of this sidecar takes only a few seconds, and it is not necessary to detach any portion of it to carry this out. It is very strongly made, and it is claimed that no loss of strength whatever is involved by this process of manufacture. This company also manufacture a folding tradesman's sidecar van which will also pass through an equally narrow doorway. Several different types of chassis and a large range of bodies can be fitted.

The readily detachable sidecar fittings patented by the County Cycle Co.



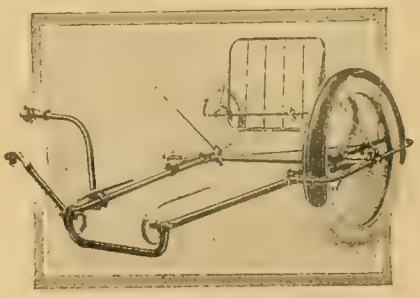
Chassis of the Watsonian folding sidecar.

Speedwell Sidecars.

A special feature of the Speedwell sidecars is the quickly detachable wheel which is supported on both sides by parallel tubes, giving great strength and rigidity; the mudguarding is carefully carried out. The body, supported on leaf springs fore and aft, which makes for comfortable riding without sidesway, is

Speedwell sidecar, the axle of which is supported on both sides.

constructed of four-ply wood and well upholstered; the backs are wide and heavily padded, and, in the case of the more expensive models, sprung in addition. Cape cart hoods and wind screens are fitted to order as well as storm aprons and tool boxes. The Speedwell quick

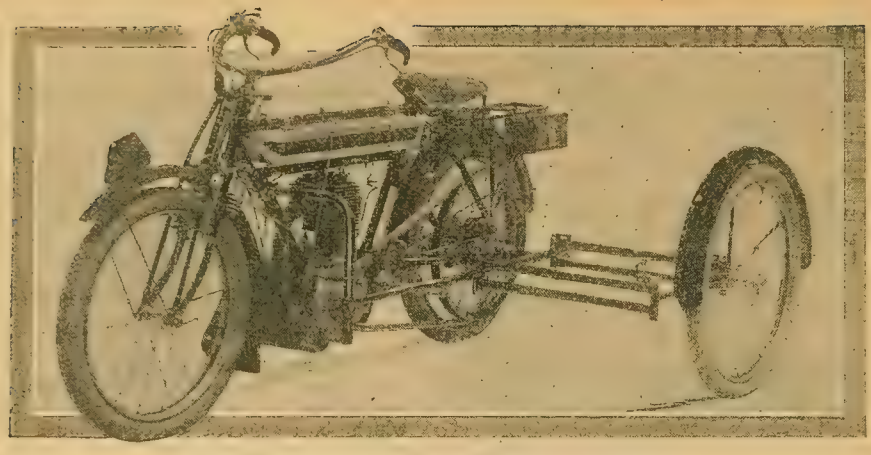


Chassis of the Speedwell sidecar, showing folding luggage grid.

four-point attachment has been designed by an engineer and is thoroughly secure when fastened. The luggage-carrier is so arranged that it gets the benefit of the rear springs, and a Hutchinson 26×2¼ mm. tyre is tandard. The makers are the Speedwell Manufacturing Co., Abbey Works, Alcester.

The Middleton Sidecar.

Great strength combined with an attractive appearance are claimed to be the features of Middleton Sidecars, 27, Stroud Green Road, Finsbury Park, N., a special feature being made of the construction of the axle and wheel

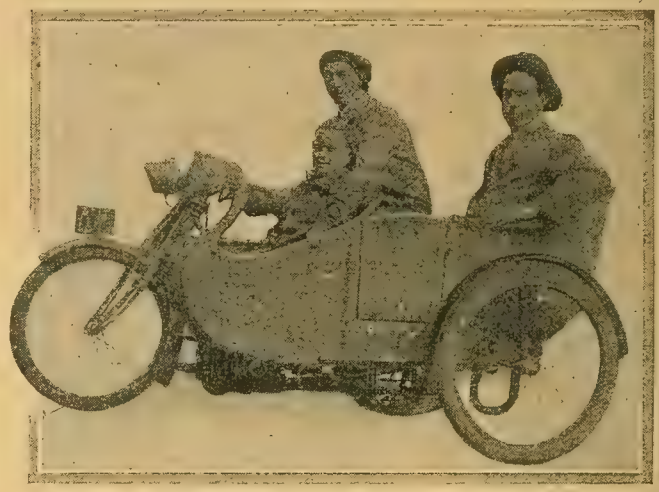


The Paragon folding sidecar chassis in position for fitting the body.

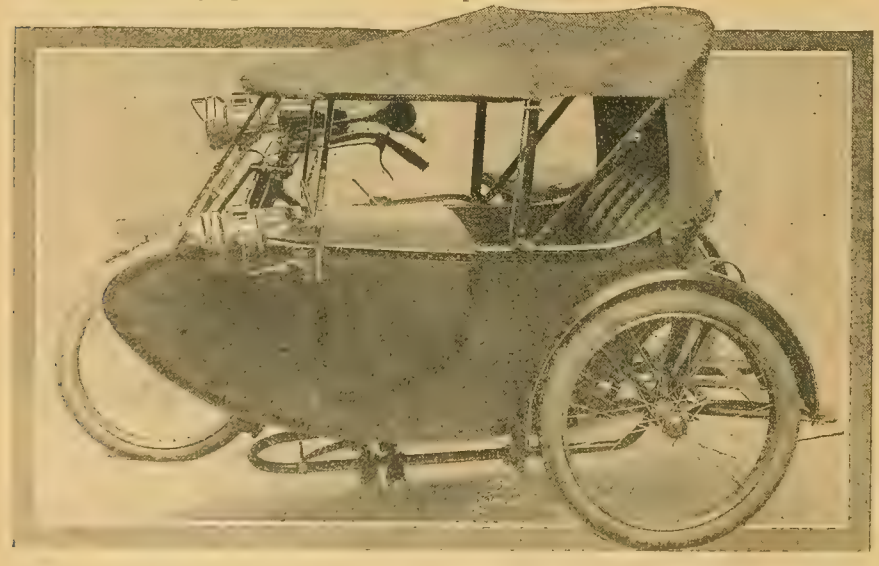
spindle. This is of the stepped pattern, and the lug is greatly strengthened by webs at the bends. A wide variety of racing and touring models will be shown, and on the former a large number of sidecar events have been won at Brooklands. The touring models are exceedingly graceful in appearance and moderate in price, and are coachbuilt or made in art cane. A special light model is made, suitable for medium-powered machines. The products of this firm bear the stamp of careful design and admirable workmanship.

A Double-seated Sidecar.

An excellent example of sidecar for two is marketed by Mr. Edward Bowser, 50, Park Lane, Leeds, and is designed for use with powerful motor cycles. Great care has been taken with the balancing of this attachment, so that there should be no undue drag on the steering of the motor cycle. The front seat can be removed entirely if desired, and ingress to the back seat is obtained by folding up the passenger's seat. The bodywork, which is made of cane, is very graceful in design, and slung low, and the spindle of the back axle is supported by both ends to give the necessary support when carrying a full load. The body is sold, if desired, separately from the chassis at the price of £7, and waterproof twill aprons can also be supplied if desired.



The G.K. Swan sidecar which has a child's seat in the front, the head acting as a protection against wind.



The Hercules coach-built sidecar showing hood, wind screen, and luggage grid

A Wide Range of Sidecars.

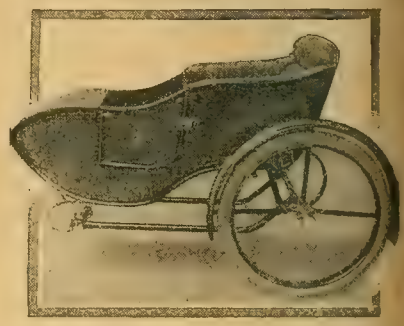
A wide choice of sidecar models is offered by M. J. Varley, Forward Works, Stoney Lane, Sparkbrook, Birmingham, and a speciality for next year will be a coachbuilt canoe shaped model, fitted with four point attachment. The coach work is suspended on C springs front and rear, and a very neat celluloid wind screen with the frame all in one piece is fitted to the dash board; a hood can be fitted to special order. A wide door is provided to the body, and the wheel is built to take a 26×2¼in. tyre. A tool box is fitted under the wind screen, and a feature of the sidecar is that the seat can be adjusted to different positions, which will add considerably to the comfort on a long journey. Useful fitments also marketed by this company are petrol cans fitted to carriers, which can be attached to any sidecar chassis. These petrol cans are sold in one and two gallon sizes. Detachable luggage carriers are fitted.

A Swan Neck Sidecar.

The G.K. sidecar is produced by the G.K. Sidecar Body Works, and is a novelty in design. The model we illustrate has an extra child's seat and in front is a swan's neck, head, eye, and beak, all complete. It is arranged so that the child sits in a comfortable seat in front with its feet resting on the swan's neck. It is pointed out by the makers that the head acts as a protection for the child, and a wind-cutter withal. It is doubtful if this novel sidecar will be at the Show.

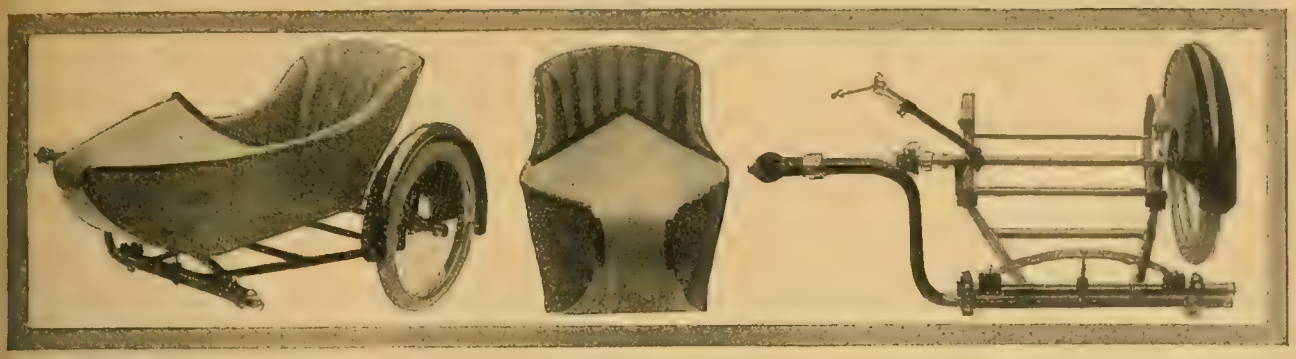
Mills-Fulford Sidecars.

The name of Mills-Fulford is known wherever sidecars are to be found, and we illustrate two of the most recent productions of this firm. One is a Tandem sidecar, which is designed



Mills-Fulford "Pinnace" sidecar.

throughout for carrying two adult passengers. The feature of this attachment is that the frame is built on the cantilever principle to give great strength,



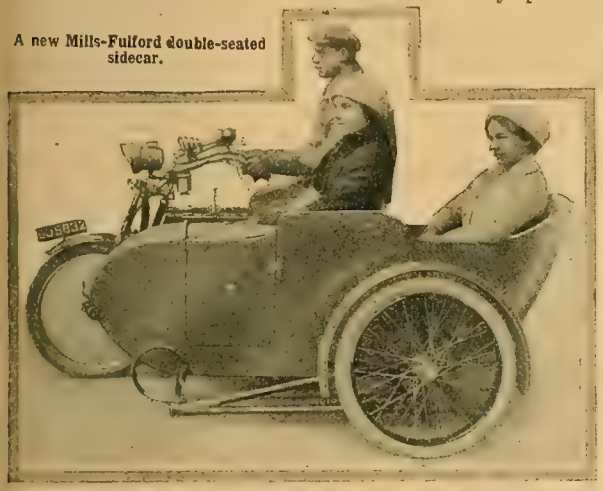
(1) A Montgomery body, chiefly notable for its reclining seat. (2) Front view of the same body. (3) Chassis showing transverse laminated front spring.

and it has been subjected to the most severe tests before being placed on the market.

Our other illustration shows a new light model known as the "Pinnace," which has been specially designed to meet the requirements of those users who desire a light sidecar at a popular price, as it retails at ten guineas. It is finished in style expected from such a well-known firm.

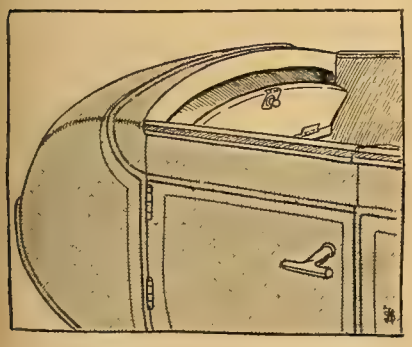
front as well as a good space under the seat. The chassis has a main frame which entirely surrounds the body, and is very stoutly constructed. Four points of attachment are provided and the tube clips are hinged, an unusual feature, which reduces the number of loose parts. We hear that one of these sidecars is to be on view on the Hazlewood stand at Olympia.

A new Mills-Fulford double-seated sidecar.

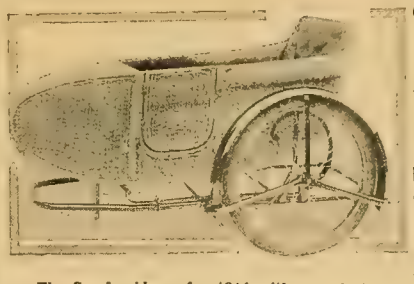


A SMART SIDECAR.

A very taking looking sidecar was shown us on the occasion of a recent visit to the Coventry Sidecar Co., of Stoney Stanton Road. The machine is known as the "Limoulette," and the body is excellently finished and contains a locker in



The convenient locker in the front of the Limoulette coach-built sidecar.



The Comfy sidecar for 1914 with cane body.

THE C.C.R. SIDECAR.

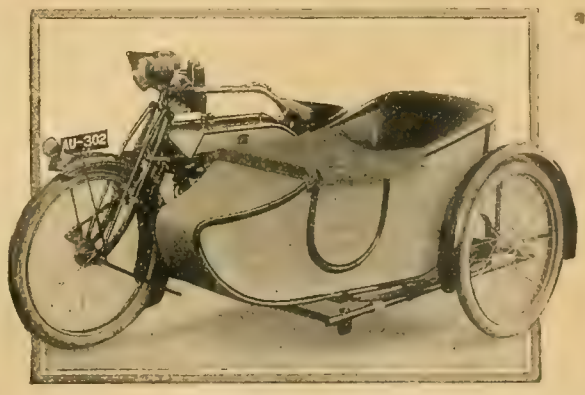
A handsome and well-constructed sidecar, known as the C.C.B., is made by Messrs. Smith Bros., C.C.B. Motor Works, St. Ann's Well Road, Nottingham. The chassis is underslung, and a feature is the provision of a hub to the wheel which is claimed to be absolutely water and grit proof. The couplings and springs are of a special design, and a large luggage grid at the rear and very strong mudguard connections are notable points in this attachment. The body is coachbuilt, and is finished in any colour desired by the purchaser, but French grey, blue, and red are standard colours. The cushion is fitted with spring upholstery, there is a tool box under the seat, and the whole is turned out in excellent style. The price of the sidecar complete is £13 13s. It is illustrated herewith.

5-6 h.p. MONTGOMERY DUETTE.

Known for many years as makers of sidecars, Messrs. W. Montgomery and Co., Coventry, have just entered the lists as makers of complete passenger outfits. They are marketing a very interesting and novel 5-6 h.p. horizontally opposed twin-cylinder machine, particulars of which were published in *The Motor Cycle* of 9th October. It will be remembered that the outstanding feature of this engine is the fitment of the pulley to the solid camshaft. This does away with a chain, and gives a seven-inch pulley, by which, of course, belt slip is practically eliminated.

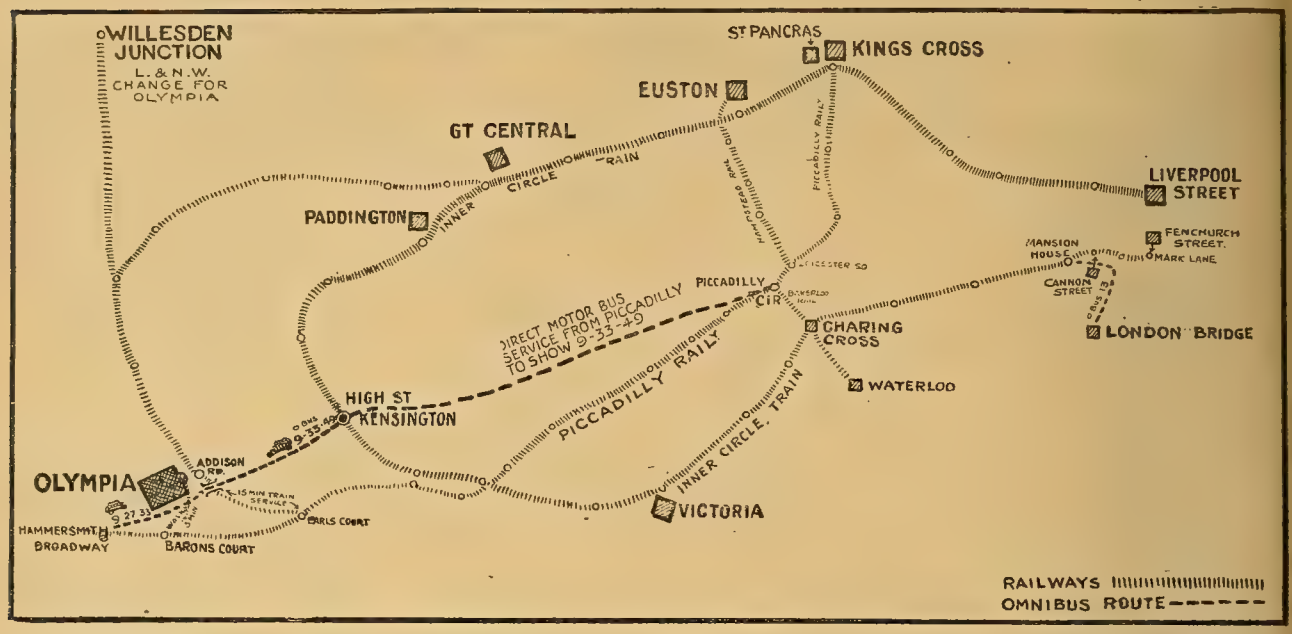
Messrs. Montgomery have produced a very nice coach-built sidecar specially for this machine, and the combination is to be known as the "Duette," and sold, complete with two lamps, horn, speedometer, touring bags, spare petrol can, wind screen, overall apron, etc., for 88 guineas.

Other sidecars, both coachbuilt and cane models, varying in price between £8 and £21, are listed by Messrs. Montgomery and Co. for 1914. The above are but a few of the large range of models made by Messrs. Montgomery, of which we give three views above.



An attractive C.C.R. sidecar outfit.

HOW TO GET TO OLYMPIA.



WE publish above a map of the various London railways, showing how to reach Olympia from the different London termini, and below we give the best method of accomplishing these journeys. It will be seen that occasionally the whole journey can be covered by train, while in other cases combined services of train, tube, or motor omnibus are the best means of reaching the Show.

To Olympia by Motor Omnibus from the Principal London Termini.

RAILWAY TERMINI AND NUMBER OF OMNIBUS SERVICE.

Liverpool Street (G.E.R.)—Nos. 9 and 33.

Charing Cross (S.E.R. and L.C. and D.R.)—Nos. 9 and 33.

London Bridge (S.E.R. and L.C. and D.R.)—No. 13 to Piccadilly Circus, then Nos. 9 and 33.

Paddington (G.W.R.)—No. 74 to the top of Holland Road, then No. 49 down Holland Road to Hammersmith Road.

Marylebone (G.C.R.)—No. 74 to the top of Holland Road, then No. 49 down Holland Road to Hammersmith Road.

By Tube and District Railway.

Olympia is best reached by Tube or District Railway in the following manner:

Liverpool Street (G.E.R.)—Inner Circle train to High Street, Kensington, thence omnibus, Nos. 9, 33, and 49, to Addison Bridge.

London Bridge (S.E.R. and L.C. and D.R.)—Omnibus No. 13 to the Mansion House, thence by Inner Circle train to High Street, Kensington, and omnibus to Olympia.

Charing Cross (S.E.R. and L.C. and D.R.)—Either Bakerloo Railway to Barons Court (five minutes' walk, change at Piccadilly Circus), or by District Railway train direct to Barons Court.

Waterloo (L. and S.W.R.)—Tube as from Charing Cross.

King's Cross (G.N.R.) and St. Pancras (Mid.)—Tube to Barons Court (thence five minutes' walk).

Euston (L. and N.W.R.)—Tube to Barons Court, change at Leicester Square.

Marylebone (G.C.R.)—Inner Circle train to High Street, Kensington, thence by omnibus, Nos. 9, 33, and 49, to Olympia, or Metropolitan Railway direct to Addison Road.

Paddington (G.W.R.)—Inner Circle train to High Street, Kensington, thence by omnibus, Nos. 9, 33, and 49.

Fenchurch Street (G.E.R.)—Mark Lane Station, then Inner Circle train to High Street, Kensington, thence by Nos. 9, 33, or 49 omnibus.

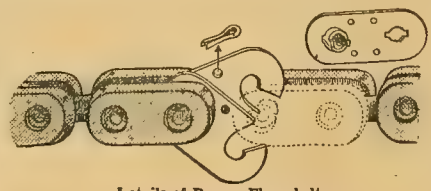
Cannon Street (S.E.R. and L.C. and D.R.)—Inner Circle train to High Street, Kensington, and thence by omnibus as above.

Willesden Junction.—For North country and Midland visitors arriving in London by L.N.W.R., it will be found most convenient to change at Willesden Junction, whence frequent trains run direct to Addison Road, adjoining Olympia.

Victoria (L.B. and S.C.R.)—Tube to Barons Court.

A NEW CHAIN BELT.

Chain belts have been experimented with at various times by many firms, and there is on the market now a very excellent leather link belt, but no one has yet succeeded in making a chain belt with V rubber blocks. The Flexo belt is, therefore, of special interest. This belt is made up of chain links riveted together. The centre links have pen steel bushes over which fit the side plates. The blocks are vulcanised on, and no amount of hard work will loosen them. The connecting link by which the belt is joined and adjusted is an ingenious fitting. As will be noticed the slots in the links are inclined. In the position in which they are sketched they are about to be closed, which action draws the ends of the belt together. The belt cannot possibly be put on the pulleys at a tension, that is, "run on" by wheeling the machine backwards, so the connecting link is made to draw the ends of the belt together a matter of three-sixteenths of an inch. If further adjustment be required a spare link is provided, which affords approximately the same amount of adjustment as the half link of an ordinary chain.



Details of Downs Flexo belt.

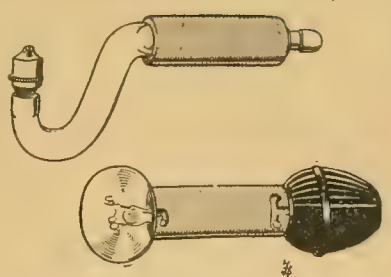
Mr. R. W. Downs, the manager of the Flexo Belt, Ltd., 116, Great Portland Street, W., explained to us that the wedging action is greatly increased in comparison with an ordinary belt, owing to the fact that no stretching takes place. It will be exhibited at Olympia, and is being made at present in $\frac{3}{4}$in., $\frac{7}{8}$in., 1in. and 1$\frac{1}{8}$in. sizes.

A CONVERTIBLE ACETYLENE-ELECTRIC LAMP.

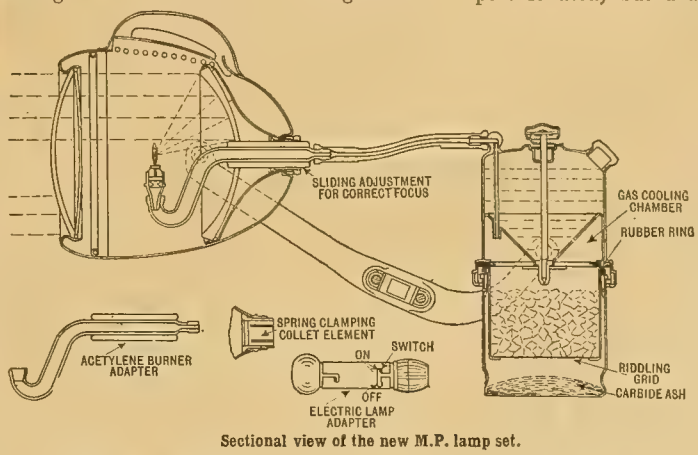
THERE are many riders who require a good light for long distance work at night, but dislike the trouble of lighting up and the consequent cleaning out of acetylene generators. To such the new lamp manufactured by the M.P. Co., of Bordesley Green, Birmingham, will strongly appeal. This lamp is specially constructed for use with either acetylene gas or electric light, and the conversion from one system to another is merely a matter of moments. The lamp itself has a pleasing appearance, and the body is made out of one piece. All necessary fittings, such as the hood and hinges, are very strongly made, and are riveted firmly to the body in such a manner as to prevent rattles. A Mangin mirror reflector is fitted so that it can be readily detached, if necessary, and allowance is made for expansion. Here, again, the possibilities of rattle have been eliminated so far as is possible. The mirror has a circular hole cut in its centre so as to allow either the electric bulb holder or the gas jet holder to pass through the back of the lamp, in which position they can be fixed by a thumb nut, which tightens up a split collar in such a way as to grip the body firmly.

The M.P. acetylene lamp and generator, showing neat method of fixing the connection to the head lamp.

The bulb holder is combined with a switch, and the burner is held by a flattened tube so as not to affect the reflected light at all. Lateral adjustment is provided in each case for obtaining perfect focus, but each holder will be marked correctly so as to enable the owner to find the focus at once. The most unusual feature about the generator is the metal-to-metal joint between the carbide chamber and the gas chamber. The container fixes with a breech block joint, and its edge is thus forced up against a very thin metal plate. This plate is so ductile that it follows the slightest indentation in the edge of the container, and so makes a gas-tight joint. The walls of the water chamber are utilised to cool the issuing gases, and the generator is so arranged that only a very short length of rubber tubing is needed. The usual type of forked support is used, but a feature is made of the fact that it only needs ½in. of the steering tube to obtain its grip, thus handlebars need not be unduly raised. The generator may be detached in the usual way and a special 6 volt cell substituted, giving a light suitable for traffic or short distance work, though, of course, not such a brilliant beam as when acetylene gas is used.



Electric and acetylene attachments for the M.P. lamp set.

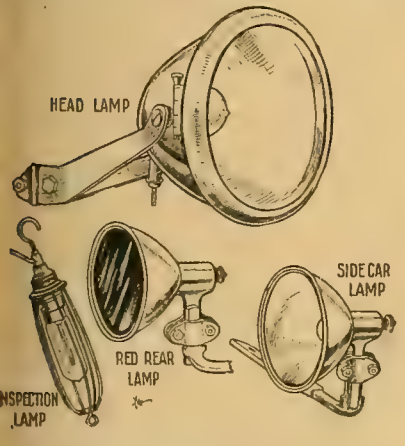


Sectional view of the new M.P. lamp set.

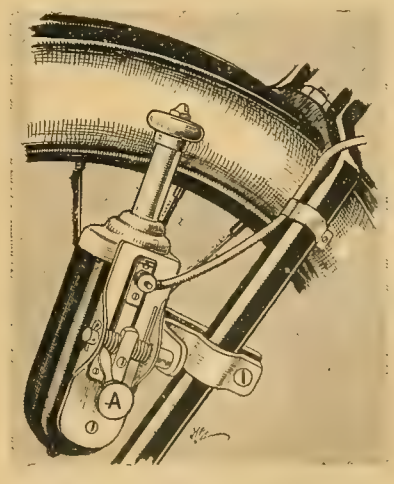
MOTOSACOCHE ELECTRIC LIGHTING SET.

IN these days of advancement, when electric lighting is coming to the front, great interest attaches to an ingenious little dynamo electric lighting set for Motosacoche machines. A dynamo, driven off the back wheel by a rubber disc running against the side of the tyre, supplies the current. The set includes a continuous current dynamo, totally enclosed, and running on ball bearings, attached to the back fork by means of a movable clip. A battery, consisting of three accumulators, is fitted in an aluminium box on the footboards, with the volt and ampère-meter showing through the lid of the box, on the top of which are two switches, one a press-button for throwing the volt-meter into circuit, and a safety plug. The lighting set includes a projector head light, a side-car lamp, a tail lamp, and also what is extremely useful, an inspection lamp for repair work in the dark. A feature of the fitment is that the acid in the battery is in jelly form, and this, in conjunction with the false tops and rubber caps over the vents of the accumulator, renders spilling of acid an absolute impossibility.

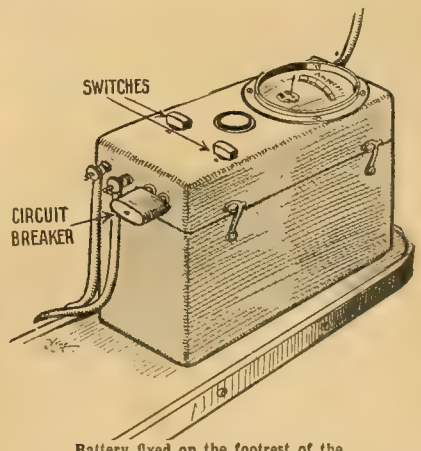
The set is sure to attract considerable attention on the Motosacoche stand at Olympia, for there is no reason why it should not be adapted to any existing Motosacoche.



The complete set of lamps for the Motosacoche lighting outfit.



The Motosacoche dynamo which is driven off the rear tyre. A—Screw to vary pressure of dynamo friction wheel against tyre. The wheel can be adjusted to clear the tyre when the light is not required.



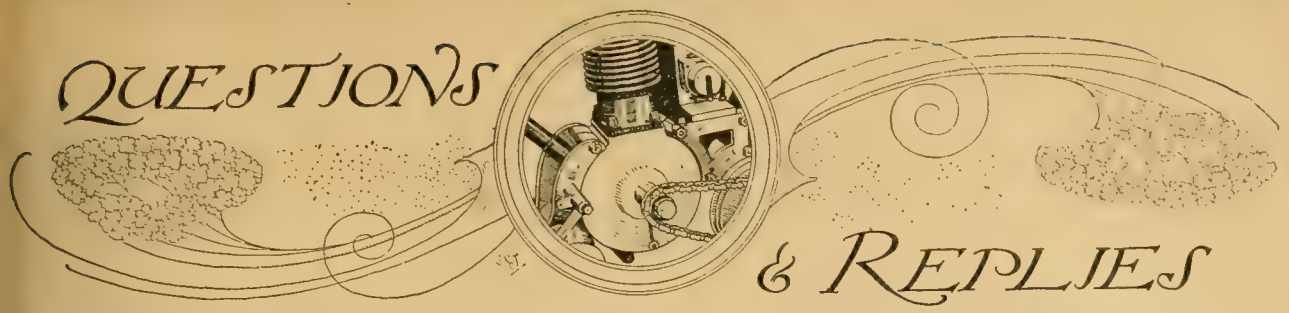
Battery fixed on the footrest of the 1914 Motosacoche.

THE STREATHAM TOURING TRIAL RESULTS & AWARDS.

WE publish herewith the official awards in the Streatham and District M.C.C. One-day Touring Trial. The judge's report of the trial truthfully points out that much trouble would be avoided if competitors were to read carefully the rules. The report is strictly fair, and the following riders are commended for making fine performances on the track: R. G. Mundy (Triumph), 50.38 m.p.h.; F. Smith (5-6 Clyno sc.), 47.12 m.p.h.; Alan Roberts (3½ Blackburne), 48.53 m.p.h.; H. Gibson (5-6 Bradbury sc.), 43.75 m.p.h.; H. B. Willoughby (3½ Rudge Multi), 50.75 m.p.h.; A. B. Wade (5-6 Zenith), 56.37 m.p.h.; L. Martin (Singer c.c.), 52.66 m.p.h.; W. L. Barratt (2¾ Douglas), 42.94 m.p.h.; A. V. Sumner (3½ Zenith), 50.28 m.p.h.; S. Tubb (2¾ Humber), 43.02 m.p.h. and S. Crawley (Triumph), 53.05 m.p.h. B. A. Hill's 7 Indian is also specially mentioned for its silence.

Name of Rider and Machine.	Nominal H.P.	Reliability Test. Remarks.	Qualified.	Acceleration Test. Average Speed	Qual.	Speed Test. Speed.	Qual.	Restarting Test. Time.	Qual.	Award.
				miles. yards.		m.p.h.		secc.		
E. L. Boutle (Chater-Lea sc.)	8	Non-stop	Yes	16 490	Yes	43.48	Yes	5.2	Yes	Gold medal.
G. T. Gray (Rudge)	5	Non-stop	Yes	14 360	Yes	46.44	No	5	Yes	Silver medal.
H. G. Bell (F.N.)	2½	Retired	No	11 190	Yes	–	–	–	–	–
A. H. Wright (A.J.S. sc.)	5–6	Failed Polsteeple	No	12 830	Yes	37.95	Yes	8.2	Yes	Silver medal.
C. E. Nokes (Sunbeam)	3½	Non-stop	Yes	16 490	Yes	45.08	Yes	4.8	Yes	Gold medal.
H. V. Colver (Enfield)	3	Missed test hills	No	8 920	No	40.26	No	6.8	Yes	No award.
A. C. Scott (Premier sc.)	8	Stopped near Coldharbour	No	10 1550	No	41.20	No	10.2	Yes	Disqualified.*
A. G. Cocks (Connaught)	2½	Failed Brasted & Pebblecombe	No	11 190	Yes	31.46	No	21.4	No	Disqualified.†
G. Nott (Clyno sc.)	5–6	Non-stop	Yes	12 830	Yes	37.78	Yes	14.8	No	Silver medal.
T. G. Meeten (Rudge)	3½	Non-stop	Yes	15 850	Yes	48.48	Yes	5.8	Yes	Gold medal.
T. C. De la Hay (Sunbeam sc.)	6	Non-stop	Yes	15 50	Yes	41	No	4	Yes	Silver medal.
R. O. Clark (F.N.)	2½	Failed on hills	No	13 220	Yes	35.77	Yes	6	Yes	Silver medal.
Ray Abbot (Bradbury)	3½	Retired	–	12 830	Yes	Retired	–	–	–	–
T. Silver (Quadrant sc.)	3½	Time margin exceeded	No	Stopped engine	No	37.82	Yes	11.6	Yes	Bronze medal.
R. G. Mundy (Triumph)	3½	Non-stop	Yes	15 850	Yes	50.38	Yes	Failed	No	Silver medal.
J. B. Sproston (Sunbeam)	2¾	Non-stop	Yes	14 1060	Yes	39.93	Yes	7.2	Yes	Gold medal.
L. A. Bollack (Singer)	3½	One stop, belt trouble	No	13 220	No	43.36	Yes	5.4	Yes	Bronze medal.
J. Chater-Lea (Chater-Lea sc.)	8	One stop, puncture	No	13 770	Yes	39.38	No	6.6	Yes	Bronze medal.
Sydney George (Indian)	7	Non-stop	Yes	9 1110	No	51.61	No	7.2	Yes	Bronze medal.
J. E. Greenwood (Sunbeam sc.)	3½	Passenger abnormal position	No	11 1590	Yes	37.10	Yes	31.6	No	Bronze medal.
F. A. Applebee (Scott)	3¾	Missed a test hill	No	15 50	Yes	40.32	No	9.6‡	No	No award.
F. J. Ellis (Matchless sc.)	6	Stopped Crocknorth	No	11 1090	Yes	36.60	No	8.6	Yes	Bronze medal.
J. S. Watson (Sunbeam)	2¾	Missed a test hill	No	11 1590	Yes	40.77	Yes	9.2	Yes	Silver medal.
Geo. Wray (Clyno sc.)	5–6	Non-stop	Yes	9 1460	No	38.13	Yes	10.2	Yes	Silver medal.
J. H. Kerr (N.S.U.)	3½	Failed Chalk Pit, etc.	No	13 770	No	44.03	Yes	14.4	No	No award.
Kenneth Holden (B.S.A. sc.)	3½	Failed Polsteeple, etc.	No	13 220	Yes	40.77	Yes	11.2	Yes	Silver medal.
E. V. Walters (P. and M.)	3½	Non-stop	Yes	14 1060	Yes	43.21	Yes	5.6	Yes	Gold medal.
R. Gibbins (Wolf)	2¼	Retired	–	12 830	Yes	Retired	–	–	–	–
Rex Pearson (Clyno sc.)	5–6	Failed Chalk Pit, etc.	No	13 770	Yes	33. 66	No	6.2	Yes	Bronze medal.
M. C. Breese (B.S.A.)	3½	Non-stop	Yes	13 220	No	42 .53	Yes	5	Yes	Silver medal.
C. Duplock (A.J.S. sc.)	5–6	Non-stop	Yes	12 280	Yes	Stopped	No	7.6	Yes	Silver medal.
H. R. Davis (Diamond)	2¾	Time margin exceeded	No	13 1420	Yes	37.28	Yes	5.2	Yes	Silver medal.
E. H. Littledale (Ariel)	3½	Non-stop	Yes	11 1090	No	46.94	Yes	7	Yes	Silver medal.
J. Oliphant (Premier)	3½	Time margin exceeded	No	14 360	Yes	47.81	Yes	5.4	Yes	Silver medal.
T. Stevens (James sc.)	3½	Non-stop	Yes	13 220	Yes	38.67	Yes	8.2	Yes	Gold medal.
A. F. Selby (Sunbeam)	2¾	Non-stop	Yes	12 830	Yes	41	Yes	5.2	Yes	Gold medal.
Colin Taylor (Connaught)	2½	Two punctures	No	14 360	Yes	34.75	Yes	4.6	Yes	Silver medal.
F. J. Watson (Ariel sc.)	3½	One stop	No	13 1420	Yes	37.89	Yes	9.6	Yes	Silver medal.
Mrs. Hardee (P. and M.)	3½	Non-stop	Yes	12 130	No	41.17	No	6.6	Yes	Bronze medal.
A. J. Luce (Zenith)	6	Retired	–	9 1110	No	–	–	–	–	–
Frank Smith (Clyno sc.)	5–6	Non-stop	Yes	Stopped engine	No	47.12	Yes	9.8	Yes	Silver medal.
Alan Roberts (Blackburne)	3½	Non-stop	Yes	12 280	No	48.53	Yes	4.8	Yes	Silver medal.
Hugh Gibson (Bradbury sc.)	5–6	Non-stop	Yes	14 1060	Yes	43.75	Yes	6.2	Yes	Gold medal.
H. B. Willoughby (Rudge)	3½	Non-stop	Yes	15 50	Yes	50.75	Yes	6.8	Yes	Gold medal
Graham Price (P.V.)	4	Non-stop	Yes	15 50	Yes	47.58	Yes	3.8	Yes	Gold medal.
T. S. Fordham (Premier sc.)	7–9	Failed Polsteeple	No	9 1110	No	39.57	No	Failed	No	No award.
A. McKellar (F.N.)	2¾	Failed on hills	No	12 280	Yes	30.05	No	Failed	No	No award.
Claude Freeman (Clyno sc.)	5–6	Non-stop	Yes	13 1420	Yes	40.35	Yes	7.8	Yes	Gold medal.
B. Alan Hill (Indian)	7	Time error	No	15 50	Yes	53.22	Yes	10	Yes	Silver medal.
H. F. S. Morgan (Morgan c.c.)	8	Non-stop	Yes	12 830	Yes	B'down	No	Failed	No	Bronze medal.
A. B. Wade (Zenith)	5–6	Time error	No	17 80	Yes	56.37	Yes	6.4	Yes	Silver medal.
S. T. Tessier (Bat sc.)	8	Failed Polsteeple	No	12 130	Yes	41.84	No	12.6	No	No award.
T. Pollock (James)	3½	Non-stop	Yes	12 830	No	35.10	No	6.2	Yes	Bronze medal.
Lionel Martin (Singer c.c.)	10	Non-stop	Yes	13 1420	Yes	52.66	Yes	5.2	Yes	Gold medal.
C. R. Collier (Matchless sc.)	7	Non-stop	Yes	14 360	Yes	43.75	Yes	6.2	Yes	Gold medal.
T. V. West (Morgan c.c.)	8	Retired	–	11 190	Yes	42.75	Yes	Retired	–	No award.
S. B. Nield (F.N.)	2½	Failed Chalk Pit	No	10 750	Yes	32.28	No	Failed	No	No award.
J. Portwine (A.C. c.c.)	10	Non-starter	–	–	–	–	–	–	–	–
H. Graham Dixon (James)	3½	Non-stop	Yes	14 1060	Yes	43.79	Yes	6.6	Yes	Gold medal.
G. Porter (P. and M. sc.)	3½	Non-starter	–	–	–	–	–	–	–	–
G. L. Haydon (Calthorpe)	2¾	Non-starter	–	–	–	–	–	–	–	–
J. Woodhouse (Quadrant sc.)	7	Missed test hills	No	13 770	Yes	43.87	Yes	17.6	No	Bronze medal.
H. Collier (Matchless)	3½	Failed Brasted	No	12 830	No	42.83	Yes	Failed	No	No award.
W. L. Barratt (Douglas)	2¾	Non-stop	Yes	13 770	Yes	42.94	Yes	7.6	Yes	Gold medal.
C. F. Halsall (Wilton c.c.)	10	Non-stop	Yes	11 1590	Yes	Stopped	No	8.2	Yes	Silver medal.
C. Aslen (Grandex)	2¼	One stop; missed test hills	No	10 50	Yes	41	Yes	15	No	Bronze medal.
R. E. Guest (Matchless sc.)	7	Non-stop	Yes	14 1060	Yes	39.96	No	8.2	Yes	Silver medal.
V. Busby (Quadrant)	7	Retired	–	12 130	Yes	–	–	–	–	–
F. G. Edmond (Humber sc.)	3½	Passenger abnormal position	No	11 190	Yes	34.28	Yes	19.2	No	Bronze medal.
W. C. Drake (P. and M.)	3½	Non-stop	Yes	15 50	Yes	44.87	Yes	6.2	Yes	Gold medal.
A. V. Sumner (Zenith)	3½	Non-stop	Yes	16 490	Yes	50.28	Yes	7	Yes	Gold medal.
S. Tubb (Humber)	2¾	Non-stop	Yes	11 640	Yes	43.02	Yes	39.2	No	Silver medal.
G. Griffith (Zenith)	8	Retired	–	13 770	Yes	55.03	Yes	–	–	–
H. Epton Chapman (Clyno sc.)	5–6	Retired	–	Stopped engine	No	–	–	–	–	–
R. Croucher (Kerry-Abingdon)	3½	Non-stop	Yes	9 1110	No	46.81	Yes	5	Yes	Silver medal.
J. Gibson (Triumph)	3½	Retired	–	11 190	No	46.09	Yes	–	–	No award.
R. G. J. Charlesworth (Zenith)	5	Non-stop	Yes	16 490	Yes	50.96	Yes	4.2	Yes	Gold medal.
L. W. Spencer (Morgan c.c.)	8	Did not complete course	No	13 1120	Yes	42.94	Yes	6.6	Yes	Disqualified.
S. Crawley (Triumph)	3½	Non-stop	Yes	18 920	Yes	53.05	Yes	8.8	Yes	Gold medal.
F. H. Fuller (Premier sc.)	3½	Retired	–	Stopped engine	No	–	–	–	–	–
W. Cooper (Humberette c.c.)	8	Non-stop	Yes	9 210	Yes	35.12	No	9.8	Yes	Silver medal.
C. G. Pullin (Rudge)	3½	Non-starter	–	–	–	–	–	–	–	–
J. G. Pauling (Swift c.c.)	7	Failed Chalk Pit	No	10 50	Yes	35.97	No	6.8	Yes	Disqualified.
E. B. Ware (Zenith sc.)	5	Retired	–	15 50	Yes	Stopped	No	–	–	–
L. Fielder (New Hudson sc.)	3½	Stopped	No	10 1550	Yes	28.87	No	Failed	No	No award.
C. Lester (P. and M.)	3½	Missed test hill	No	12 830	No	34.25	No	6	Yes	No award.

*Claimed non-stop. †Claimed traffic stop. ‡ But stopped immediately.



QUESTIONS & REPLIES

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

A Route round London.

Will you please give me the best route to take from Canterbury to Watford to avoid London traffic?—W.N.G.

To avoid London you will have to make a long detour. Your best route is: Canterbury, Faversham, Sittingbourne, Chatham, Rochester, Gravesend, cross the Thames by ferry to Tilbury, then go to Romford, Theydon Bois, Waltham Cross, Northaw, Enfield, New Barnet, Chipping Barnet, Elstree, Bushey Heath, Watford.

Safeguarding Against Skidding.

Can you inform me if there is any device on the market to ensure against skidding? Rubber studs are useful for a few journeys, but they soon wear off, and I cannot afford to scrap tyres on this account.—J.W.

There is no really certain device against skidding. The only thing to do is to use a good tyre and drive carefully on greasy roads. There have been devices made which were satisfactory provided they could be used quickly enough, but the trouble was that the machine would probably sideslip before there was time to put the non-skid into action. We advise you to try a combination rubber and steel-studded tyre.

An Ignition Difficulty.

I should be obliged if you could help me with the following difficulty. My machine is a twin-cylinder lightweight, and at low speeds fires only on one cylinder. No spark appears at the plug (several of which have been tried) when the back wheel is revolved by hand. When the engine is started up on free engine the faulty cylinder chips in occasionally, and when the revolutions are very high the firing is almost even. There are no air leaks. It is not the fault of the carbon brush or the wires, as those belonging to the sound cylinder have been tried, and still no spark. The platinums are in perfect condition, and appear to fulfil their function properly. Is it possible that the magneto can be at fault when it fires the one cylinder correctly?—B.H.H.

The symptoms of your machine are extraordinary. Have you tried varying the distance between the sparking plug points? We note that there are no air leaks in the carburetter or in the induction pipe, but this misfiring would certainly tend to point to the fact that there was a slight air leak in the cylinder in which misfiring takes place. If you cannot cure your trouble we should recommend you to return the magneto to the makers asking them to test it for you.

Leamington to Glasgow.

Will you kindly inform me the most direct route from Leamington to Glasgow, and what sort of roads are there in Lanarkshire, and is it a very hilly county?—C.L.R.

Leamington to Glasgow. Shortest route: Leamington, Kenilworth, Stonebridge, Coleshill, Lichfield, Rugeley, Stone, Newcastle, Knutsford, Warrington, Wigan, Preston, Lancaster, Kendal, Penrith, Carlisle, Lockerbie, Beattock, Abingdon, Glasgow. There are several good main roads in Lanarkshire, such as the above-mentioned. The ride over the Beattock summit is pretty, but bad as far as steepness is concerned; otherwise, the main roads are quite good

Ignition Difficulty on Old Machine.

I have a 3½ h.p. motor cycle about ten years old, with trembler coil ignition and make and break contact breaker. The engine is in excellent condition, but every thirty miles or so the power falls off mysteriously, and the machine will barely struggle up the smallest hill. Compression is excellent, coil, contact breaker, and carburetter properly adjusted, exhaust valve with ⅛in. lift, and engine well lubricated. I have also experimented with different lifts and springs for the automatic inlet valve, and fitted a new spring to the exhaust with no effect. Neither the piston nor bearings are too tight. I have been told that when an accumulator is a little run down a loss of power takes place. Is this true? My accumulator is four volts sixteen ampères, and the coil takes two ampères per hour, and whenever the loss of power has taken place there was a good spark at the plug. The accumulator was fully charged at the start. —R.D.J.

It is quite possible that the loss of power may be due to the coil being fitted with an inefficient condenser. This would cause the platinum points to burn very rapidly. Probably, after the period mentioned, the resultant wear on the contact breaker points would upset the adjustment and cause the symptoms of which you complain. If you could get hold of a second-hand magneto and fit it, the machine would run very much better.

General Information

I have a late 1911 Scott motor cycle, and I should be greatly obliged by your kind advice on the following points: (1.) One cylinder has much weaker compression than the other. The half-compression valve does not seem to lift rightly, and my idea is that it is not properly closing. (a) About what lift should there be? (b) Does it screw out for examination? (2.) The machine does not take extra air at any speed, but works as a single lever carburetter. Is this right, and is the air lever likely to be needed in summer? (3.) What repair outfit do you recommend for chains, and what lubricant? I have mixed black lead and vaseline, as the chains are difficult to remove and soak as is often advised. (4.) Do you consider paraffin or other cheap fuel could be used? (5.) With water-cooling, could not a good gas engine oil at about 3s. be used without harm? (6.) What do motor cyclists generally insure against? (7.) I intend fitting a sidecar for my wife. We only weigh about 18 stones between us. My present gears are, I believe, 3¾ and 7. What reduction would you advise? (8.) What kind of sidecar should I have? (9.) Would you advise a larger jet with sidecar fitted? (10.) Apart from solder, what is a temporary repair for (a) leaking radiator, to stand hot water; (b) leaking petrol tank, to stand petrol? (11.) What lights are required for sidecar? I ask this because I have seen reports of various byelaws in different parts of the country.—A.W.

(1.) We cannot tell you the exact amount of lift of the half-compression valve, but you may take it that that provided by the makers is sufficient, unless, of course, it is not lifting properly through the Bowden wire being too slack. To the best of our recollection it can be removed for examination. (2.) The trouble here may be that the jet is partially choked. Full extra air should be required at high speeds only. (3.) There is a splendid chain lubrication by Messrs. Price's Patent Candle Co., Ltd., Belmont Works, Battersea, S.W., which is very satisfactory, and, as regards repair outfit, we

should recommend a stud remover and a few detachable links, which can be obtained from most dealers, or from Messrs. Hans Renold, Ltd., Progress Works, Brook Street, Manchester. (4.) We should not think that paraffin would be suitable for this machine. (5.) We can hardly recommend gas engine oil; our advice is to use the best lubricant obtainable. It is always best to be advised by the makers' experts, because what might suit one water-cooled engine might not suit another. (6.) Motor cyclists insure against third party, accidental damage, fire, burglary and theft, and transit, but almost any insurance company will issue a policy for third party risks only. (7.) You would have to gear a little lower, say about 5 to 1, when using a sidecar. (8.) We should recommend a light cane sidecar. On the whole, the rigid sidecar is the most satisfactory. (9.) Slightly larger; we should advise you to experiment when you have the sidecar fitted. (10.) Some accessory firms sell little blocks of fibre which are pressed together by means of a spring running through the radiator cells. This spring keeps the block tight up against the faulty leak, and is actually used as a standby. A leaking petrol tank may be cured temporarily by strapping up the tank securely and smearing soap over the injured portion, or by applying Cæmentium and paper. (11.) It is best to use a light on the sidecar to show the width of the vehicle and a reflex at the rear.

Lincoln to Portsmouth.

Would you kindly give me the best main road route through all the large towns (but missing London) from Lincoln to Portsmouth? I intend to do the trip on a 3½ h.p. Rover combination. I should be glad if you could tell me the mileage.—CHARLES W. KENDALL.

Your best route would be as follows: Lincoln, Grantham, Greatham, Oakham, Uppingham, Rockingham, Kettering, Northampton, Towcester, Brackley, Oxford, Shillingford, Reading, Odiham, Alton, Petersfield, Cosham, to Portsmouth. The distance is approximately 195 miles.

Leicester to Hastings.

I should be obliged if you could let me know the shortest and quickest route from Leicester to Hastings. I should like to avoid London and all large towns as much as possible, as my machine will be a single-geared 3½ T.T.—C.H.W.

The most direct way from Leicester to Hastings is, of course, right through London. If you want to avoid London you will have to make a detour. Try the following: Leicester, Northampton, Stony Stratford, Fenny Stratford, Dunstable, St. Albans, Watford, Uxbridge, Colnbrook, Staines, Chertsey, Cobham, Leatherhead, Dorking, Reigate, Redhill, Westerham, Sevenoaks, Tonbridge, Lamberhurst, Battle, Hastings.

The Cut-out Question.

Will you please tell me what the law is relating to silencers and cut-outs on motor cycles, as I have had my name and address taken through my machine making a noise due to the exhaust box being broken, but there was no cut-out on the machine?—A.S.

The law states that the exhaust gases must be led to a silencer or expansion chamber, and that no cut-out be fitted on the pipe between the engine and the silencer, but at the same time if a cut-out is fitted at the end of the silencer remote from where the pipe enters it, the noise must not be excessive, and if it is so in the opinion of the law officers you are liable to prosecution. Certainly a broken silencer would be tantamount to a cut-out in our opinion.

Taxation of Traveller's Motor Cycle.

I have just bought a motor cycle, which I use to carry samples in the course of my business as a commercial traveller. Shall I be exempt from Inland Revenue tax if I have my name and address painted on the tank and only use it for business, and to whom must I apply for exemption?—W.H.J.

We think you ought to be exempt from the local taxation licence if you have a special box constructed on your carrier and your name and address painted on the tank in letters not less than 1in. in size. The machine, however, must not be used for your own pleasure on any occasion whatever. You must apply to the nearest Inland Revenue authorities for exemption.

Richmond (Yorks) to Manchester.

Could you oblige me by telling me the best route from Richmond (Yorks.) to Manchester, avoiding large towns where possible?—J.H.

Your best way of avoiding large towns must necessarily be somewhat circuitous. Follow the London Road south to Boroughbridge and Wetherby; soon after Wetherby and close to Boston Spa, turn right and continue through Harewood, Otley, Ilkley, and Skipton, to Colne and Burnley; then through Accrington, Haslingden, and Bury to Manchester, or through Bacup and Rochdale to Manchester. In the neighbourhood of Manchester you cannot very well avoid large towns, and in some parts you will find the roads bad.

A Big Sidecar Load.

I think of having a new sidecar, and shall be glad if you will help me in the following I want a good 3½ h.p. machine and sidecar, and wish to take my wife and boy of six years in the sidecar, and a girl on the carrier. Would a 3½ h.p. single-cylinder do that on any reasonable hill?—R.O.

We should not recommend a 3½ single-cylinder motor cycle being utilised for such heavy work as you propose to use it for. If you wish to carry at times no less than four persons, you will certainly want at least 6 h.p. and two cylinders if you wish to make sure of climbing hills easily. A change-speed gear will be absolutely necessary, and three speeds are better than two for such work. A strong back tyre must be fitted.

READER'S REPLY.

Cheshire to Olympia.

Referring to your reply to "R.F." I would suggest that the route from Derby to Leicester should read: Derby, Kegworth, Loughborough, Leicester. I know this district well.—J. A. TYLER.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

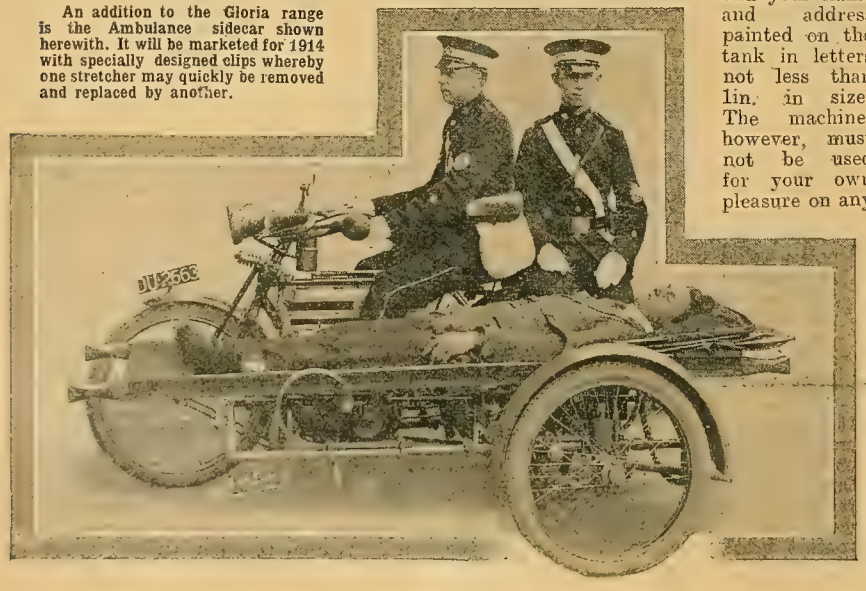
"N.H." (Hull).—Brampton gear, on any 3½ h.p. sidecar combination.

"E.B." (Portsmouth).—1911 5-6 h.p. twin Rex with sidecar.

"F.S." (Lancashire).—2½ h.p. Wulfruna and Levis.

"W.P." (Heworth).—1913 3½ h.p. Premier with Armstrong gear. Reliability and economy.

"A.A.R." (Kent).—1911 four-cylinder F.N. Reliability and consumption. Reliability of folding or collapsible sidecars.



An addition to the Gloria range is the Ambulance sidecar shown herewith. It will be marketed for 1914 with specially designed clips whereby one stretcher may quickly be removed and replaced by another.

OLYMPIA.

Next week's issue of **"THE MOTOR CYCLE"** will contain a full description of the motor cycle exhibits at Olympia, written by our own staff.

P&H HIGHEST GRADE

AT OLYMPIA, STAND 182 (GALLERY)

THAT'S the stand to call at for LAMPS!

—for that's where you'll find the popular "P. & H." Models—the British-Made "QUALITY" Lamps of "Highest-Grade" and "Highest Value."

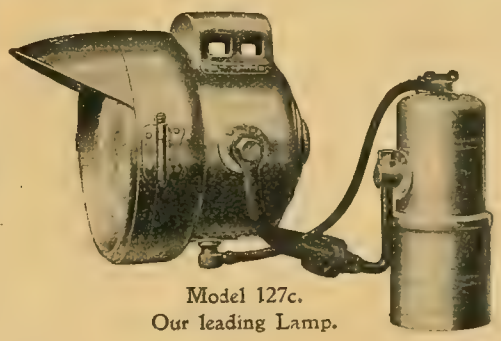
—WE specialize on "LAMPS" *only*—we have done so for upwards of 30 years—and our unique knowledge and experience is concentrated on producing highest QUALITY, EFFICIENCY, and VALUE in each and every model—hence the world-wide popularity and marked superiority of "P. & H." productions.

—Note the models here illustrated and their specifications—such a combination of valuable and desirable features as embodied in each model cannot be obtained elsewhere:—

Model 125c. 7in. PROJECTOR; has 5¾in. Front with large hood reflector; best quality Mirror Reflector; "RONI" Burner; 4½in. plate glass bevelled Convex Lens. Special GENERATOR. Can be easily cleaned and recharged, with extra strong Double Carrier, complete with best quality grey rubber tubing. Can be easily fitted on handle-bar stem or bracket. Nickel or Ebony finish .. .. Price **27/-**

Model 128c. 7in. PROJECTOR; has 5¾in. Front; powerful Real Mangin Mirror Reflector; "RONI" Burner with special focussing adjustment; 4½in. plate glass Convex Lens. Special GENERATOR, easily cleaned and recharged, with adjustable stamped steel Double Carrier of special design, complete with best grey rubber connection. Can be fitted on handle-bar stem or bracket. Nickel or Ebony finish .. .. .. Price **30/6**

Model 127c. Extra large size PROJECTOR; has 6½in. Front; powerful 5in. Real Mangin Mirror Reflector; Bray "RONI" Burner, which cannot crack lens or mirror, with patent focussing adjustment; 5½in. plate glass Convex Lens. Special GENERATOR, easily cleaned and recharged, with adjustable stamped steel Double Carrier of new design and exceptional strength, complete with best quality grey rubber connection. Can be fitted on handle-bar stem or bracket. Nickel or Ebony finish Price **36/6**

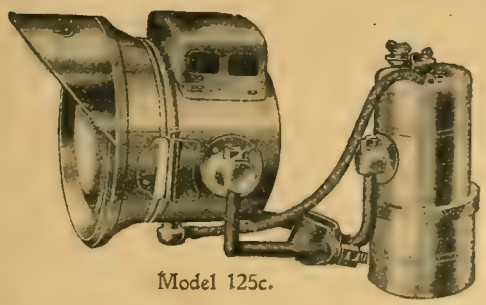


Model 127c.
Our leading Lamp.

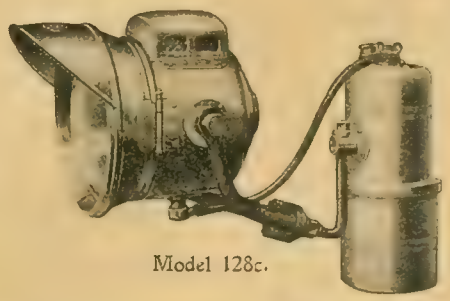
—Call and handle our models—note their superior quality, sound construction, and fine finish—and see how well we substantiate our claims to Lamp-Supremacy.

—Failing a call, please write for "Lamp Booklet"—and examine our models at your Agents—then you can't go wrong in buying.

Powell and Hanmer, Ltd.,
Chester Street . . . . Birmingham.



Model 125c.

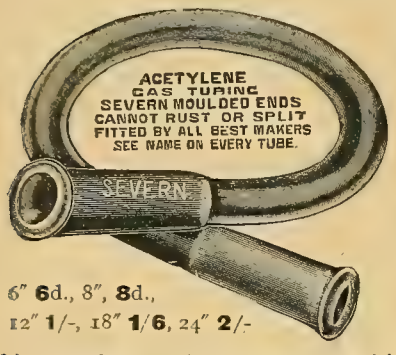


Model 128c.

In answering this advertisement it is desirable to mention "The Motor Cycle."

E 1 S
93

OUTFITS, Largest and Best.
1/6 & 3/- each.



6" **6**d., 8", **8**d.,
12" **1**/-, 18" **1/6**, 24" **2**/-

CONTRACTORS TO CROWN AGENTS FOR THE COLONIES.

SEVERN

CONTRACTORS TO THE G.P.O., Etc.

NOW READY.

1914
LIST FREE
ON REQUEST.

SEVERN SPECIAL PATCHES

WON'T COME OFF
IN PACKETS 1/- 1/6 3/- & 5/- EACH.

Severn Belt.

$\frac{5}{8}$" **1/3**, $\frac{3}{4}$" **1/5**, $\frac{7}{8}$" **1/9**,
1" **2/2**, $1\frac{1}{8}$" **2/6**.

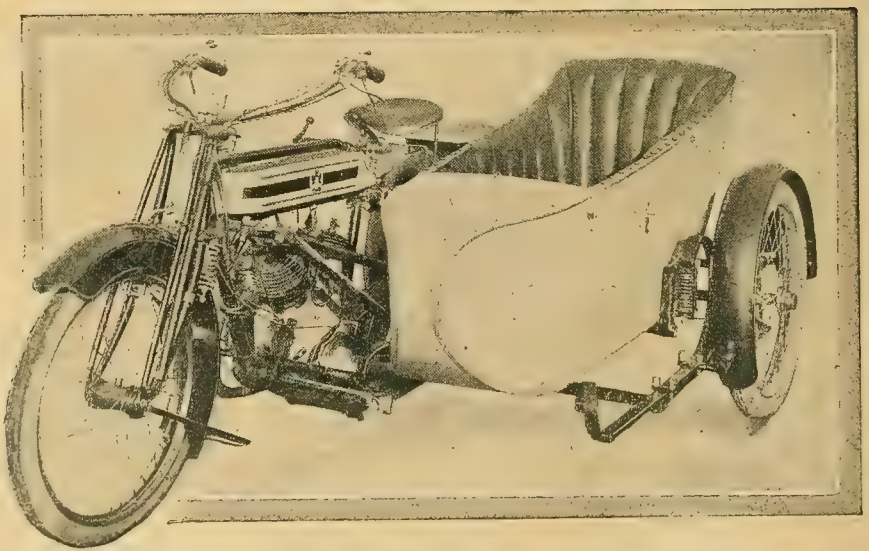
TYRES, FOOTREST RUBBERS, BELT RIM BLOCKS, & ALL CLASSES OF AMERICAN GOODS

SEVERN RUBBER Co., Ltd., Mascot Works, Newhall Street, BIRMINGHAM.

VALUE FOR MONEY.
Stand 93

1914 REX

VALUE FOR MONEY.
Stand 93



£ **85**
3-speed gear, kick-starter.

£ **85**
Enclosed chain transmission.

THE QUEEN OF LITTLE CARS.

REX MOTOR MANUFACTURING CO., LTD., COVENTRY.

BENZOLE

IS THE FUEL OF THE FUTURE

AND THE

SENSPRAY

(TRADE MARK)

CARBURETTER

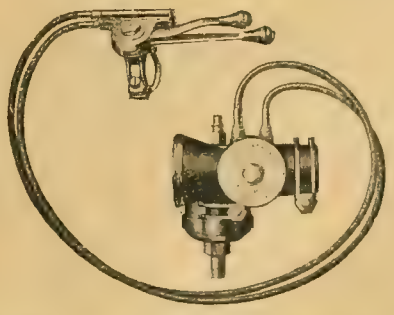
IS THE CARBURETTER OF TO-DAY AND THE FUTURE.

IN THE 3-LAP BENZOLE HANDICAP AT BROOKLANDS (JUNE 21st), FOR THE "DAILY EXPRESS" 30 GUINEA CHALLENGE CUP, THE WINNING MACHINE AND ALSO THE SECOND AND THIRD MACHINES WERE FITTED WITH THE "SENSPRAY" CARBURETTER.

Mr. J. Stewart-White in the course of an interesting account in "Motor Cycling" (September 9th) of his wanderings:—"Over Twenty Frontiers in Ten Days" on his Bradbury, fitted with the "SENSPRAY" Carburetter, says:

"The 'SENSPRAY' Carburetter handled all the vile mixtures sold as petrol without complaint, though they varied from paraffin to I believe alcohol."

"The only carburetter which **PERFECTLY ATOMISES** the fuel."



"Perfect for **TOURING** or **RACING.**"

CHARLES H. PUGH, Ltd., Whitworth Works, **BIRMINGHAM.**

One of the 3,000 Unsolicited Testimonial

FOR THE

WHITTLE (PATENT) BELT

H.M.T.B. 26.
8th Flotilla,
HAWICK.

Dear Sirs,

I should be much obliged if you would send me your catalogue of Whittle Belts, as I am thinking of fitting one to my new Triumph. I ran one of your Whittle Belts on my Douglas with great success, and I was very pleased with the way the belt behaved.

Yours truly,
C. SEARLES WOOD,
Sub. Lieut., R.N.

Telephone: 365Y Warrington

THOS. WHITTLE & SONS, LTD., WARRINGTON.

Telegra " Belt Warringt

BLUEMEL'S

MOTOR CYCLE

ACCESSORIES

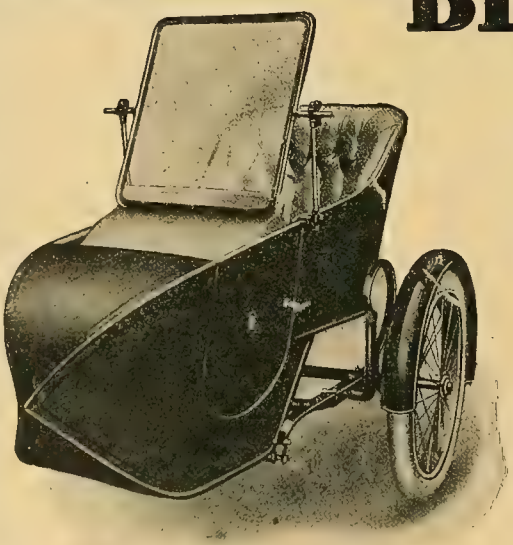
EXHIBITED AT

OLYMPIA,

STAND 157.

We shall be pleased to see you there, and demonstrate the superiority of the Bluemel manufactures, meanwhile write for our

BOOK OF NOWEIGHTS — POST FREE.



Bluemel's Sidecar Wind Screen
affords a splendid protection to the passenger against wind, rain, etc.
Swings open like a door.

Bluemel Mascot Plug with Patent Enamel Gas-tight Joint.

BLUEMEL BROS.

— LTD., —

WOLSTON, Nr. Coventry.

5/6 h.p. Water-Cooled Model.

Fafnir Engines

MAY BE SEEN ON

Messrs. HOBDAY BROTHERS'

Stand No. 168

AT THE

Olympia Exhibition.

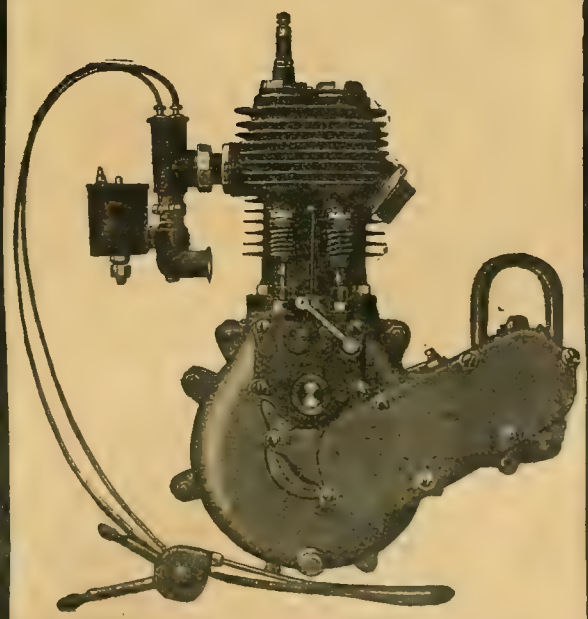
¶ It is essential that you specify a FAFNIR ENGINE for your new Cycle Car or Motor Cycle if you desire SPEED, POWER, and ABSOLUTE RELIABILITY.

¶ INSIST ON THE ENGINE WITH 14 YEARS' REPUTATION BEHIND IT.

2½ h.p. to 8 h.p.
Air and Water Cooled.
Ball Bearings.
Bosch Magnetos.

Fafnir

211, UPPER THAMES ST., LONDON, E.C.



3½ h.p. Air-Cooled Model.

Hercules

SIDECARS.

Licensed Pat. No. 21045/11.
Body, Registered Design 608368.

WHEN YOU GO TO
OLYMPIA
YOU SHOULD NOT FAIL TO CALL AT THE CHARTERHOUSE HOTEL, CHARTERHOUSE SQUARE, LONDON, E.C., AND SEE OUR EXHIBIT OF THE PERFECT SIDECAR.

Hercules Cycle & Motor Co., Ltd.,
Conybere Street,
Birmingham.

Tel.: 433 HALIFAX.

SCOTT'S

Telegrams: SCOTT'S, POWELL ST., HALIFAX.

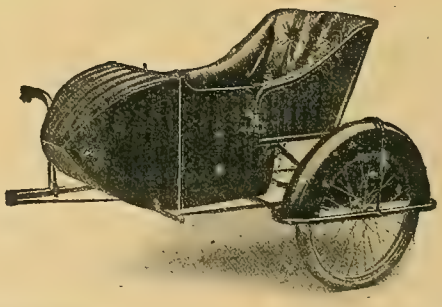
VICTORIA MOTOR HOUSE, HALIFAX.

Sole Agents for—

N.S.U.'s,
RUDGE,
ZENITH,
P. & M.'s,
JAMES,
MOTO-REVE,
INDIANS,
LEVIS, Etc., Etc.

Sole Agents for—

N.S.U.'s and HUPMOBILE CARS & CYCLE CARS.



BOAT-SHAPED SIDECARS, AS ILLUSTRATED,
10 GNS.
OTHER MODELS FROM—
4 to 12 GNS.
N.S.U. Gears for any make of Motor Cycle, Tank or Handle-bar Control. - - Delivery from Stock.

Please Note—

That we can supply any make of Motor Cycle, Cycle Car, or Car. Immediate delivery guaranteed.

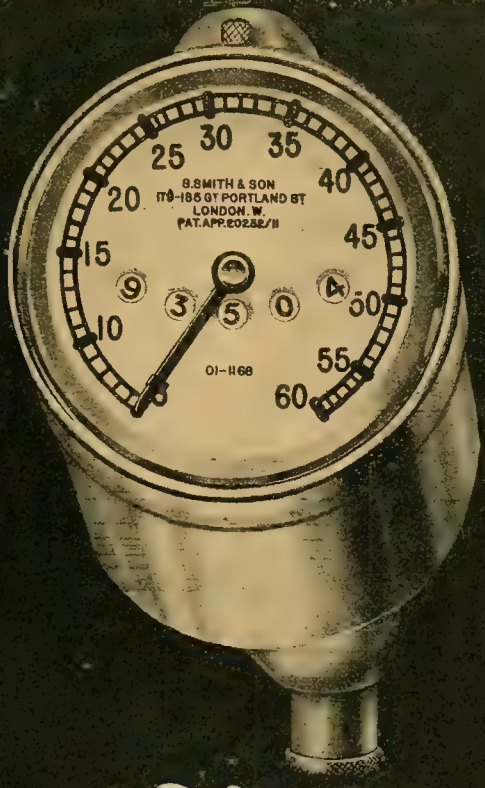
We also hold a large stock of Second-hand Motor Cycles, Sidecars, Engines, Gears, Etc.

WRITE FOR LIST.

N.S.U. ENGINES, TWIN-CYLINDER, AIR-COOLED, from 4 to 9 h.p.

SECOND-HAND ENGINES, Etc., TAKEN IN PART PAYMENT.

SMITH'S
NEW ROCK STEADY
Motor Cycle SPEEDOMETER



Price £3·3·0 British Made

STAND 192 GALLERY OLYMPIA

The
· ONLY SPEEDOMETERS ·

ROCK STEADY UNDER ANY VIBRATION
YET ACCURATE & UNAFFECTED BY TEMPERATURES

S. SMITH & SON LTD. SPEEDOMETER HOUSE
179-185, Gt. Portland St. London, W.
& at 9, Strand & 68, Piccadilly, W. HOLDERS OF SIX ROYAL WARRANTS

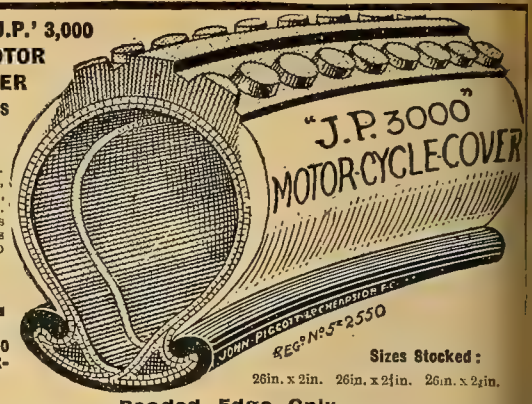
JOHN PIGGOTT LTD

The 'J.P.' 3,000 MILE MOTOR CYCLE COVER

The Cover that HAS stood the Test.

TESTIMONIAL.

Barnsley, June 18th, 1913.
Dear Sirs—Please send per return, two 26 x 2¼in motor cycle covers, for which I enclose P.O.O. for £3. The last cover I got from you has now done over 3,800 miles, and is the first tyre I have had to do so much on my back wheel.



YOUR LOCAL AGENT will not advise you to buy a 'J.P. 3,000 Mile Tyre for **30/-**

BECAUSE you must deal direct. '3,000 MILES' for 30/- allows for no INTERMEDIATE PROFITS.

Sizes Stocked:
26in. x 2in. 26in. x 2¼in. 26in. x 2½in.

Beaded Edge Only.

This cover is made on the same principle as a heavy motor car tyre, viz., under hydraulic pressure, and not as the usual motor cyle covers which are usually a glorified cycle tyre. It is composed of the best Para rubber, and fitted with a new non skid tread which has been thoroughly tested and found to be an absolute preventive of skidding.

We are so confident of the wearing properties of this tyre that we are guaranteeing it for 3,000 Miles.

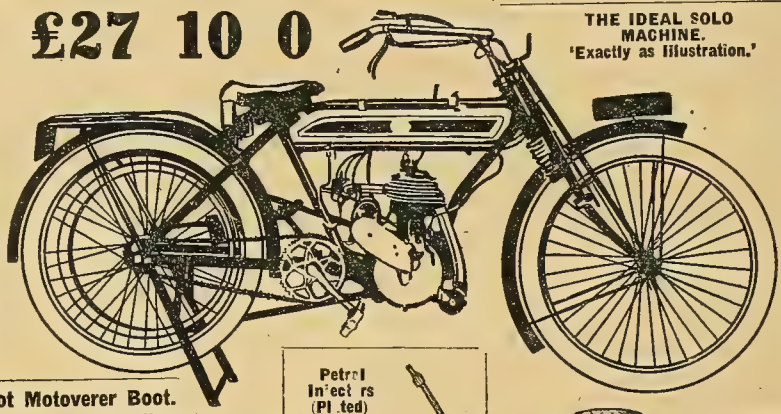
A Written Guarantee enclosed with every Cover as follows: **30/-** **Guaranteed 3,000 MILES. With or without sidecar.**

The J.P. "Impregnable Motor Cycle,"
Call at 117, Cheapside.
No obligation to purchase.
THE BEST BY TEST.

Complete with Stand, Price

£27 10 0

THE IDEAL SOLO MACHINE.
'Exactly as Illustration.'



FRAME, latest design, built very low, and extra strong. ENGINE, 2½ h.p., English make, Coventry manufacture. CARBURETTER Brown and Barlow, H.-bar Control, giving low petrol consumption. IGNITION, U.H. Magneto, gear driven, and placed behind cylinder, which affords protection from mud and wet. SPRING FORKS, Radio patent. BRAKES, Bowden Front Rim and Foot-operated Rear Belt Rim. WHEELS, 26×2¼ in., British Hubs. TANK, strong, fitted with Oil Pump. TRANSMISSION, ¾in. Rubber Belt. SADDLE, Empire de Luxe, No. 14/4, very comfortable and well sprung. FOOT RESTS, fitted with Rubber Pads, Rear Brake Pedal attached. HANDLEBAR, raised, and slightly dropped at end, giving very comfortable position. FINISH, Best Black Enamelled, on a coat of special Rustproof Priming, Aluminium Tank, Panelled and Lined, Best Quality Plating. TYRES, Le Paris. Rubber-studded, fitted with Puncture-proof Band. CARRIER, Black Tubular, very strong.

EXTRAS—

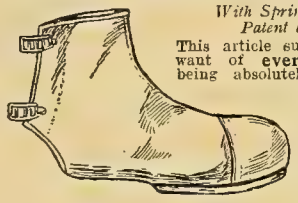
Armstrong 3-speed gear and Free Engine, £9 10 0

Returnable Crate, each 10/-

MOTOR CYCLE LIST No. 147 NOW READY.

The "J.P." Drifoot Motoverer Boot.

With Spring Fastenings.
Patent applied for.



This article supplies a long felt want of **every** Motor Cyclist, being absolutely waterproof and weatherproof. A great advantage of this Overboot is the ease with which it can be slipped on over the ordinary boot and the comfort of same in the wear. The uppers are made from a brown rubberproof canvas, and are fitted with steel-studded leather soles. This boot can be packed flat when not in use.

All sizes stocked.

Brown Waterproof Canvas, Studded Soles. **6/9** per pair.
In Tan Willow Calf, with Studded Soles, **14/6** ,,

Petrol Injectors (Plated)

8d. each, Postage 2d.

"Belt Grip"

contains no Resin, Acid, or Oil, and therefore cannot harm the rubber. Price with full instructions for use, **10½d.** Postage 2d.

The "J.P." Oilskin Motor Suit.

(As illustration).

Comprising Double-breasted Jacket, 33in. long, fitted with a patent Storm Fly and wind cuffs, also 1 pair shaped thigh leggings. In light-weight oilskin, will not get sticky or crack. Black in stock, Yellow in a few days.

20/ complete.
36in. Jacket to order, **2/6** extra.

JOHN PIGGOTT'S SPECIALITY.

The Parkhurst Double-breasted Motor Jacket. Made in heavy Fawn Paramatta, with heavy rine lining, 36in. long, Wind Cuffs, etc. **32/6.** **Seatless Gaiter Trousers.** Fawn Paramatta, lined with Beavertine, to match the "Parkhurst" Jacket, **18/6** pair

The Ideal Double-breasted Motor Suit. Comprising Double-breasted Motor Jacket (36in. long, fitted with wind cuffs, deep storm collar tabs on sleeves, etc.), 1 pair shaped thigh leggings. The above are made in Double exture fawn parama ta, **25/-** complete.

SPECIAL OFFER

For Show Week Only.

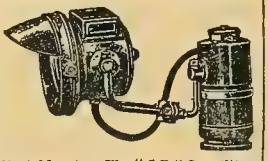
Waterproof Seatless Gaiter Trousers for Motor Cycling.

Made of Strong Fawn Double Texture Twill Material. Leather Waist Strap, also Stout Leather Strap to go under boot, with Patent Clips at side and Storm Gusset, usually sold at **13/3.**

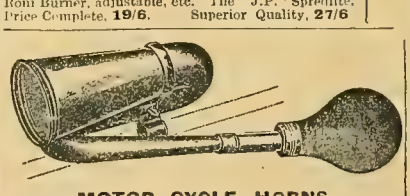
For this week only, 9/11.

SEND FOR ILLUSTRATED MOTOR CYCLE LIST No. 147 POST FREE.

The "J.P." Spredlite Motor Cycle Lamp.



With clips for Handle-bar Stem, separate Generator, Riveted Joints, Mangin Lens, Roni Burner, adjustable, etc. The "J.P." Spredlite. Price Complete, **19/6.** Superior Quality, **27/6**



MOTOR CYCLE HORNS.
Solid Brass Heavy Plated Motor Horns
as sketch.
Fitted with Dust Cap and adjustable Clips.
7/11 each. Postage 5d.

117 & 118 CHEAPSIDE & 1, 2 & 3 MILK ST BUILDINGS LONDON E.C.

In answering this advertisement it is desirable to mention "The Motor Cycle."

Don't fail to inspect the RELIABLE

ARMSTRONG

"Tourist Trophy" MOTOGEAR, Mark VII., AT "STAND 187" GALLERY.

¶ MECHANICAL PERFECTION as portrayed in "The ARMSTRONG" is the outcome of pre-eminent merit in design and constructional refinement in details.

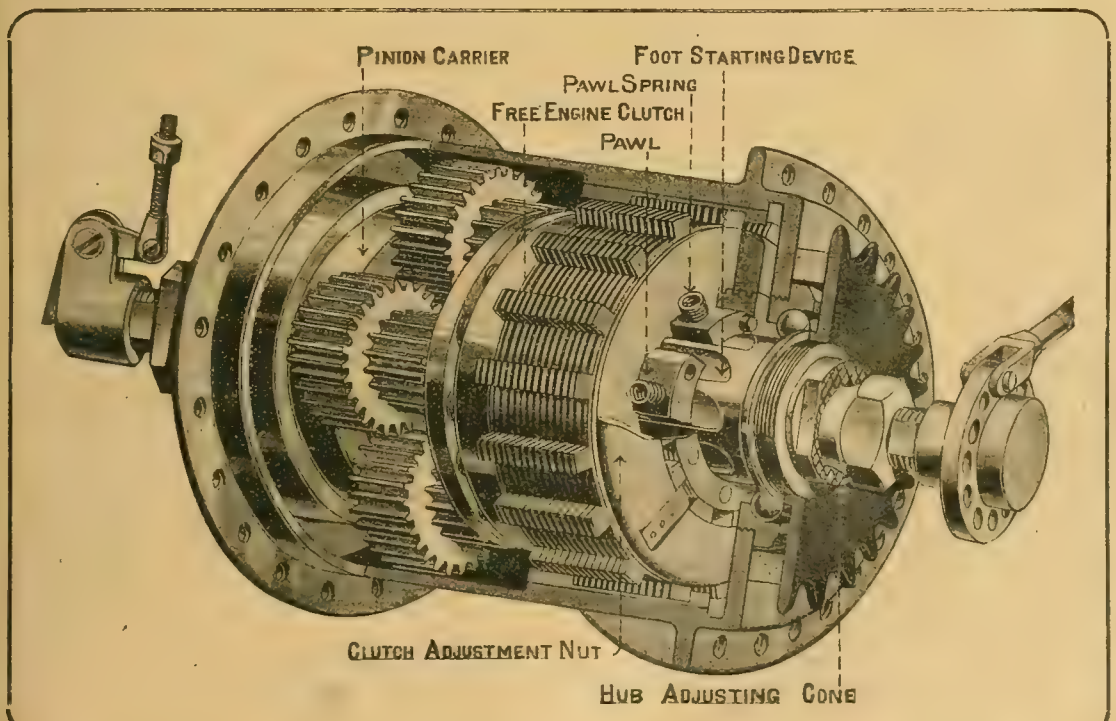
— "STRENGTH — SIMPLICITY — EFFICIENCY" is the keynote of "The ARMSTRONG" MOTOGEAR — backed by sterling "QUALITY" of materials, workmanship, and finish.

— Our sectional view reveals its working parts — those parts, it should be noted, are few, ESSENTIALS ONLY — and their fewness admits of MAXIMUM STRENGTH for each.

— By virtue of these features and the fact that it is the PIONEER 3-Speed Hub Gear, it ranks literally FIRST and BEST; and, inferentially, for its selection by all expert riders, its overwhelming successes in all competitions — with its crowning achievement in the TOURIST TROPHY RACES (winning the 1913 JUNIOR T.T.; FASTEST LAP, and RECORD TIME for the Course) — and its inclusion on the foremost machines of the day.

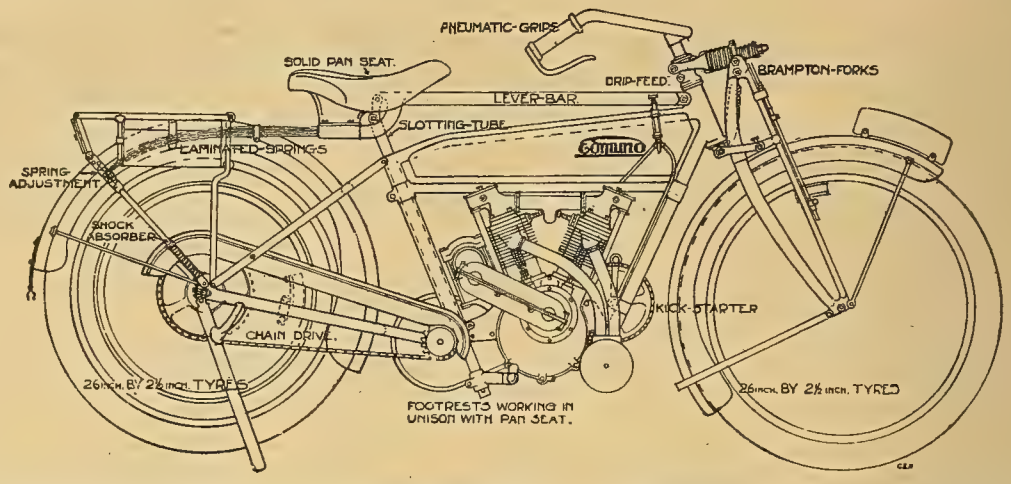
FIRST AND BEST

¶ FITTED BY ALL THE LEADING MANUFACTURERS!



R.H.S.

You will see many 1914 Boneshakers at Olympia, but if you have "had some," see Stand 39 and the last word in Spring Frames.



CHARLES EDMUND & CO., CRANE BANK, CHESTER, and 20, CLAVERING AVENUE, LONDON, S.W.

STAND 39. The Stand for Comfort. STAND 39.

The BRITISH MADE **Watford** Speedometers

The First MOTOR CYCLE SPEEDOMETER

to enter and pass an officially observed

AUTO CYCLE UNION 3,000 MILES TEST.

MOTOR CYCLISTS—PLEASE NOTE!!!

Copy of Letter from Chairman of Competitions Committee A.C.U.

November 13th, 1913. Carew, Walton-on-Hill, Surrey.

Sirs,

Having used a "Watford" Speedometer during the past year, fitted to three different makes of motor vehicles, a "Bayard" light car, a "G.W.K." cycle car, and a "Premier" motor bicycle, I should like to say that I have found your speed indicator the most reliable, accurate, and generally satisfactory that I have ever used.

For steadiness of the needle as well as for the silence and lasting qualities of the gear box and transmission I do not think it can be surpassed.

I am, yours faithfully
(Signed) E. Percy Greenhill,
Chairman of Competitions Committee A.C.U.

Write for Catalogue to—**NICOLE, NIELSEN & CO., LTD.,**
Inventors and Patentees of the Chronograph, 1862; Split Seconds, 1871; and Speedometer, 1904
THE WATFORD SPEEDOMETER WORKS.
London Showrooms—14, SOHO SQUARE, W.
Telephone—2883 Central. Telegrams—Niconielco, London.

are the outcome of the unique experience of a first-grade English watch manufacturing firm, established in London 1839.

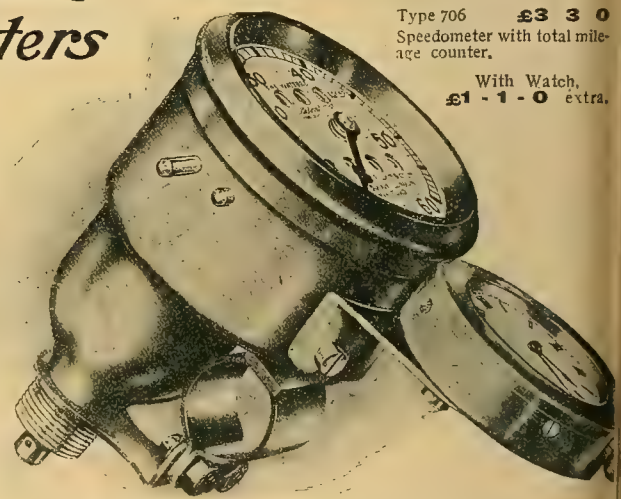
Motor Cycle Speedometer and Watch.

Type 700 .. .. **£5 5 0**
Speedometer with trip and maximum speed hand.

Type 702 .. .. **£4 4 0**
Speedometer with total and trip mileage counter.

Type 706 **£3 3 0**
Speedometer with total mileage counter.

With Watch, **£1 - 1 - 0** extra.



STAND No. 233,
OLYMPIA, November 24th to 29th.

Head Office and Warehouses: **Gt. Eastern St., London, E.C.**

Browns

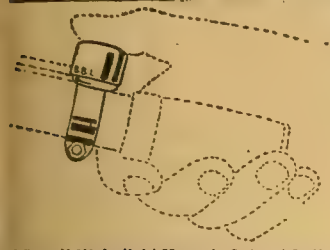
BROWN BROTHERS LTD.

269-273, Deansgate, Manchester.

Showrooms: **15, Newman Street, London, W.**

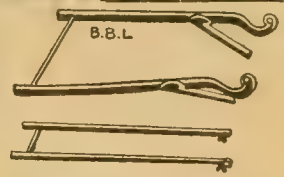
NEW MOTOR GOODS

on view Stand 160, Olympia



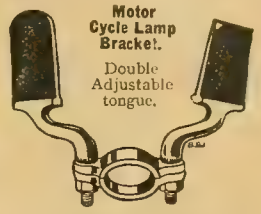
"Duco" Watertight Magneto Cut-out Switch. Neat and efficient. No. S73/30. Nickel-plated, each **2/-**

Motor Cycle Padlock. Iron. Ivory black case. Nickel plated shackle, 6⅞ins. high. 2in. Self-locking. Automatic spring shackle that flies open to a quarter turn position when unlocked. Six secure levers. Two nickel plated corrugated steel keys each. Twelve changes of keys. No. L79/2. As illustrated, each **2/6.**

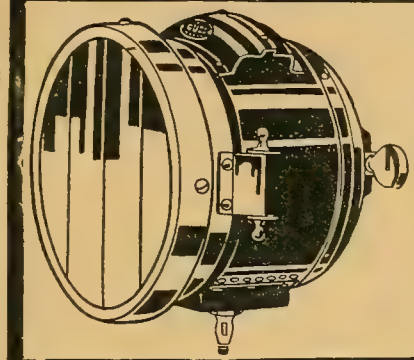


Stands. No. S66/9. Back stand, bright, less clip, ea. **6/6**, enamelled **7/-** No. S66/10. Front stand, including stud to fix on guard, bright, each **4/6**, enamelled, **5/-**

Sidecar Lamp Bracket. No. L66/11 each **2/-**



Motor Cycle Lamp Bracket. Double Adjustable tongue.



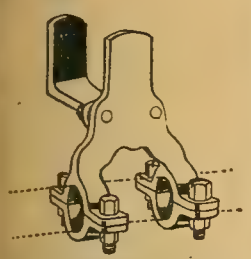
"Duco" Motor Cycle Lamp, with Separate Generator.

British manufacture. Latest models. 5½in. overall.

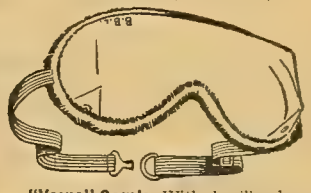
No. L60/89. With flat back bracket. Nickel, each **14/6**

No. L60/90. Black, with nickel front, **13/6**

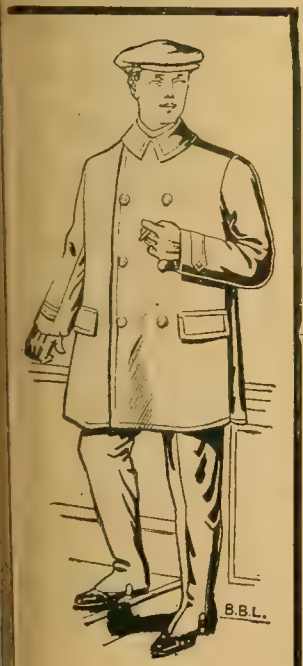
To carry lamp and generator, or two lamps. No. L66/73 .. each **3/6**



"Duco" Rigid Combination Bracket. Registered Design. Nickel finish. No. L66/74 .. each **7/6**



"Veena" Goggle. With chenille edges. Made of inflammable material similar to celluloid, being exceedingly light. It is very comfortable.
No. G5/33. Ladies' size, per pair **1/3**
„ G5/34. Gents' „ „ **1/6**



The "Duco" 2nd quality. Motor cyclist waterproof suit, double-breasted coat, wind cuffs, seatless trouser overalls, gusseted with patent fasteners, stout twill, hard wearing, untearable, and reliable. No. C45/102, complete, **35/-**

Motor Cyclist Waterproof Seatless Trouser Overall. Made of double twill. Hard wearing, untearable and reliable, gusseted, with patent fasteners No. C45/223. Each **14/9.**

Oil Silk "Sou' Wester." No. C47/9. Each **4/9**
Oil Cotton "Sou' Wester." No. C47/10. Each **3/-**

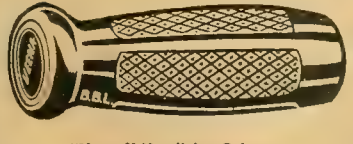
Clayton Combined Decompressor and Compression Tap. Enables engine to be started at walking pace. Made with three threads: Sparking Plug, ½in. gas, ¼in. gas.
No. T2/5 .. each **6/6**

Kick-up Stand Clip. No. S66/16. Each **9d.**

Pillion Seats. Upholstered in dark green pegamoid. For adults.
No. S1/15. 10in. seat, less footboard **23/-**

"Duco" Motor Cycle Oil Syringe, etc. Very handy for oiling two-speed gears. No. S75/26. Size, 4 x 1¼in. Each **1/6.**

"Celerio" Spare Motor Cycle Petrol Tanks. Neat torpedo shape, enamelled aluminium. Plated clips and fillers. No. To/1 Quart size, each **7/6.** No. To/2 Half gallon size (10¾ x 4½ins.) **10/-.** No. To/3, Half gallon size (14 x 4in.), each **10/-**



"Veena" Handlebar Grips. Black celluloid, with knot ends. A cheap but serviceable handle. No. H2/8, per pair **1/-**

Gent's Silk Oilskin Coat.

Single-breasted as illustrated.
Superfine first choice silk, treble oil proofed, pliable, and guaranteed for all climates, absolutely torrential rainproof. Weight about 9 ozs per garment
No. C41/25 .. each **32/6**
Stock colours: Green, black, yellow and smoke. Stock sizes: 46 to 52 ins. long, 36 to 44 ins. chest. Other colours and Coats made to special order extra

AT THE SIGN OF THE WYVERN

Stand 73, Ground Floor, Olympia Show, Nov. 24 to 29

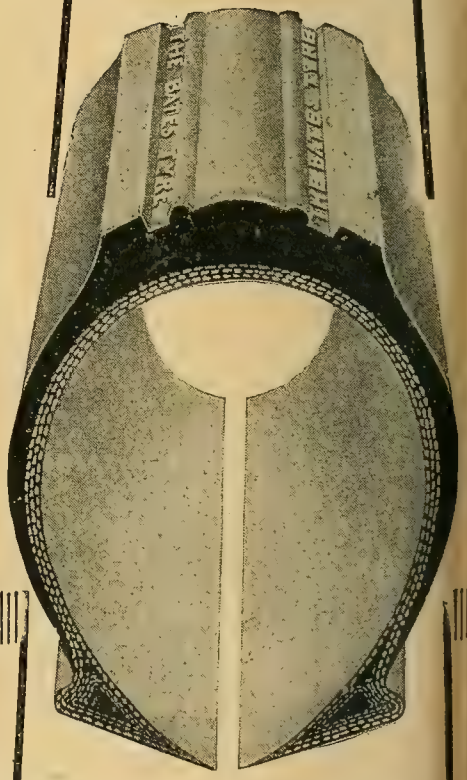
you will find an interesting display of our motor cycle tyres, belts, gaiters, covers, etc., for 1914, amongst which the No. 1 Pattern Tyre should claim your special attention. It has been aptly termed the "Worry-proof Tyre" on account of its puncture and skid-resisting qualities.

You will notice the side ridges which "bite" the road when there is danger of side-slip, but which are protected from unnecessary wear by the thick dome-like centre.

The construction of the "dome," together with the pure Para rubber used, give the tyre a peculiar resilience which acts in a similar way to a shock absorber, affording a smooth, easy running even at high speed.

In addition to the usual sizes supplied last season, including the 26×2½ to fit 2¼ rims, and the 26×2¾ to fit 650×65 rims, we are introducing 28×2½ and 28×3 tyres to fit Indian Rims and 26×2 Special Heavy for the driving wheel of Douglas machines. We shall also show the studded pattern.

As the majority of motor cycle manufacturers are prepared to fit tyres and belts to suit their patrons, riders should specify "Bates" when ordering their machines, and see that they get them.



Bates Super Rubber TYRES

Full particulars of all our specialities may be obtained at the Stand, or post free from

W. & A. BATES, LTD., St. Mary's Mills, Leicester.

Depots—London, Glasgow, and Newcastle-on-Tyne.

COLONIAL WHOLESALE STOCKISTS.

Smith, Denham, & Co., Henderson's Buildings, Von Brandis Street, Johannesburg, S.A. J. & A. R. McCrae, P.O. Box No. 87, Nairobi, British East Africa. David F. Laing, 9, Weld Road, Kuala Lumpur, F.M.S. Cycle and Motor Supplies, Ltd., Farish Street, Wellington, N.Z. W. Cornell & Son, 95, Grenfell Street, Adelaide, South Australia. A. G. Healing & Co., Ltd., 354-356, Post Office Place West, Melbourne, Australia. Bennett and Barkell, Ltd., 124-132, Castlereagh Street, Sydney, Australia. Canada Cycle and Motor Agency (Queensland), Ltd., corner of Creek and Adelaide Streets, Brisbane, Australia.

In answering this advertisement it is desirable to mention "The Motor Cycle."

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND FIFTY-SEVENTH CONSECUTIVE ISSUE.

Subscription Rates: Home 6s. 6d.; Canada, 8s. 8d.; Foreign, 17s. 4d. per annum.

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ADDRESS: 20, TUDOR STREET, LONDON, E.C.

The Trend of Design.

THE Olympia Show is interesting to the student of design in a wider sense than that it merely displays the latest and best in self-propelled machines, for it also shows in what way the wind blows and in what way it has ceased to blow. Those readers who file for reference our annual Buyers' Guide Number may well spend an interesting and instructive evening comparing the specifications of this year's products of the chief factories with their previous efforts, and if they do so they will find one or two very striking facts.

First and foremost is the general gravitation towards three speeds, and for this we have largely to thank the great popularity of the sidecar, and also, in a great measure, the A.C.U. and the Edinburgh and District M.C.C. for selecting such severe courses for their respective Six Days Trials. Incidentally, the counter-shaft gear and two step drive record a marked increase. Another point in which real advance has been made is in the efficiency of transmission. Chains are now almost universally guarded, while advance in ball bearing and bevel cutting manufacture has improved the efficiency of the shaft drive enormously. Belts have had a wealth of attention paid to their construction, with the result that even large capacity engines find the large section modern belt a suitable method of transmitting their power to the wheel. A year or so ago we should have lent our ears with some degree of sympathy to rumours that chains were ousting belts, but now we feel very safe in asserting that the belt is so firmly established, owing to its general excellence, that it will hold its sway for some considerable time to come.

Perhaps the feature of the Show is the introduction of electric lighting and electric starting in the motor cycle world. Everyone will watch the behaviour of this innovation with interest. While welcoming any novelty that may benefit riders, we prefer to withhold criticism of this fitment till we have seen its performances in open competitions, and the coming London-Exeter-London M.C.C. Christmas run will prove an admirable test for such installations. With regard to engines, no one size holds a preponderating position, though the 500 c.c., both in single and twin-cylinder form, still asserts itself valiantly, but some of the makers, hitherto most staunch adherents of this type of engine in its single-cylinder guise, have now increased the capacity of their motors.

A significant advance has been made in two-stroke engines, especially of the small single cylinder type, and we believe this pattern will continue to enjoy a growing popularity, unless, indeed, the rotary valve comes with a rush, in which case we believe the two-stroke will be hard put to it to maintain its position. Unfortunately, inherent difficulties have still to be overcome in making satisfactory air-cooled two-stroke engines of 500 c.c. or over, but in the lower powers they are admirable.

Perhaps the most striking feature of the pastime at the present time is the wonderful popularity of the sidecar. Nearly every motor cyclist, whose means and machine permit of it, sooner or later takes to the sidecar. The attachments themselves may now be purchased equal, if not superior to, small cars in comfort and excellence of finish Far from being a pastime of the young and athletic, as is often stated in the lay press, change-speed gears, comfortable sidecars, spring forks, frames, and large saddles have made motor cycles pleasant means of getting about even to those long past their first flush of youth.

For 1914 many makers are seriously tackling the question of cleanliness, and when the day arrives when motor cycles are as efficiently mudguarded as are cars, about the last objection to our favourite mounts as all weather vehicles will have vanished. Cycle cars, we are happy to record, have been immeasurably improved in design in the last twelve months, and for the first time the A.C.U. definition has been rigidly enforced, which has resulted in a number of light cars being debarred from the exhibition.

We are glad to see the progress accessory makers have made, for a wealth of attention has been devoted to making machines more convenient and comfortable for their users.

TIME TO LIGHT LAMPS.

Nov.	27	4.56 p.m.
,,	29	4.54 ,,
Dec.	1	4.53 ,,
,,	3	4.51 ,,

The Silence of Motor Cycles.

To show how successfully the Rudge Co. have tackled the problem of silence on their 1914 models, which are now the type being delivered to the public, the firm inform us that they have received a notice from the Coventry police authorities requesting that employees use efficient horns when out testing; so efficient are the new Rudge silencers.

The Motor Cycle in Canada.

A Canadian correspondent writes from Thackery (Sask.) that there are already a few motor cycles used on the prairie, chiefly Indians. The roads are being rapidly improved, and the "trails" mostly make a fairly good road for motor cycling. The country is indeed a difficult one where motor cycling cannot be employed to advantage in some form.

Critical Articles on the Show.

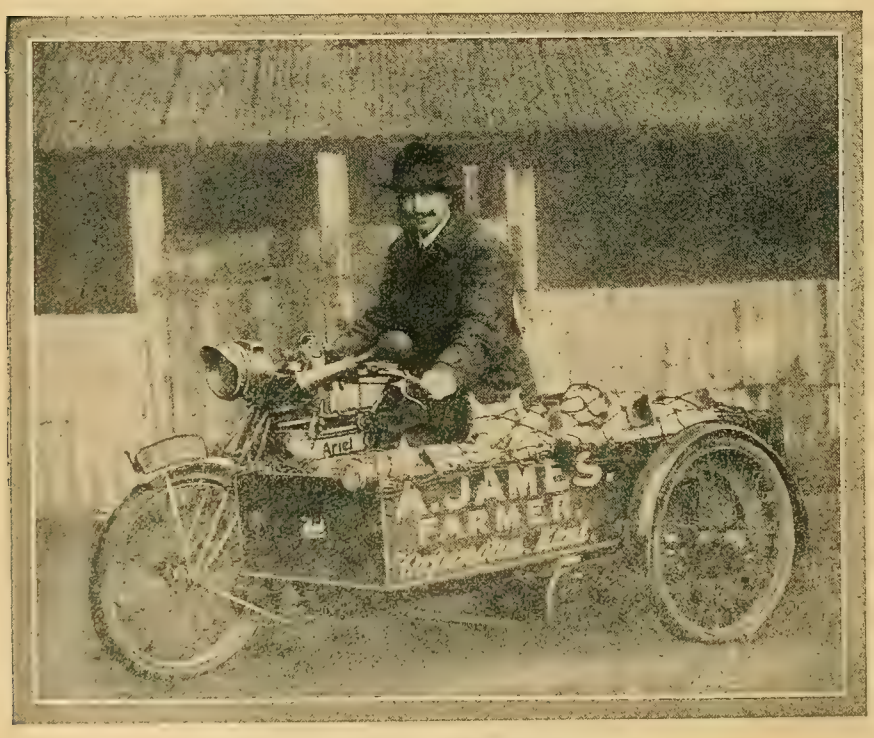
In succeeding issues of this journal, critical articles on the Show exhibits by well-known experts will be published.

A.C.U. Membership.

Two hundred and sixty-five touring, fourteen country, and six town members, making a total of two hundred and eighty-five, were elected at the conclusion of the last month.

A.A. and M.U. Notes.

INVISIBLE SPEED LIMIT NOTICES.—The A.A. and M.U. has already been instrumental in obtaining the removal of speed limit signs so placed that motorists could not see them from the roadway. Last month a member informed the Association that the speed limit notice at Letchworth, on the Hitchin side, was invisible to motorists owing to its position behind a tree. The county surveyor, after correspondence with the Association, has now arranged to erect a warning board about seventy yards west of the existing board.



HOW FIVE LITTLE PIGS WENT TO MARKET!

The difficulty of conveying farm stock from one place to another has apparently been solved by an Orpington farmer, who has fixed a suitable sidecar body to his 3½ h.p. Ariel, and is seen with a complement of pigs

SPECIAL FEATURES:

OLYMPIA SHOW REPORT.
Profusely Illustrated.

A TRIP IN THE NILGHERIS.

Activity at Brooklands.

Over a score of records were broken at Brooklands last week, mostly long distance figures up to ten hours.

"The Motor Cycle" Show Report.

The descriptions of the various Show machines in our pages this week were dictated to shorthand writers by our staff at Olympia at the press view during the week-end.

It can thus be taken that *The Motor Cycle* Report, written on the spot, is as reliable as it is possible to get it.

Excessive Wear of Highways.

At the annual meeting of Messrs. Humber, Ltd., last week, the Chairman (Mr. Edward Powell) protested against the manner in which the roads were being used by heavy traction engines and the manner in which excessive wear of the highway is being caused by the great and increasing amount of heavy vehicular traffic.

Gometz-le-Chatel Hill-climb.

The third annual "Course de Côte de Gometz-le-Châtel" will take place under the auspices of the Autocycle Club de France on December 7th. The competition is open to motor cycles, tricars, sidecars, and cycle cars. On account of the Paris Salon having preceded the event, this year's climb will cau increased interest, as nearly all the competitors should be riding new models

Tickets for Olympia Motor Cycle Show.

The A.C.U., as in previous years, has been able to arrange for the supply of tickets of admission to the Cycle and Motor Cycle Show this week at the reduced price of 6d. each, to affiliated club members.

Special trains in connection with the Show are being run from practically all quarters.

A Correction.

Owing to the similarity of names there was some confusion in two announcements in our Club News pages last week. The Public Schools M.C.C. (London) will hold speed trials at Brooklands at 2 p.m. on the 29th inst., while the Public Schools M.C. (Birmingham) have a meeting at Olympia Stand, No. 133, at 1-30 p.m. on the same day. The present address of the hon. secretary of the latter club is 21, St. Nicholas Street, Coventry.

Olympia on Monday.

The Show opened in promising style on Monday, and towards evening the gangways were fairly well packed. The building is more brilliantly lighted this year. We constantly heard of foreign agents being present at the Show inspecting the exhibits. Judging by Monday's attendance there is no question of the success of the Show.

A.C.U. Notes.

WATER CHARGES.—The Auto Cycle Union has received communications from several of its members who own cycle cars, to the effect that they are being charged the same water rate for water used in the washing of their vehicles, as is now in force in the case of motor cars. It is obviously unfair that the owner of a cycle car should be expected to contribute in the same proportion as a car owner, when on the other hand, for water used for the cleansing of a motor cycle and sidecar no charge is made. The Auto Cycle Union is placing the matter before the Metropolitan Water Board.

RED REAR LIGHTS ON MOTOR CYCLES.—The Auto Cycle Union has been in communication with the County and County Borough Chief Constables of the United Kingdom on the question of red rear lights on motor cycles. While we are awaiting the decision of the Local Government Board it is interesting to note that no action will be taken, until the Local Government Board has considered this matter, by the Chief Constables of the following counties, in addition to those published last week: Cornwall, Lancs, Leicester, Kent, Oxford, Cumberland, Westmorland, Brecknock, East Riding of Yorkshire, Lincoln, Isle of Ely, Derby, Rutland, West Suffolk, and Merionethshire. A similar reply has also been received from the Commissioner of Police of the Metropolis.

The Chief Constables of the following counties have also promised to give the A.C.U. communication their careful consideration: Cambridge, Glamorgan, Pembroke, East Sussex, Hants, Hertford, Berks, North Riding of Yorkshire, Norfolk, West Sussex, Gloucester, Carnarvon, Worcester, Cheshire, Dorset, and Wilts.

Power plant of the 6 h.p. Ariel showing gear striking lever, kick starter, counter-shaft gear, foot boards, and combined drive.

FUTURE EVENTS.

Dec. 13.—Birmingham M.C.C. Open Cycle Car One Day Trial.
" 13.—M.C.C. Annual Dinner.
" 26-27.—MOTOR CYCLING CLUB Winter Run from London to Exeter and Back.
" 26-27.—Bristol M.C.C. Open 24 hour Trial to Land's End and Back.
" 27.—Birmingham M.C.C. Reliability Trial to York.

1914.

Jan. 14.—A.C.U. Annual Dinner.
" 23.—Liverpool A.C.C. Trial.
Mar. 7.—A.C.C. Spring One Day Trial.

Light Cars not at the Show.

Several light cars expected at Olympia this week are debarred from the exhibition as their chassis weight exceeded the A.C.U. limit of 6 cwt. The Stellite is one, the Douglas another (the latter was only 26 lbs. too heavy), and the Day-Leeds. It is worthy of note that the definition is now being enforced.

M.C.C. Winter Run.

The following additional entries have been received:

A. J. Stevens (6 A.J.S. sc.)
H. Stevens (6 A.J.S. sc.)
J. Stevens (6 A.J.S. sc.)
T. B. Haddock (2¾ A.J.S.)
E. V. Walters (3½ P. and M.)
W. H. Wells (7 Indian sc.)
C. Q. Roberts (3½ Blackburne sc.)
G. Nott (6 Clyno sc.)
W. P. Brandon (7 Indian sc.)
W. B. Willoughby (3½ Rudge)
D. H. Noble (3½ Rover sc.)
G. Featherstonhaugh (3½ Rover sc.)
C. T. Newsome (3½ Rover sc.)
G. M. Watkins (6 Zenith sc.)
J. D. Drysdale (6 Hazlewood sc.)

Over thirty applications are to hand from persons who desire to be elected at the next committee meeting, with a view to competing in this event. Entries close on December 8th, and under no circumstances will any entry be accepted after that date.

Motor Cycling in Ceylon.

The popularity of the motor cycle in the East is growing by leaps and bounds, and nowhere more rapidly than in Ceylon, where the fine roads and the beautiful scenery make the motor cycle a most delightful mode of locomotion. An illustration of the way in which the motor cycle is coming to the front is the announcement that a reliability trial for motor cycles, with and without sidecars, and cycle cars, is to be held in the island on the 27th of December next. The route is a circular one from Colombo to Kegalle and back, a distance of 114 miles, and including a stiff hill-climb—the climb, however, being optional. The road has an excellent surface most of the way, but here and there are some bad patches which will test the tyres, if nothing else, and at the end farthest from Colombo there is a fine stretch of winding, undulating road buried in trees, which ought to give the competitors a chance to show what they and their machines are made of. The run is being organised by the Ceylon Motor Cycle Club, but is open to all comers, the only qualification being residence in the island.

A Record Issue.

This issue of *The Motor Cycle* creates a new record in connection with motor cycle topics, forming the biggest number ever offered to the public. Among the wealth of reading matter, mainly in connection with the Show, there are over 400 illustrations. Moreover, the circulation of this issue actually exceeds 90,000 copies.

A Meagre Address.

To show how widely *The Motor Cycle* is known, we have just received a letter from an Italian reader in Milan, the address of which read:

"*The Motor Cycle*,
Thursday."

The communication was not delayed as the Italian postal authorities, knowing this journal, pencilled "Inghilterra" on the envelope, and, after that, matters were simple, and the letter came safely into our hands.

Birmingham M.C.C. Cycle Car Trial.

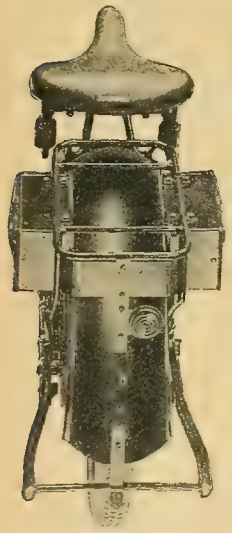
The Birmingham M.C.C. is holding an open reliability trial on Saturday, December 13th, over a secret course of 120 miles, for cycle cars and light cars. Competing machines must come within the A.C.U. cycle car definition and must carry two or more persons. The committee state that the route selected will be a simple one, and that no freak hills or abnormal surfaces will be encountered, but the actual route selected will be kept a secret till the start. In order to give the public as much opportunity as possible to observe the machines during the trial, the event will be decided on a circular course of forty miles, which will be covered three times, and which will all lie within fifteen miles of Birmingham. Competitors will be timed by their own watches, which will be placed in sealed cases provided by the Club, and with the exception of the lunch interval of 1½ hours, the trial will be a non-stop one throughout.

Bombardier Wells, the heavyweight champion of Great Britain, is in training for the coming match with Carpentier, and among his recreations is included motor cycling. He is seen mounted on a 2¾ h.p. Douglas, which he uses daily.

A.J.S., No. 40.

6 h.p. twin MODEL: 74 × 81 mm.; m.o.v.; Amac carburetter; enclosed chains; three-speed counter-shaft.

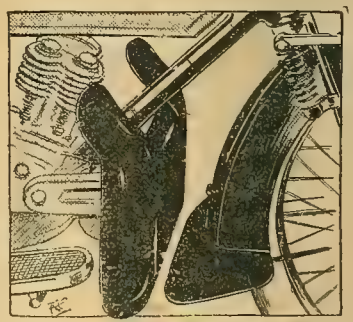
A. J. STEVENS AND CO., LTD., Retreat Street, Wolverhampton.—The centre of attraction on the A.J.S. stand is a 6 h.p. three-speed machine fitted with a fine coachbuilt sidecar specially designed for use with the A.J.S. machines. The sidecar is finished black with fine gold lines and upholstered in French grey, and is fitted with hood and screen, luggage carrier, and an exceedingly neat khaki waterproof apron. The most striking alteration in design for this year in the engine is the abolition of detachable cylinder heads, the cylinder and head now being cast in one, but the cylinder is still held down by overhead yokes and rods anchored to the crank case. Tapered valve springs are employed, and an ingenious system of lubrication is adopted by means of which oil is fed directly through the hollow main shaft to the big ends. This was described in a recent issue. The three-speed gear box, situated behind the engine, is a substantial piece of work, and is fitted with a kick starter carried in an extension of the box casting. The chain casing is extremely well carried out and it is noticeable that, in addition to the transmission protection and efficient mudguarding, Messrs. A. J. Stevens and Co. have made a great step towards providing a weatherproof machine, nickel plating being reduced to an absolute minimum; the rims, spokes, hubs, and fork springs are of unrelieved black, the effect of which is very smart. Well-designed black sheet metal mudshields are fitted in front of the rubber-covered footboards. They are so shaped as to allow a sufficient current of air to pass for cooling purposes.



Rear view of the A.J.S. sidecar machine, showing reflex light, wide mudguard, and metal-lined pannier tool-bags.

2¾ h.p. MODEL: 70×91 mm; side by side valves; Amac carburetter; enclosed chain; two or three-speed counter-shaft.

This model, as regards the standard touring type, remains practically unaltered from last year, except that, like the 6 h.p. twin, detachable heads are no longer fitted to the cylinder. An innovation is manifest in the 2¾ h.p. T.T. model. This machine has been slightly lightened and footrests are fitted instead of footboards, while the back chain is only partly enclosed, but at the same time provision is made for preventing wet or grit from the back wheel falling on to the upper or back parts of the chain. The engine is fitted with a lightened piston and connecting rod, and a higher compression is employed than on the standard model. Three sets of sprockets are supplied, so that the machine can be used either for speed work, touring, or hill-climbing, and Mr. Stevens informs us that speeds up to 64 miles an hour



The mud shield protecting the rider's feet and magneto on the new A.J.S.

RÉSUMÉ OF THE SHOW.

THE Fourth International Cycle, Motor Cycle, and Cycle Car Exhibition was opened to the public on Monday last, and again we are happy to be able to record a distinct advance in the design, workmanship, and utility of the machines displayed, which is as it should be. To enumerate in a nutshell the features which stand out prominently as denoting the most marked advance we direct attention to the

(1.) Increase in two-stroke engines.
(2.) Standardisation of weather-proof transmissions.
(3.) The luxury of modern sidecar outfits.
(4.) The improvements in lubrication systems.
(5.) Growing popularity of counter-shaft gears.
(6.) The advance in lightweight motor cycles.
(7.) Accessibility.

The above, of course, does not by any means exhaust the improvements to be met with, for in a lesser degree one cannot help but be impressed with the strides the outside flywheel has made, likewise the unit system for engine and gear box, and last, but by no means least, the marked improvement in cycle car design. On cycle cars belt transmission has in many cases been replaced by a chain or shaft; accessibility has been more carefully studied, the brakes improved, both in their power and method of adjustment, but still one cannot close one's eyes to the fact that several are still not out of the experimental stage.

We should like to make it clear that at the present Olympia Show, for the first time, cycle cars are not overshadowed by light cars, for at last the authorities have ensured that the 6 cwt. chassis weight has been observed by examination and signed declarations.

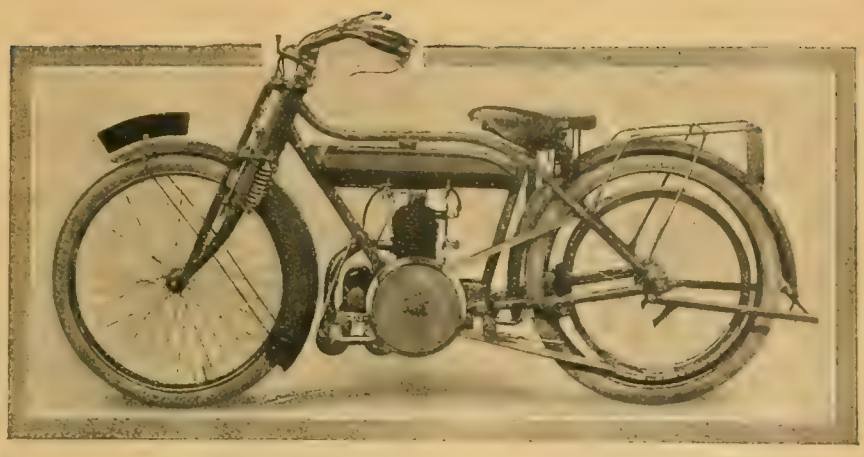
The Olympia Show.—

have been obtained by this small engine. A noticeable feature is the long exhaust pipe with the silencer fitted at the extreme end.

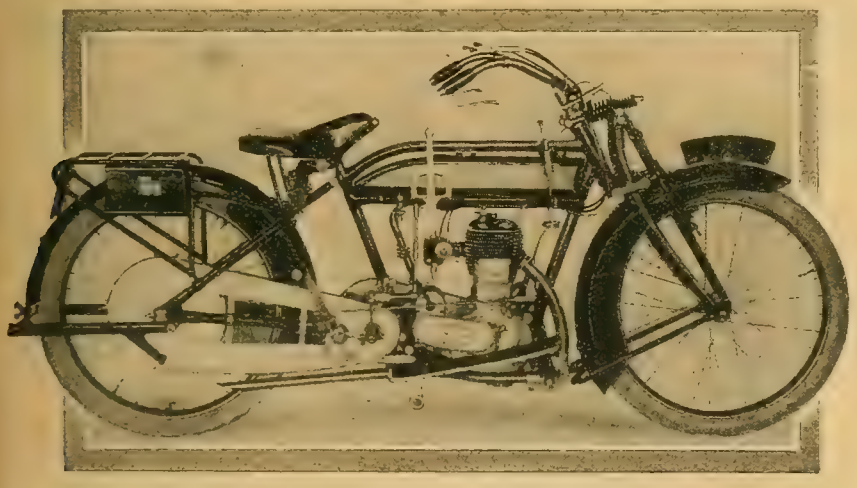
ALLDAYS, No. 77.

6 8 h.p. MODEL: 85 × 88 mm.; side by side valves; Senspray carburetter; chain: three-speed counter-shaft gear.

ALLDAYS AND ONIONS, LTD., Matchless Works, Birmingham.—The big twin Alldays is a particularly interesting machine, for the cylinders are slightly staggered and the connecting rods work on separate cranks, which are set at such an angle as to obtain even firing. All the valves are enclosed in neat aluminium covers, and the gear driven magneto, which lies behind the engine, has now been rendered more accessible by the fact that the timing gear cover is divided and the rear portion can be removed without disturbing anything else. The shafting and operation of the three-speed counter-shaft gear box has been strengthened and simplified, and longitudinal adjustment is provided to take up the slack of the driving chains. The front chain is entirely enclosed and an excellent partial covering is designed to cover the rear chain, the cover being divided at the back to provide for quick detachment of the rear wheels. A kick-starter is fitted, and the striking gear for the gear box has been greatly improved; the lever, which is mounted on the off side of the tank, works in a neatly designed gate quadrant. The Best and Lloyd semi-automatic drip feed is employed as a means of lubrication, and glass topped filler caps are used for both petrol and oil. Mudguarding has been excellently carried out. Wide valances are fitted for each wheel. Rubber covered footboards are sprung at each end, and the specification is completed by two stands, Saxon forks, and metal covered pannier tool bags, a third tool bag being fitted behind the saddle tube. The machine is finished in two shades of green with a gold line, and is attached to a prettily designed sidecar painted to match.



Flywheel side of the entirely new two-stroke Alldays Lightweight.



The 1914 model 3½ h.p. three-speed counter-shaft geared chain-driven Alldays.

3½ h.p. MODEL: 85 × 88 mm.; side by side valves; Senspray carburetter; chain; three-speed counter-shaft gear.

The 3½ h.p. Alldays follows the lines of the larger model already described in practically every detail except for the fact that it has a single-cylinder engine and Brampton Bi-flex forks. The 3½ h.p. is also shown fitted with a belt driving a Sturmey-Archer three-speed gear; a model with the Villiers clutch; and a single gear T.T. model. In the case of the single-cylinder models, the magneto is placed behind the engine and driven by a short chain. The belt driven type has a neat belt protector surrounding the driving pulley.

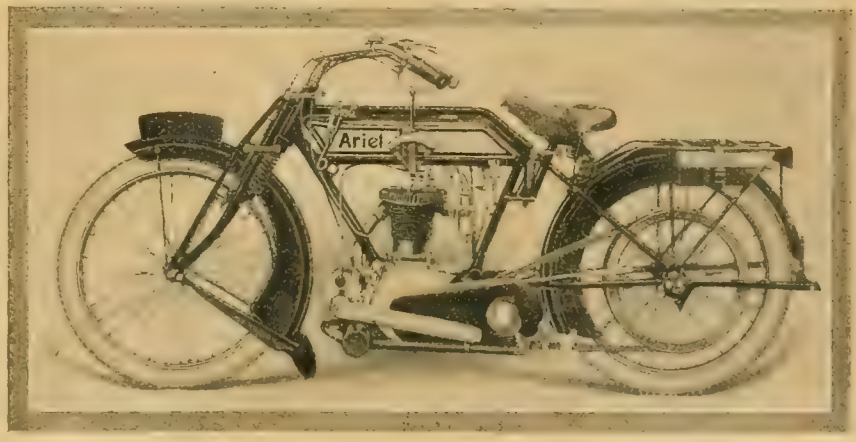
3 h.p. MODEL: Two-stroke; Amac carburetter; belt.

Quite a novelty of the Alldays firm is the little two-stroke exhibit on their stand. The engine is of the usual three-port type, employing crank case compression. An outside flywheel is fitted on the left-hand side, and a double silencer is employed. The engine is lubricated by mixing a small quantity of oil with the petrol. The frame is dropped both at the head and at the rear, and gives a very low riding position.

ARIEL, No. 87.

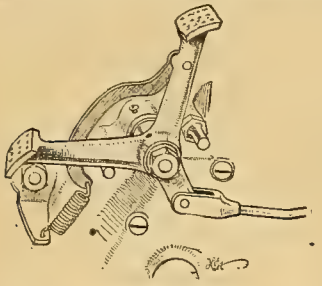
3½ h.p. MODEL: 86.4 × 85 mm.; side by side valves; Brown and Barlow carburetter; belt or belt and chain transmission; Ariel counter-shaft three-speed gear.

COMPONENTS LTD. (ARIEL DEPT.), Bournbrook, Birmingham.—An example of each Ariel model is displayed, and in



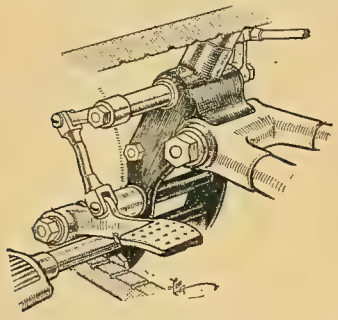
Transmission side of the 3½ h.p. three-speed counter-shaft geared Ariel, with kick starter, and belt and chain drive.

The Olympia Show.—view of Ariel Six Day Trials successes this year, they all deserve particularly close study. The 3½ h.p. designs are well enough known, but a new model is the 5-6 h.p. twin with enclosed chain to a three-speed gear box, thence by belt running over large pulleys to the back wheel. This gear box, which is a feature of Ariel design, is also being fitted on the single-cylinder 3½ h.p. Combined with it is a plate clutch with cork inset and tooth quadrant foot-starter. In the case of the gear box fitted on the



Decompressor control on the 3½ h.p. Ariel.

twin the ratios are 4¼, 7¼, and 13½ to 1. For the single-cylinder 5¼, 8¼, and 16 to 1. In both cases the shafts are carried on ball bearings, and the fine workmanship of the mechanism can be viewed

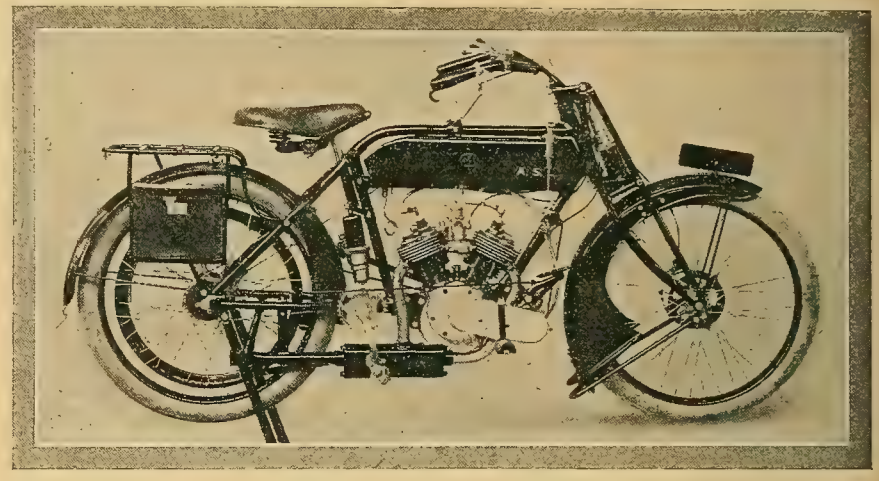


Foot brake mechanism on the T.T. Ariel.

by removing an inspection cover at the top. The ratios, it will be seen, allow a sufficient reserve for emergencies or freak hills, while, needless to say, the workmanship is up to any demands.

5-6 h.p. Model: 67×95 mm.; side by side mechanical valves; B. and B. carburetter; chain and belt transmission; three-speed counter-shaft gear.

The 5-6 h.p. is also adapted to neat sidecar arrangement. The system of mudguarding is well carried out, while a



Valve side of the twin-cylinder spring frame A.S.L.

characteristic of Ariel design should be mentioned in the comfortable pattern spring seat pillar.

On Stand No. 282 (Gallery) the firm is showing several Ariel motor bicycles which are identical with those shown on the Ariel stand, No. 87, in the main hall.

A.S.L., No. 55.

3½ h.p. Model: 85 × 88 mm.; side by side valves; B. and B. carburetter; belt transmission; Sturmey-Archer hub gear.

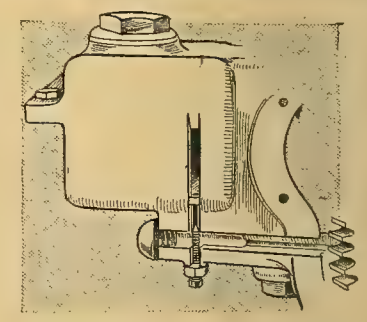
A.S.L. Manufacturing Co., Ltd., Stafford.—These machines have been much improved since last year. The air spring forks remain much as heretofore; in the rear the saddle pillar only is sprung and not the frame, and an ordinary motor cycle saddle is fitted instead of the padded seat used previously. One advantage of the air spring principle is that the spring may be adjusted to the weight of the rider. Lubrication is by Best and Lloyd semi-automatic drip feed.

Other models are fitted with a 3½ Precision twin engine and the 5-6 h.p. Fafnir; the general arrangements being as already described. Two machines are shown attached to sidecars.

AUTO-WHEEL, No. 53.

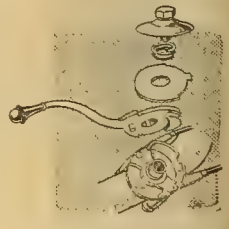
1 h.p. Model: 52½×52½ mm.; automatic inlet valves; special make carburetter; chain transmission.

The International Auto-Wheel Co., Russell Road, London.—The Auto-wheel is a little attachment by which an ordinary pedal bicycle can be converted

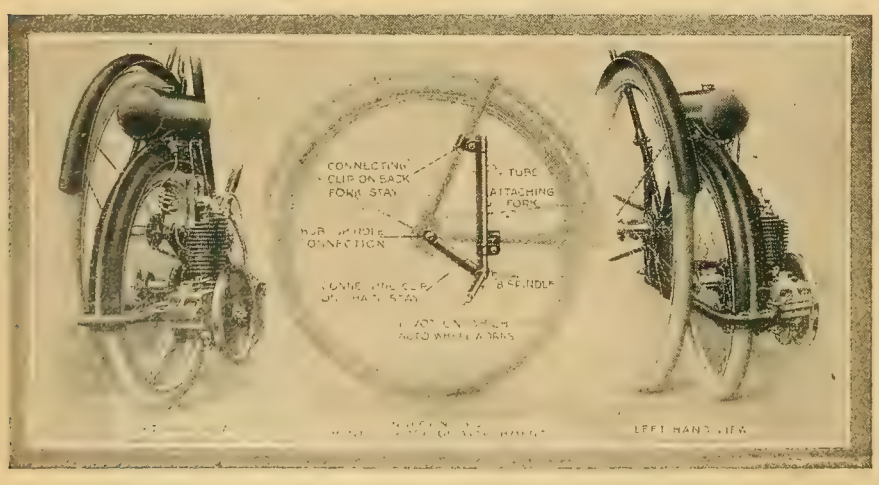


Part section of the oil channel into the base chamber of the Auto-wheel engine.

into a lightweight motor cycle. It is attached to the rear stays by a special bracket. It is interesting to note that Messrs. the B.S.A. Co. and Messrs. Lea and Francis turn out bicycles with lugs brazed to the frame to take this small power unit. A single lever controls the whole mechanism. When pushed to the right it keeps the exhaust open. The lever is then brought to the left, closing the exhaust and opening the throttle. The petrol tank is placed above the mudguard, and the oil is



The single lever handlebar control to the Auto-wheel



Details of the Auto-wheel, showing method of attachment and general design.

Indian

WHEN YOU BUY A 1914 INDIAN WE *GIVE* YOU SERVICE

The word "service" is so loosely applied these days that we cannot emphasise too strongly that INDIAN service is real, and represented by efficient men, adequate plant, commodious premises, ample capital, and backed by a genuine regard for your welfare.

Our sincerity can be gauged from the fact that our stock of spare parts alone is valued at £10,000. Our new London Headquarters is worthy of the largest exclusive motor cycle factory in the world.

Come and see the silent red INDIAN—now electrified—at Olympia, Stand No. 123.

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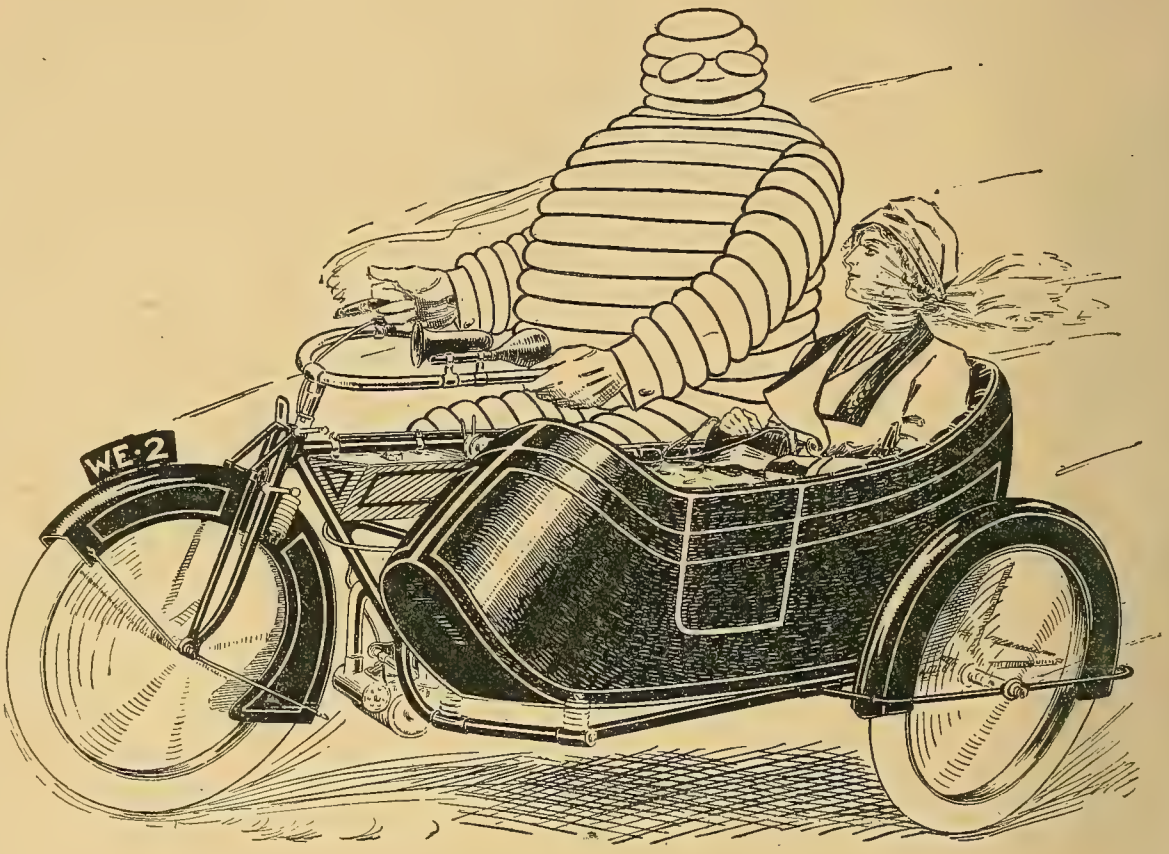
Stand 123 Olympia.

STAND No. 48 : OLYMPIA.

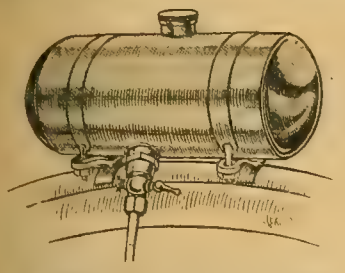


MICHELIN

In answering this advertisement it is desirable to mention "The Motor Cycle."

The Olympia Show.—

carried in a compartment adjoining the crank case, to which it is fed by needle control. The weight of the entire attachment is 40 lbs.



Improved petrol tank secured by means of straps above the mudguard of the Auto-wheel. Observe the petrol sump.

BAT, No. 89.

4½ h.p. MODEL : 70 × 85 mm. ; side by side valves ; Amac carburetter ; chain and belt ; two-speed counter-shaft gear.

THE BAT MOTOR MANUFACTURING CO., Kingswood Road, Penge, S.E.—The 4½ h.p. Bat is a new model designed primarily as a solo mount, although quite capable of being used for sidecar work. In this machine the frame is not sprung. Transmission is by chain to a two-speed counter-shaft gear box, thence by belt to the back wheel

6-7 h.p. MODEL : 76 × 85 mm. ; side by side mechanical valves ; Amac carburetter ; chain or belt and chain ; three-speed counter-shaft or Armstrong hub gear.

In this size the Bat machines are made either with or without spring frames, the springless machines constituting new models. The chief feature about these is the three-speed gear box, in which the drive on the third speed is not transmitted through gear wheels. The second speed is through a sliding gear, while the first speed gears are always in mesh. On the two patterns in which chain-*cum*-belt drive is employed, the former is neatly enclosed in a casing, quickly detachable merely by undoing a thumb screw, while the footboards can be made to swing clear also by undoing a single screw. The clutch, too, has been modified, and its diameter is now much increased. The wheels, which have been designed with the view of being easily withdrawable, are also worth studying.

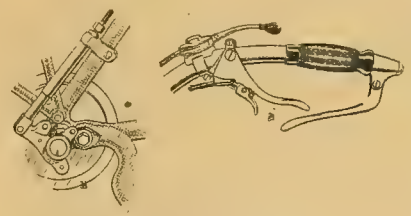
7-8 h.p. MODEL : 85 × 85 mm. ; side by side valves ; Amac carburetter ; chain and belt ; three-speed counter-shaft gear.

These, in their varieties and main characteristics, are identical with the 5-6 h.p. machines, and are of specially fine design suitable for sidecar work. Some examples of sidecars are shown attached both to the 6 h.p. and 7-8 h.p. types, and these are of Gloria or Mills-Fulford make

BLACKBURNE, No. 41.

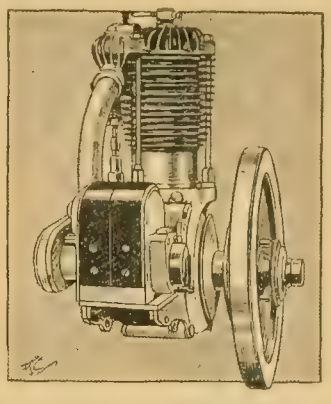
3½ h.p. MODEL : 85 × 88 mm. ; side by side valves B. and B. carburetter ; belt ; Sturmey-Archer.

BURNEY AND BLACKBURNE, Tongham, Surrey.—Two complete models of the Blackburne machine are shown, and an engine ; also a selection of engine parts are on view. The feature of the Blackburne engine is the large outside flywheel fitted, which gives extraordinarily smooth running, and, in fact, one of the main features of this engine is its ability to fire quite evenly at very low speeds. The fitting of the outside flywheel enables a solid crankshaft to be used, and this runs in very large phosphor bronze bearings, and undoubtedly these bearings, in conjunction with the outside flywheel, are largely responsible for the sweet running of this motor. The Blackburne is a comparatively newcomer among motor cycles, but on its first appearances in public com-



Handle-bar control mechanism of the clutch on the Blackburne machines.

petitions it gained a gold medal in the A.C.U. Six Days Trials and the London-Edinburgh M.C.C. Trial. The equipment in most details follows standard practice, but a recent improvement carried out on these machines is the fitting of an easily adjustable pulley between the flywheel and the engine, enabling the gear ratio to be altered at will. The method of operation of this adjustable pulley is a patent of the firm. The Blackburne machines are tastefully finished in either grey or black to option, and one of each colour is shown on the stand, the black one being fitted with a Bramble sidecar.



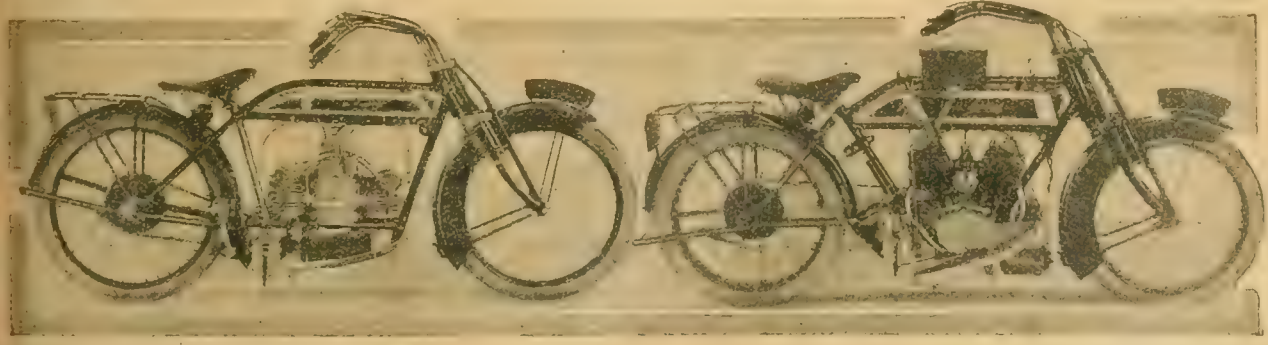
The 3½ h.p. single-cylinder Blackburne power unit, showing flywheel and method of fixing the magneto.

Messrs. Burney and Blackburne make a point of turning machines out completely equipped, and the price includes Lucas lamp and generator, Lucas horn, Terry's spring links for the Druid forks, and a spare valve is sent out with every machine. This is a point which buyers will doubtless appreciate. Kempshall 2⅜in. tyres are also fitted. The Blackburne may also be obtained as a T.T. model, and an excellent point to be noticed is that the back wheel, fitted with a three-speed hub, is interchangeable with a plain wheel used on the T.T. models, the forks on both being the same. Thus any Blackburne machine may be supplied with a three-speed hub and a fixed wheel. Either of these may be utilised by substituting one for the other, a matter of only a short time. A minor but exceedingly neat point about this machine is the tapered handle-bar ; at the crown head the diameter is one inch, while the bars are gracefully tapered to ⅞in. at the grips.

BRADBURY, No. 57.

3½ h.p. MODEL : 68 × 68.7 mm. ; side by side valves ; B. and B. carburetter ; chains or chain and belt ; three-speed counter-shaft gear.

BRADBURY AND CO., LTD., Wellington Works, Oldham.—The 3½ h.p. Bradbury with horizontally opposed cylinders is a most interesting machine The magneto, as is usual with engines of this type, is



Two twin-cylinder Bradburys for 1914. Left—The 3½ h.p. horizontally opposed air-cooled three-speed counter-shaft geared model. Right—Valve side of the 6 h.p. model. A three-speed counter-shaft gear and chain drive are employed.

The Olympia Show.—

carried centrally above the crank case. The transmission is by chain to a counter-shaft which contains a three-speed gear, giving ratios of 4, 7, and 12 to 1 respectively, and a cork insert clutch. The drive to the rear wheel can be either belt or chain. The kick-starter operates through the counter-shaft. An internally expanding brake is fitted in the back wheel. Lubrication is Best and Lloyd semi-automatic. The mudguard is hinged in the rear of the carrier so as to facilitate tyre repairs.

3½ h.p. MODEL: 89×89 mm.; side by side valves; B. and B. carburetter; belt; Bradbury two-speed gear on engine-shaft.

This is the large single-cylinder Bradbury model which has been so successful for sidecar work, to which is fitted a kick-starter working on the counter-shaft, and operating by chain direct to the engine. The aluminium footboards are fixed at a very convenient angle. This machine is also shown attached to a tradesman's sidecar, which is fitted with a movable basket of very solid construction. In this case the gear is fitted in the counter-shaft, and the transmission is chain and belt. The clutches of all Bradbury machines are now operated from the handle-bar.

6 h.p. MODEL: 74.5×86 mm.; B. and B. carburetter; chain drive; three-speed counter-shaft gear.

This machine has plated cylinders with detachable heads and light cast steel pistons. The three-speed gear is operated through a gate, and both chains run in aluminium covers, which are unlikely to rattle. The tool bag is placed on the tank in a convenient position. The machine is provided with sidecar lamps, and has a dark green coachbuilt sidecar attached, fitted to a dropped chassis. The tyres are Dunlop, 650 × 65 mm.

BRAMBLE, No. 132.

THE BRAMBLE MFG. CO., Coventry.—A display of sidecars is made on this stand, several models being shown. All are of the coachbuilt type, possessing neat and appropriate lines, and in all cases they are provided with hinged side doors. In the principal model the sidecar axle tube is enclosed within the body panelling, and a notable feature is the complete mudguarding of the wheel. Owing to this method of construction the passenger's weight is carried very low in order to ensure stability on corners. In the front attachment an additional form of suspension is employed, embodying two coil springs working on rods. Some of the models are equipped with folding front screens.

BROWN, No. 160.

2½ h.p. MODEL: 70×76 mm.; side by side valves; B. and B. carburetter; belt.

BROWN BROS., LTD., Great Eastern Street, E.C.—This is a handy lightweight machine to which a two-speed gear can be fitted to order. The mudguarding is well carried out. Druid forks are fitted, and the machine is well equipped.

3½ h.p. MODEL: 86×86 mm.; side by side valves; B[and B. carburetter; belt; three-speed Sturmey-Archer gear.

This is a well-known 3½ h.p. model which has behaved consistently for many years. It has been gradually brought up to date by improvements in detail. It is well equipped and well mudguarded.

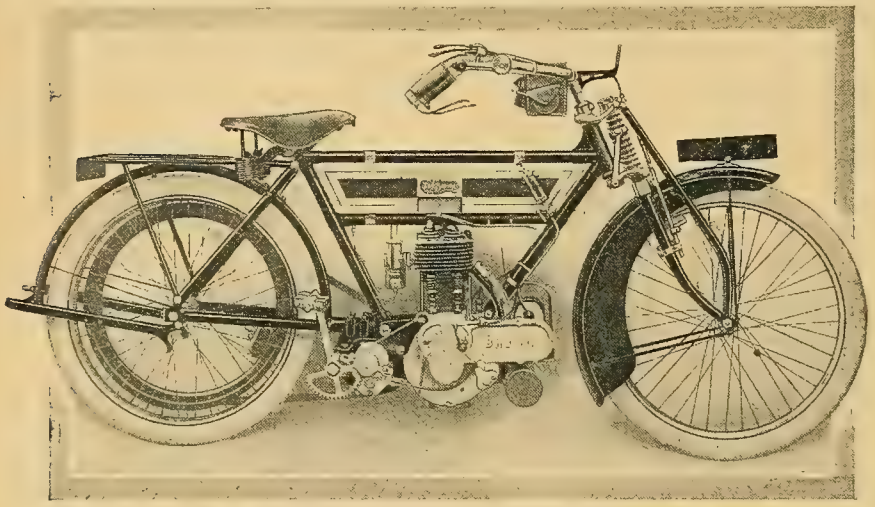
3½-4 h.p. MODEL: 63×89 mm.; side by side valves; B. and B. carburetter; belt; Armstrong three-speed gear.

This is a twin-cylinder of medium horse-power, designed for the tourist who likes a multi-cylinder motor cycle. It is well designed and well equipped, and should be capable of touring in any part of the country.

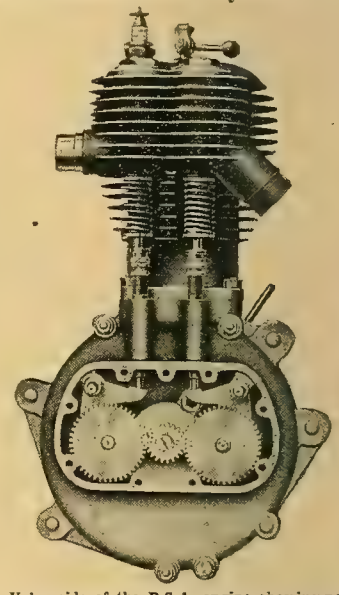
B.S.A., No. 58.

3½ h.p. MODEL: 85×88 mm., side by side valves; B.S.A. carburetter; chain and belt; B.S.A. three-speed counter-shaft gear.

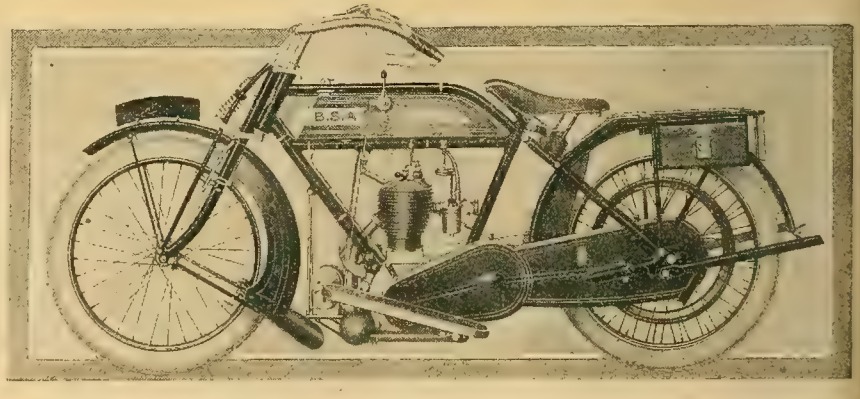
THE BIRMINGHAM SMALL ARMS CO., LTD., Small Heath, Birmingham.—The B.S.A. machines were fully dealt with in our last issue, therefore all that is necessary now is to refer briefly to the exhibits. The 3½ h.p. machine is but little altered, except for the fitting of the new counter-shaft gear box. The engine is provided with adjustable tappets; Best and Lloyd semi-automatic lubrication and Ruthardt magneto are standard fittings. The three-speed gear box is shown with



Valve side of the 3½ h.p. single-cylinder Brown fitted with the latest pattern Bowden counter-shaft gear and clutch. Observe the original design of spring forks.

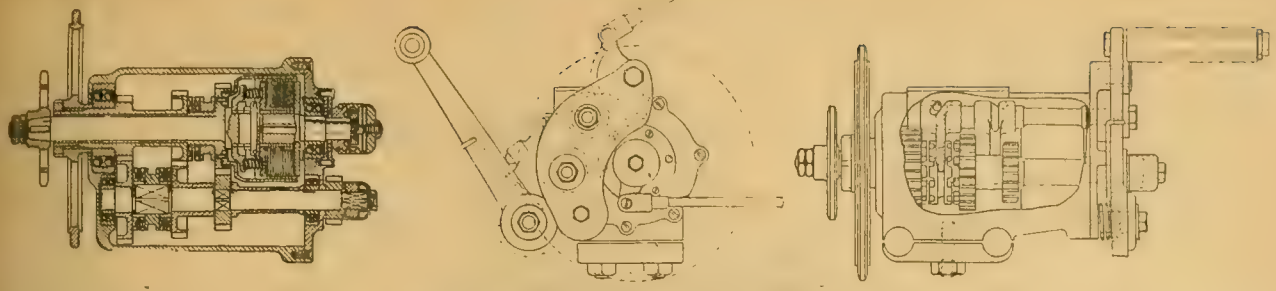


Valve side of the B.S.A. engine showing neat timing gear mechanism and valves operated by internal cams.



Transmission side of the 3½ h.p. chain-driven B.S.A., with counter-shaft gear and long footboards.

The Olympia Show.—



Sectional views of the B.S.A. three-speed counter-shaft gear.

the top removed: the interesting method of operating the striking mechanism is thus clearly visible. A glance at this model will convey more than a long description. It will, therefore, suffice to mention that a single revolving rod operates both sliding dogs at the same time.

556 c.c. MODEL: 85×98 mm.; side by side valves; B.S.A. carburetter; chains; B.S.A. three-speed counter-shaft gear.

This is the new model for 1914, and it should prove an excellent sidecar machine. The general features are as on the 3½ h.p. machine, but the drive is by chain throughout, a desirable point in the estimation of many, especially when a sidecar is attached; 2½in. tyres are fitted. The B.S.A. sidecar chassis is upturned at the rear, and the springing should be examined by all those who are interested in sidecars. An illustration of this appeared last week on page 1510. The B.S.A. carburetter is made on the straight through principle, and, contrary to usual practice, the petrol is fed to the float chamber through the top. Both front and rear mudguards are furnished with side flaps.

B.S.A. compensated brake action.

CALCOTT, No. 108.

2½ h.p. MODEL: 70 × 75 mm.; side by side valves; B. and B. carburetter; belt; with or without Sturmey-Archer three-speed or Villiers two-speed gear.

CALCOTT BROS., LTD., Gosford Street, Coventry.—The 2½ h.p. Calcott lightweight is exhibited in its three models, that is to say, with direct belt drive, with Villiers free engine hub, and with Sturmey-Archer three-speed gear. Also we understand the firm fit Armstrong gears. The arrangement of the engine with its appurtenances is very neat, both waterproof Bosch magneto and carburetter being placed behind the cylinder, and the silencer in front. The latter is furnished with an exceptionally long extension pipe measuring some 2ft. Pedals are fitted on this machine, and the extension of the crank bracket to take the engine is a particularly neat and compact bit of design. This is one of the few motor engines with offset cylinders. Handle-bar control is fitted for the carburetter, and the front wheel brake is actuated by an inverted lever. In both the variable-speed gear models a separate brake rim is spoked to the right-hand side of the back wheel, but in the single-speed design the belt rim itself is employed, the brake blocks in both cases bearing on the inner circumference of the rim. The whole machine, which has been built to give a low centre of gravity and afford good strong construction, constitutes a very clean design.

CALTHORPE, No. 116.

2 h.p. MODEL: 60 × 60 mm.; m.o.i.v.; Amac carburetter; belt; Precision two-speed gear.

THE MINSTREL AND REA CYCLE CO., Birmingham.—This model is fitted with the Precision lightweight unit, incorporating a two-speed gear operated by a rocking pedal. One of the most interesting features is the method of fixing the engine in the frame, the bottom bracket lugs being a specially fine piece of work. These lugs also act as supports for the wide and comfortable aluminium foot plates. These little machines are particularly well equipped, having a neat luggage carrier with acetylene welded joints and carrying two tool boxes.

2¾ h.p. MODEL: 70×90 mm.; side by side valves; Amac carburetter; belt; Sturmey-Archer three-speed gear.

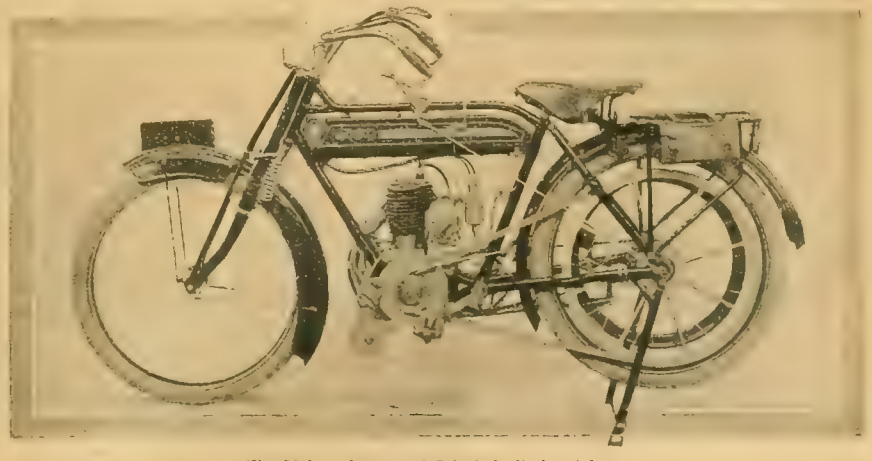
The cubical capacity of this engine is 346 c.c., and the whole is a well-designed medium-powered single-cylinder. As a Sturmey-Archer three-speed gear is fitted, this should be capable of going anywhere. The mudguarding of both front and back wheels is well worthy of mention. A similar model is also shown fitted with a single gear, and a Senspray carburetter instead of an Amac.

4¼ h.p. MODEL: 89×96 mm.; side by side valves; Amac carburetter; belt and chain; Calthorpe counter-shaft two-speed gear.

This model is intended more especially for sidecar work, and is fitted with the Calthorpe two-speed counter-shaft gear. The change of gear is operated by means of a side lever which expands rings by means of wedge bars. Comfortable footboards are provided, and the mudguarding has been particularly well carried out. A spring-operated lubricator is fitted, and the magneto, which is carried in front of the engine, is well protected. A kick starter is also provided. It is interesting to note that extra lips are fitted to the mudguards to catch any splash from the belt, and the tool bags are enclosed in metal cases. A similar model is also shown furnished with a Senspray carburetter.

5-6 h.p. MODEL: 75×85 mm.; side by side valves; Senspray carburetter; chain and belt; Calthorpe two-speed counter-shaft gear.

This machine is specially intended for heavy sidecar work, and has lugs for the attachment of the sidecar brazed on to the frame. Special features are the provision of an aluminium cover for the chain and extra long foot plates. The same excellent mudguarding and all the other features referred to in the previous models are embodied in this machine.



The 2¼ h.p. three-speed Calcott in its latest form.

The Olympia Show.—

4 h.p. twin-cylinder MODEL: 70 × 70 mm.; side by side valves; Senspray carburetter; belt transmission; Armstrong three-speed gear.

This model is intended for the rider who likes the smooth running of a twin-cylinder and does not want excessive power. Fitted as it is with the three-speed Armstrong gear, it should be a machine capable of travelling in any part of the country. It has all other details possessed by the models we have already described. Several of the machines are shown attached to sidecars, one of which is fitted with a hood and screen, and another with a luggage carrier and spare tyre carrier. Another of the sidecars possesses a wicker body which is covered with leatherette, thereby rendering it easy to clean, and having some appearance of being coachbuilt.

CAMPION, No. 20.

6 h.p. twin-cylinder MODEL: 76×85 mm.; side by side valves; B. and B. carburetter; chain; Jardine two-speed gear.

THE CAMPION CYCLE CO., LTD., Robin Hood Street, Nottingham.—These well-known machines are exhibited at Olympia for the first time, and embody a number of distinctive features. The Jardine two-speed gear box and kick starter is fitted, and the machine is finished in a most tasteful pale grey, lined green. An exceedingly fine sidecar to match, complete with waterproof cover and green upholstery, is fitted. The axle of this sidecar is very strong, and is underhung to a considerable extent. There is ample space to fit a large luggage carrier on the chassis at the rear, as the framework is carried right round the sidecar, the C springs being inside the framework. The sidecar wheel is excellently mudguarded with a very deep valance on the inside, and the whole construction is strong, and at the same time graceful.

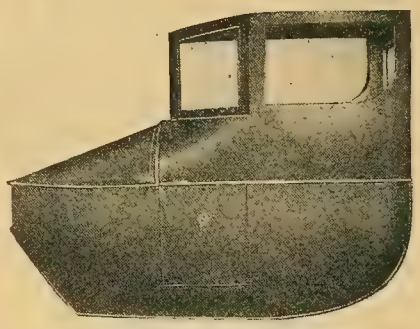
8 h.p. twin-cylinder MODEL: 85 × 85 mm.; side by side valves; B. and B. carburetter; chain; three-speed Jardine gear.

Another model, fitted with an 8 h.p. Precision engine, is shown complete with a sidecar, and this model is chiefly noticeable because it is fitted with the new Jardine three-speed counter-shaft gear and kick starter. This gear is of most substantial construction, but at the same time does not take up an undue amount of space. The gears are changed by means of a lever working in a quadrant on the top of the tank. An excellent feature of the gear is the provision of a very large oiler on the top of the box. The drive is by chain throughout. A shallow, but very wide, tank with neat aluminium red-lined panels contains a very large supply of fuel, and the whole machine is turned out in first-class style. The sidecar is of exceedingly graceful design, painted in French grey, with green lining, and a large grid to carry a trunk is fitted at the back.

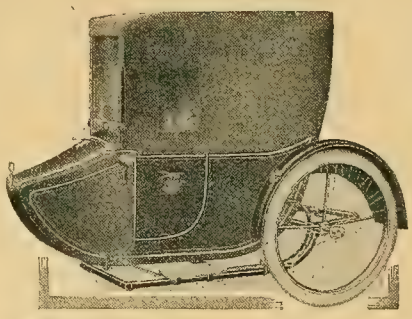
Another model shown by this firm is fitted with a 3½ h.p. water-cooled Green-Precision motor, 85×88 mm., and a Jardine two-speed gear box, the drive being by chain. A neat auxiliary water tank is carried on the top tube to replenish the supply to the motor when loss of water occurs through evaporation.

Models of the Jardine gear box are also shown, both complete and in section. The Campion machines have gained an excellent name in competitions, and their display is a striking one.

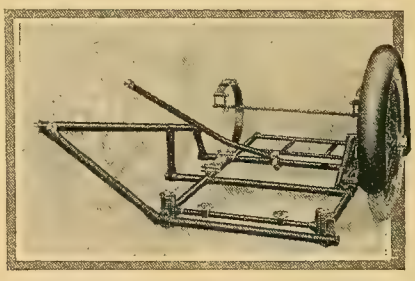
SOME EXAMPLES OF TYPICAL SIDECAR BODY AND CHASSIS WORK.



The Compeer Cabriolet sidecar, the top of which is detachable.



The Supreme sidecar with a neatly fitting hood and wind screen.



The Sparkbrook sidecar chassis. Four-point suspension and straight tubes throughout are notable features.

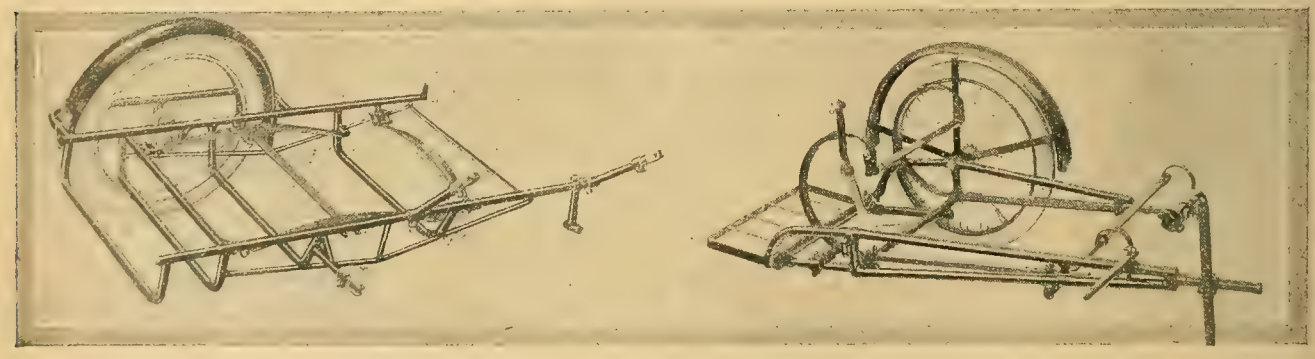
CANOELET, No. 42.

MEAD AND DEAKIN, LTD., Tyseley, Birmingham.—The speciality of this firm is sidecars, and they are shown in a variety of colours. This sidecar has proved itself one of the most popular on the market, and is remarkable for the cleanness of the design and the comfort of the suspension. The chassis is extremely simple, and is carried at a considerable distance beneath the axle. The body is slung on C springs, and the chassis members are carried right up the back of the sidecar, the shackles at the end of the springs providing very comfortable riding. All the models are coach built, and are tastefully finished in both dark and light colours, and the upholstery is excellently carried out, and four-point attachment is used.

CENTAUR, No. 140.

3½ h.p. MODEL: 84×90 mm.; side by side m.o.i.v.; B. and B. carburetter; belt transmission; Sturmey-Archer speed gear.

THE CENTAUR CYCLE CO., LTD., Stoke, Coventry.—The principal exhibit on the Centaur stand is a 3½ h.p. sidecar combination on which the engine is of the air-cooled type with cylinders pronouncedly offset. Lubrication is by semi-automatic drip, taking its supply from a tank of elliptical section. A kick-starter



Sidecar chassis with dropped frames. (1) The Williamson. (2) The Chater-Lea.

The Olympia Show.—

is fitted on the chain stays, and consists of a crank driving the Sturmey-Archer gear through a chain and sprocket. The footboards are of large size and covered with indiarubber. A neat feature in the design of this machine is the inclusion of the Bowden cables which operate the throttle, advance spark, and exhaust lift mechanism, inside the handle-bars, into which they are conducted by a short branch tube.

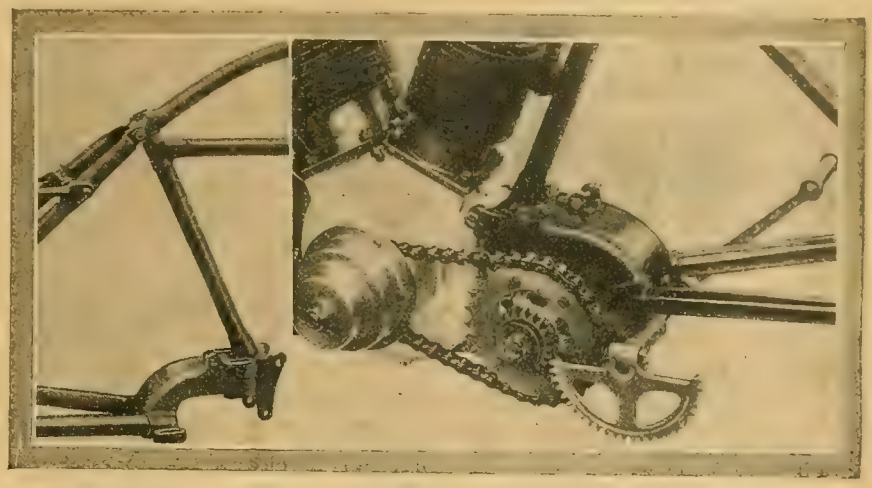
2¾ h.p. MODEL: 60.75×60 mm.; side by side m.o.i.v.; B. and B. carburetter; belt transmission; Sturmey-Archer speed gear.

The 2¾ h.p. model is fitted with a neatly designed engine with offset cylinders, and in general follows the specification of the 3½ h.p., having a dropped frame and elliptical section tank. It is also exhibited in a single-geared type. The 2 h.p. single-geared lightweight, with a bore and stroke of 60×60 mm., is also shown, but in this case the control wires are taken outside the handle-bars and not inside as in the previously mentioned model. Pedalling gear is fitted on this type.

CHATER-LEA, No. 54.

8 h.p. MODEL: 85 × 85 mm.; side by side valves; B. and B. carburetter; chain; Chater-Lea three-speed gear.

CHATER-LEA, LTD., Golden Lane, E.C. —Although this machine is primarily a sidecar machine, it yet can be used as a solo mount by those who require something very powerful indeed. The principal alterations for this year are a dropped top tube which gives a four inches lower saddle position. The oil and petrol are in the same tank, which is large enough to hold 2¼ gallons of petrol and is fitted with the Enots automatic drip-feed lubricator. The kick starter is fitted to the counter-shaft. The rear brake is of the internally expanding type, and the timing gear has adjustable tappets. The Chater-Lea counter-shaft gear, which gives three speeds—4, 6, and 12 to 1—is operated by a gate change. Tyres are 650 × 65 mm. Clinchers with cross grooves. The magneto is pivoted to facilitate chain adjustment, and the driving chains are enclosed in metal cases. The Chater-Lea sidecar bodies are fitted to a dropped frame chassis, and are either cane or coachbuilt. One sidecar has an extra seat at the rear, the back of which closes down when not in use, so making a very useful luggage receptacle. The sidecar wheel is very well guarded. These machines can be obtained with either foot or hand-operated clutch.

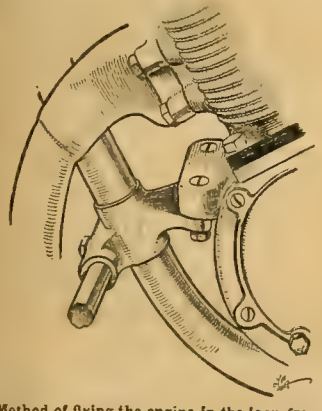


Special frame construction of a Chater-Lea model to accommodate the counter-shaft gear.

CLYNO, No. 25.

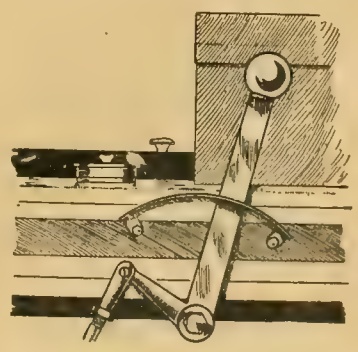
5-6 h.p. twin-cylinder MODEL: 75 × 82 mm.; side by side valves; Amac carburetter; enclosed chain drive; three-speed gear, sliding type.

THE CLYNO ENGINEERING CO., Wolverhampton.—The Clyno has been largely redesigned for 1914, chiefly in the matter of detail. No machine has gained a greater reputation for sidecar use, and its successes in large trials, and particularly in the hands of Frank Smith, one of the partners, have been too numerous to give in detail. One of the outstanding features of the Clyno is a quick detachable wheel, and so satisfactory has this proved in the past that it has been found quite unnecessary to alter the design in any way. For 1914 larger tanks are fitted and 2¼ gallons of petrol can now be carried, a most desirable feature in the case of powerful machines capable of drawing heavy sidecars and much baggage. The gears are now changed by means of a gate instead of by a quadrant as in the past, and the height of the saddle has been slightly lowered. The machines exhibited are finished in French grey, and a point worth noticing is that the hubs are painted to match the frame. Exceedingly neat valve covers, held on by wing nuts, protect the valve springs from wet and dirt. Sidecar lugs are brazed on to the frame, and a minor detail is the provision of little sliding caps to fit over the oiling holes of the spring fork shackles. Throughout the whole design care has been taken to render the machine as weatherproof and foolproof as possible. The sidecar shown is a beautiful piece of work, painted grey to match the machine. A well-designed hinge-up scuttle dash is fitted, on the end of which nearest the passenger is mounted an adjustable wind screen, while a Cape hood, fitted with side curtains, in which are placed talc windows, renders the sidecar quite weatherproof when storm-rigged. The wheel is of the Clyno patent detachable type, and a spare wheel is mounted on a dummy hub on the back panel. A large luggage carrier and petrol can carrier are found at the back. A tasteful finish is given to the outfit by a cane panel running round the body.



Method of fixing the engine in the loop frame of the two-stroke Clyno. The engine cradle is suspended in the front on a lug brazed to the frame.

Neat timing gear mechanism on the 1914 5-6 h.p. Clyno.

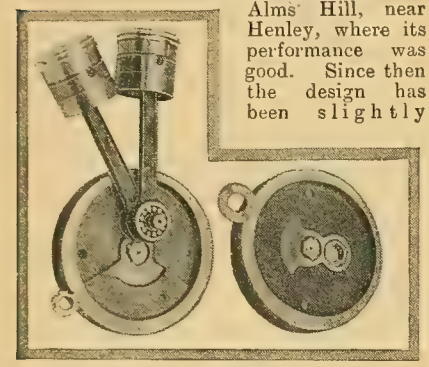


Clyno gear operating lever and tool case on top tube.

The Olympia Show.—

2¼ h.p two-stroke MODEL: 70 × 70 mm.; Amac carburetter; belt; two-speed gear integral with engine.

The Clyno two-stroke made its first appearance during the past summer at a hill-climb held at Alms Hill, near Henley, where its performance was good. Since then the design has been slightly

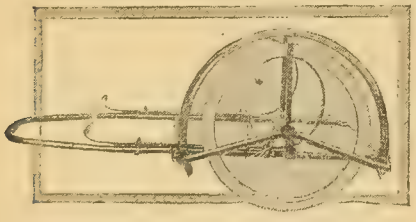


Pistons, flywheels, and connecting rods of the latest Clyno, showing roller bearings to big end.

modified, the chief difference being that the belt drive has been transferred from the right to the left side. The engine is carried in a loop frame and is inclined forward at an angle of 50° from the vertical. The power unit is complete in itself, consisting of an engine, two-speed gear box and clutch, the gears being changed by a lever working in a gate on the off side of the tank, the whole casing containing only six gear wheels. The magneto, which is a Ruthardt, is mounted directly on top of the gear box. The clutch is operated from the left handle-bar. The machine is finished in the same style, as regards colour, as the larger models, and is shown fully equipped with lamp and horn. The weight complete is 140 lbs. and the price £40.

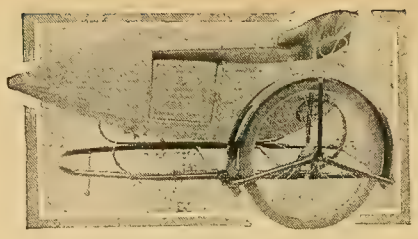
COMFY, No. 17

THE COMFY SIDECAR CO. (JOHN WARD), High Road, Leytonstone.—A large selection of wicker sidecars is displayed, and one coachbuilt, cream-coloured model fitted with hood and screen, the upholstery being well carried out in brown leather. The special feature of these sidecars is the construction of the chassis, the axle being deeply stepped, allowing a very low position for the body to be adopted. The axle of the wheel is supported on both sides, the outside tube being



One of the features of the Comfy sidecar is the strengthened support for the axle. As will be seen, tubes are brought from the chassis round the outside of the wheel to the hub spindle

very substantial and forming part of the main chassis. A special quick detachable spring locking device is used, and strength, combined with lightness, is found in these sidecars.

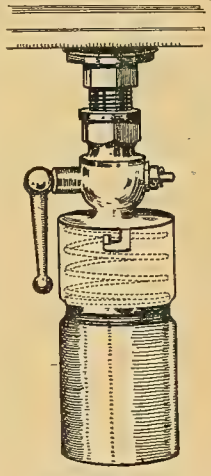


Another pattern Comfy sidecar with semi-streamline body.

CONNAUGHT, No. 126.

2½ h.p. MODEL: 73 × 70 mm.; no two-stroke valves; Amac carburetter; belt; Sturmey-Archer three-speed gear.

THE BORDESLEY ENGINEERING CO., LTD., Birmingham.—When it made its first appearance last year the Connaught created something of a sensation, chiefly on account of its new system of oiling, which consists of mixing a certain amount of oil with the petrol, the amount being measured by a special measure which is screwed on below the oil tap. One of the latest models is shown fitted to a sidecar provided with a light wicker body. A Sturmey-Archer three-speed gear is fitted and kick-starter, the spindle of which is eccentrically mounted so that the adjustment of the chain may be readily effected. The handle-bars are wide, and should render the riding position comfortable. The particular model shown is provided with an auxiliary tank under the main tank, and in this



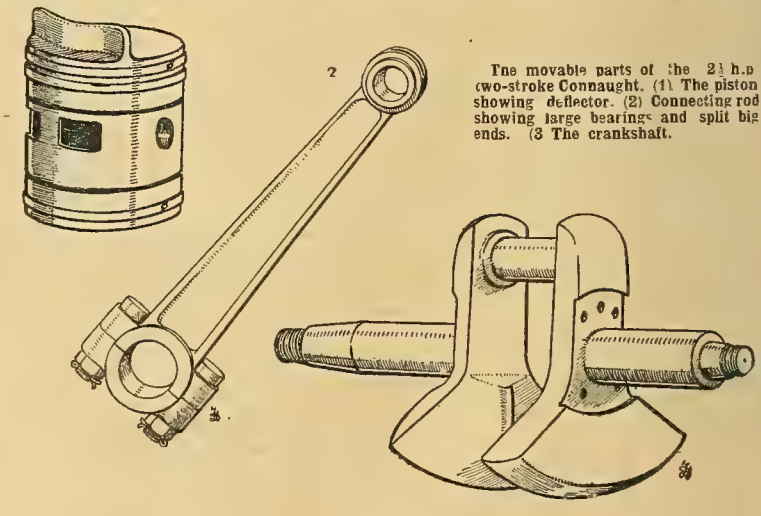
Oil receptacle carried underneath the tank of the Connaught, showing bayonet joint fixing.

is carried the petrol, the main tank being filled with paraffin. To enable the paraffin to be vaporised properly, a special type of Amac carburetter is fitted, provided with a warming jacket connected to the exhaust port. After the engine has been running for a few minutes the petrol may be turned off, and it will continue to run on the heavier fuel. Other models shown are single-geared and three-speed solo machines, designed to run on petrol only. Still another model is fitted with combined chain and belt drive and Albion two-speed gear. Quite a novelty for the Bordesley Engineering Co. is a lady's machine, which should especially appeal to the fair sex on account of its simplicity. There is only one tank, in which the oil and petrol are mixed, and usually only a single gear is provided, but an Armstrong three-speed gear may be had if desired. The engine is well out of the way of the rider's skirt, and we hear that a large number are already in use throughout the country. We may also mention that the price at which it is sold is very low.

DAY-LEEDS, No. 94.

3¾ h.p. MODEL: 85×88 mm.; side by side overhead inlet valves; B. and B. carburetter; chain; two-speed counter-shaft gear.

JOB DAY AND SONS, LTD., Ellerby Lane, Leeds, and London.—Except for the transmission, both models of the Day-Leeds at Olympia are similar as regards specification. In the single-cylinder engine, the inlet valves are placed on the right-hand side, operated by tappet rockers, and located over the exhaust, and a feature of the valve mechanism is the method of releasing compression. This, it is claimed, will enable the engine to continue firing at a walking pace. The mechanism this year is placed outside, so that its working is visible. A chain-driven kick starter is fitted to act directly on the crankshaft of the engine, which on the right-hand side is extended for this purpose, and supported in a bearing. The chain sprocket on the engine-shaft engages with dog teeth similar to those in the starting gear of a car, and when out of operation slides along the shaft against the outer bearing. Thus there



The movable parts of the 2½ h.p two-stroke Connaught. (1) The piston showing deflector. (2) Connecting rod showing large bearings and split big ends. (3 The crankshaft.

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is no severely worked free-wheel mechanism involved. In the chain-driven model a P. and M. type of two-speed gear is adopted, while in the belt-driven design a spoked wheel pulley is employed to transmit the power.

DIAMOND, No. 16.

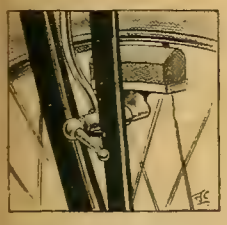
2¾ h.p. MODEL: 75×79 m.m.; overhead inlet valve; Amac or Senspray carburetter; shaft and silent chain transmission; Diamond two-speed gear.

The D. F. AND M. ENGINEERING CO., Wolverhampton.—The Diamond power unit is one of the most ingenious constructions on the market. Two pairs of bevels provide the gear, which is contained in a casing and runs in an oil bath. The inlet valve is situated over the exhaust valve, both facing forward. The final drive is by a single chain. With the exception of the power plant the machine follows standard practice.

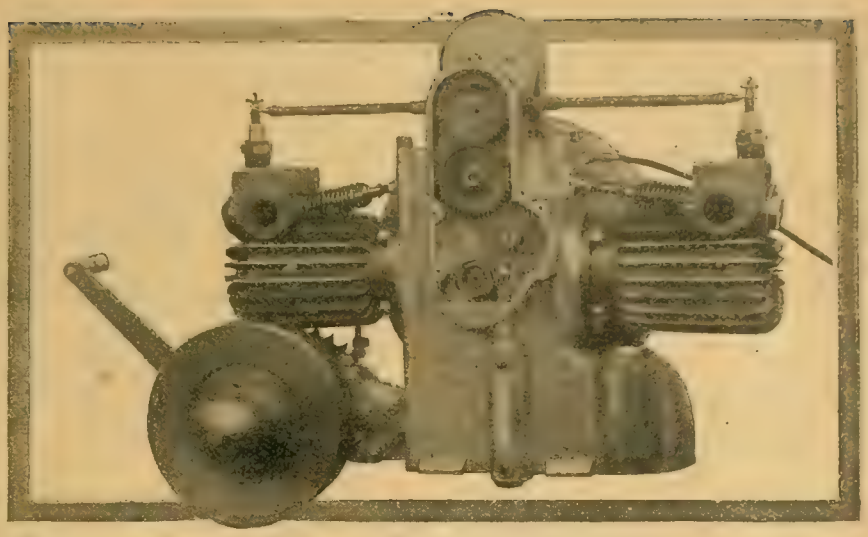
DOUGLAS, No. 84.

3½ h.p. MODEL: 68×68 mm.; side by side on top; Amac carburetter; chain and belt; two-speed countershaft gear.

DOUGLAS BROS., Kingswood, Bristol.—The present exhibition marks the first public appearance of the 3½ h.p. horizontally-opposed Douglas. Since our last description of this machine it has only been altered in detail. Our readers will remember that below the crank case was a large oil sump, from which the lubricant is drawn by a spiral pump driven from the crankshaft. This pump raises the oil to troughs below the big-end bearings, the surplus being returned to the sump through strainers. It is impossible to overfill the oil well on account of the position of the valve cap, and the contents are sufficient to last for at least a thousand miles. The valve gear is now enclosed by a neat sheet metal cover, and a hot air-jacketed carburetter is now employed. Accessibility is a great feature of the design, for any part which it might become necessary to replace, or which might require attention, can be reached with a minimum of trouble. The gear box is attached to a sliding platform at the back of the crank case, and is capable of instant adjustment. The gear is of the sliding dog type, and a material faced cone clutch is employed to transmit the drive. The primary drive is by chain to the gear box, the chain being protected by a cover. Final belt drive has a neat guard over its upper side. The mudguard has received special attention, and besides the usual valances, side wings are fitted to the front wheels. The front brakes are fitted with a neat thumb nut adjustment by which the shoes can be removed without damaging the enamel on the frame. The magneto is carried right on top of the crank case, and the whole engine and gear unit may be withdrawn by detaching two nuts and the usual pipe connections. The silencing arrangement has been somewhat altered, and now there is a tubular expansion box for each cylinder across the frame. Neat footboards are fitted on either side, and one example of a machine is shown attached to an excellent sidecar, the chassis of which is particularly strongly carried out. The side members consist of two tubes in the form of a bow, and the chassis is four-point suspended. The body is roomy, and is suspended on three full elliptic springs which should provide smooth and comfortable riding.



Douglas front brake shoes showing simple method of adjustment.

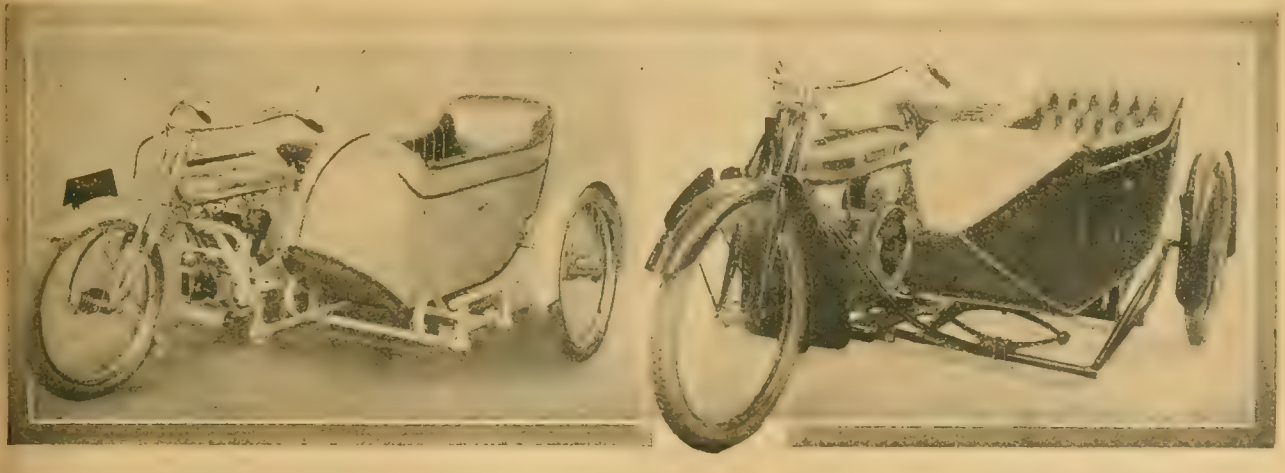


Pulley side of the 3½ h.p. Douglas with timing gear case removed.

This model is also shown in the form of a T.T. machine.

2¾ h.p. MODEL: 60×60 mm.; side by side valves; Amac carburetter; belt and chain; two-speed countershaft gear.

The 2¾ h.p. Douglas has undergone practically no alteration, and is already so well-known that it hardly needs our description. A mudguard is fitted above the top layer of the belt, and the pannier toolbags are totally enclosed. Besides this the only important alteration lies in the fact that the hubs have been considerably increased in size. It is shown as a touring machine and a



Left—a smart sidecar outfit exhibited by the Campion Co., and finished in French grey. Right—the new 3½ h.p. Douglas sidecar combination.

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T.T. machine, and in both forms is beautifully finished. The open frame model also remains practically unaltered. It is extremely neatly designed, and very suitable for such ladies as desire a reliable and handy two-wheeled vehicle.

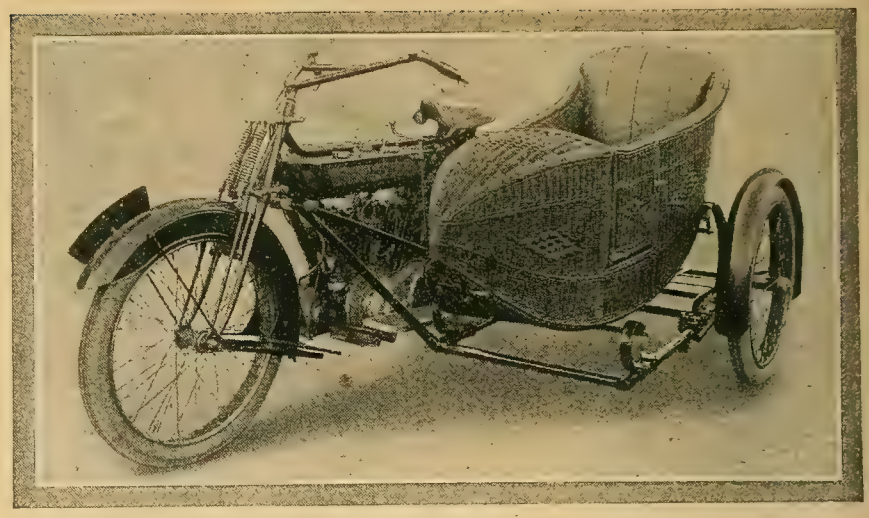
DUNHILL, No. 21.

ALFRED DUNHILL, LTD., Euston Road, N.W.—A magnificent coach-built sidecar finished in natural wood with raised dark green mouldings and fine gold lines, and upholstered in a most luxurious manner in Bedford cloth with deep cushion back is the feature of a fine exhibit of sidecars. A neat little electric lamp of torpedo shape is attached to the side of the body. This is one of the finest sidecars in the Show, and should on no account be missed. A wide range of other sidecars are on view, with both coach-built and cane bodies, and one of the most interesting is a pretty featherweight model in cane of egg-shape. It is extraordinarily light, and may be used with satisfaction with moderate-powered motor cycles. A luggage boot is provided at the rear, capable of carrying quite a large quantity of articles. Practically any design of sidecar can be supplied by Messrs. Dunhill, for machines of any power and weight, with either three or four-point attachment.

EDMUND, No. 39.

3½ h.p. MODEL: 64×77 mm.; overhead inlet valves; Amac carburetter; chain; Enfield two-speed gear.

CHARLES EDMUND AND CO., Chester.—The outstanding feature of the Edmund is the manner in which the rear of the frame is sprung on long curved laminated springs. The motor fitted is the M.A.G., which is rapidly coming into prominence. It is a beautifully constructed piece of work, the feature being the neat manner in which the rocking gear operating the overhead inlet valves is enclosed. Brampton Biflex spring forks are fitted. The transmission is by chains through an Enfield two-speed gear, and a kick-starter is fitted in front of the engine on the left hand side. These machines may also be obtained with a 6 h.p. M.A.G. engine, 72×91 mm. bore and stroke, and are eminently suitable models for sidecar service.



The Enfield Co., of Redditch, will market a cane sidecar body for 1914, in addition to the coach-built type.

ENFIELD, No. 88.

6 h.p. MODEL: 76×85 mm.; side by side mechanical valves; Amac carburetter; chain transmission; countershaft two-speed gear.

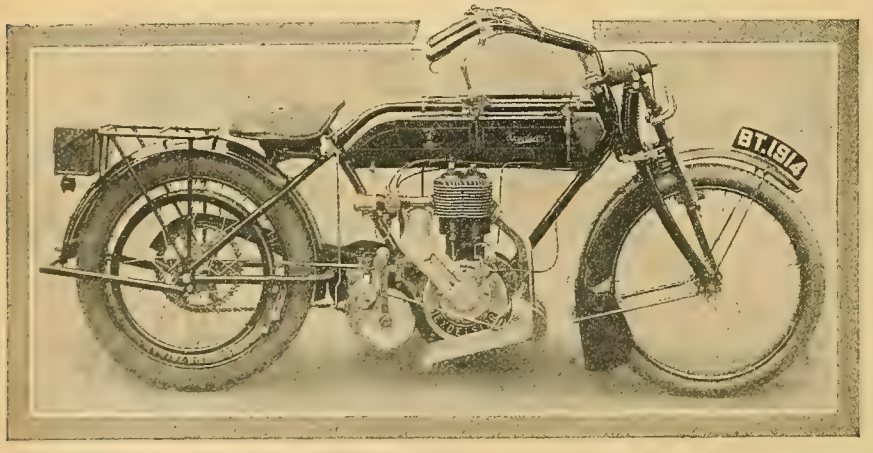
THE ENFIELD CYCLE CO., LTD., Redditch.—The Enfield machines have made the form of transmission embodied in them quite a distinct type by now, and there is no need to debate upon this point beyond mentioning the patent cush drive hub. The chief modifications in the 6 h.p. for 1914 lie in the frame, which has been reduced to give greater comfort in riding and better position for the rider, while aluminium gear casings are fitted over gears and chains. 650×65 mm. Palmer cord tyres are provided. Although the sidecars can be made with cane bodies if desired, a roomy coachbuilt body is standard, with tool box under the seat and a luggage grid is included in its equipment.

3 h.p. MODEL: 60 × 75 mm.; overhead inlet valves; Amac carburetter; chain transmission; two-speed counter-shaft gear.

Like all Enfield models a twin engine is adopted on the 3 h.p., and in this size the Royal Enfield is made in two models, one the ordinary roadster design, the other a T.T. model. Both embody practically the same specification as is found on all the Enfield machines, which includes the patent expanding clutch combined with two-speed gear and free engine. In the roadster model the kick-starter has been redesigned, and the magneto is now chain-driven, while Palmer cord 26×2¼in. tyres are fitted and Brooks B 170 saddle. The T.T. model, the price of which is the same as the touring type, has no kick-starter or front stand, the handle-bars are slightly dropped and a Senspray carburetter is fitted.

2¾ h.p. MODEL: 54×75 mm.; side by side mechanical valves; Amac carburetter; chain transmission; two-speed counter-shaft gear.

This model, which practically follows Enfield practice throughout, including exceptionally thorough mudguarding arrangements, is unaltered from last year's pattern except in the matter of price, which is now reduced to £45. It may be added that in all the Enfield models a spring handle-bar can be fitted if desired.



Valve side of the 5-6 h. p. three-speed counter-shaft geared Excelsior. Chain drive and Brampton Bi-flex forks are fitted.

EXCELSIOR, No. 122.

3½ h.p. MODEL: 85 × 88 mm.; side by side valves; Senspray carburetter; belt; Sturmey-Archer three-speed gear.

BAYLISS, THOMAS, AND CO., Coventry.—The 3½ h.p. is an ideal single-cylinder model for touring purposes. An interesting feature of this machine is the "all black" finish. New footboards of aluminium are fitted; these are rubber covered, and have the ends turned up so as to protect the feet from mud. We also noticed the manner in which the oil is led to the side of the cylinder so as to ensure perfect lubrication of the piston.

4½ h.p. MODEL: 86 × 112 mm.; side by side valves; Senspray carburetter; belt; Sturmey-Archer three-speed gear.

In most details the 4½ h.p. resembles the 3½ h.p. except that 650×50 mm. tyres

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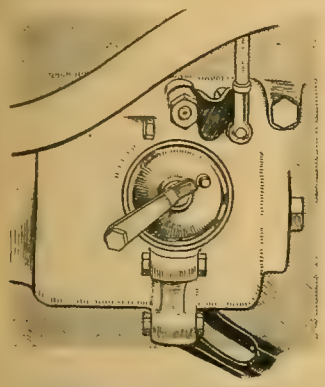
are fitted to voiturette rims. The most powerful model is the 5-6 h.p. 96×112 mm., which, however, resembles the types we have just described in most details.

Mention must also be made of the chain-driven types, which are supplied with the various sized engines enumerated above. In these the front chain is entirely enclosed and the back chain partially protected. Two types of counter-shaft gears are fitted, both made by Jardine and Co., of Nottingham. One, the lighter model, fitted to the 3½ h.p., gives two speeds and incorporates a free engine clutch, while the other, suitable for the 5-6 h.p. machine, is more substantially constructed, and contains three speeds and a neatly enclosed kick starting device. Its design follows car practice throughout.

F.N., No. 115.

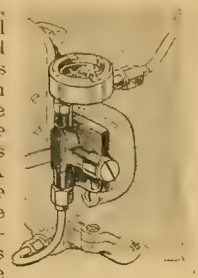
7 h.p. MODEL: 52 × 88 mm.; m.o.v.; Zenith-F.N. carburetter; shaft and bevel; sliding gear.

F.N. (ENGLAND), LTD., Great Portland Street, W.—We gave a brief description



Inspection cover on the gear box of the four-cylinder F.N.

of the new 7 h.p. four-cylinder F.N. in our description of the Paris Show exhibits, but it is impossible to give this interesting machine its just due without first examining carefully the sectional model. This is a most excellent piece of work, with all possible portions cut away to show the interior, and yet so carried out that the whole engine and transmission can be made to work by turning a handle. We will first deal with the separate cylinder T-headed engine (52×88 mm., 748 c.c.), by which is meant that the exhaust valves are arranged on one side and the inlet valves on the other. Looking at the front of the engine, it will be seen that the timing wheels are of large size. Also in the front the mechanical oil pump is found, and above it the indicator, consisting of a small round glass-topped case, which contains two star wheels which are visible from the saddle, and continue to revolve as long as the oil circulates. A glimpse through the glass-sided crank case discloses a false bottom in which troughs are moulded, while across it are long thin strips of gauze let in. The oil drawn up from the base of the sump is delivered through holes in the delivery pipe, and sprayed therefrom over the ball bearings of the main shaft and all over the moving parts. It drops into the troughs and is picked up by the big ends, while any excess falls through the gauze insets back into the sump. The large crankshaft, almost big enough for a small car, and the adjustable big ends are also seen through this window. The flywheel, which is infinitely larger than in the older model, contains a multi-disc clutch, part of which is cut away so as to show the plates. The gear box, which contains three speeds, is an excellent piece of work. Both shafts are carried on ball bearings, and the moving gear wheel slides on a splined shaft. The gear ratios are 4½, 7, and 11 to 1. There is a large inspection plate at the side of the gear box, which allows the gears to be examined, while there is a similar inspection plate in the bevel gear casing. The kick starter pedal is situated right under the saddle so that the rider can exert the maximum amount of pressure on it. This pedal is attached to a rod operating a quadrant in front of the engine, which engages with a free-wheel pinion on the main shaft. Both brakes are applied to the rear wheel, of which one is contracting and the other internal expanding in the same drum, while the fact that the rear wheel is easily detachable is a point worthy of special mention.



Oil pump and indicator on the four-cylinder F.N.

2½ h.p. MODEL: 65 × 85 mm.; m.o.v.; F.N. carburetter; shaft and bevel; sliding gear.

This model, on which R. O. Clark broke so many records at Brooklands on November 6th, has been recently described in these pages. It possesses many of the features of the larger machine, and is a handy go-anywhere mount.

5 h.p. MODEL: 52.5×57 mm.; a.o.i.v.; F.N. carburetter; shaft and bevel; sliding gear.

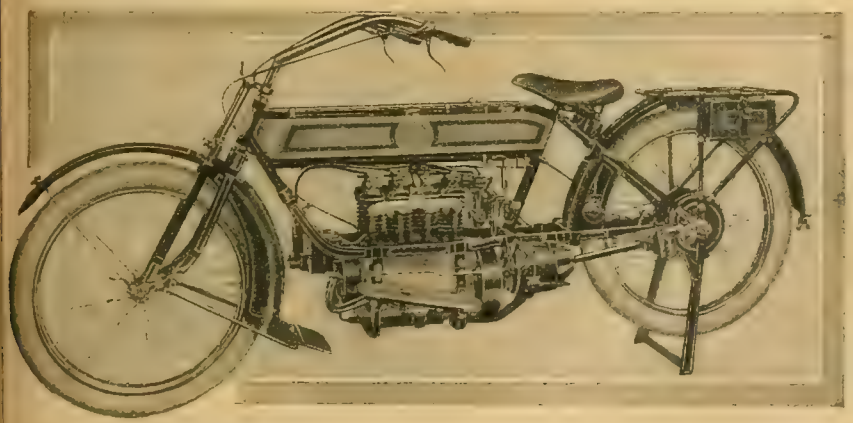
Like the 2½ h.p., the 5 h.p. four-cylinder F.N. is well known to our readers, many of whom have appreciated its silence and smooth running. It has stood the test of time, and is, moreover, less expensive than the larger four-cylinder model.

GLORIA, No. 63.

THE GLORIA CYCLE CO., LTD., Much Park Street, Coventry.—The Gloria is probably one of the best known sidecars on the market at the present time. Altogether eight models are exhibited, and these comprise a very wide range suitable to almost any taste. The No. 5 machine is an excellent example of Gloria work, and a general description is given. The chassis is particularly powerfully built, and carries a trunk in a rear luggage carrier. This trunk is divided into two compartments, each of which contains an adjustable tool bag. Provision is also made for carrying petrol and oil cans. The usual type of leaf spring suspends

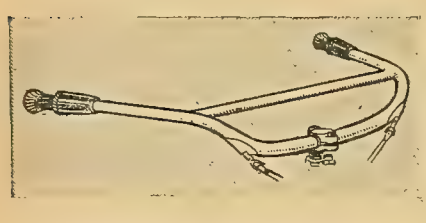
A type of Gloria coach-built sidecar for 1914.

a pretty coachbuilt body which is fitted with wind screen and hood. An ingenious feature is the springing of the chassis, which is carried on a curved arm pivoted to the frame at the front end and enclosed in a spring box at the rear. The attachment to the cycle is unusual, and so designed that the main fixings grip two cycle tubes at once. A fourth point of attachment has been added. Another feature of this model is the excellent accommodation for tools or luggage both under the seat and in the rear of the body. The projectile model has been considerably improved, and leaf springs now replace the coil springs, which were found to cause slight roll. The back of the body has been somewhat raised to give increased comfort, and the whole outfit has been lightened by almost 50 lbs. A luggage carrier is also fitted. Three sidecars are shown attached to 4 h.p. Triumph motor cycles, and to Sunbeams, Zenith, and Bat motor cycles. The mudguarding is excellent.

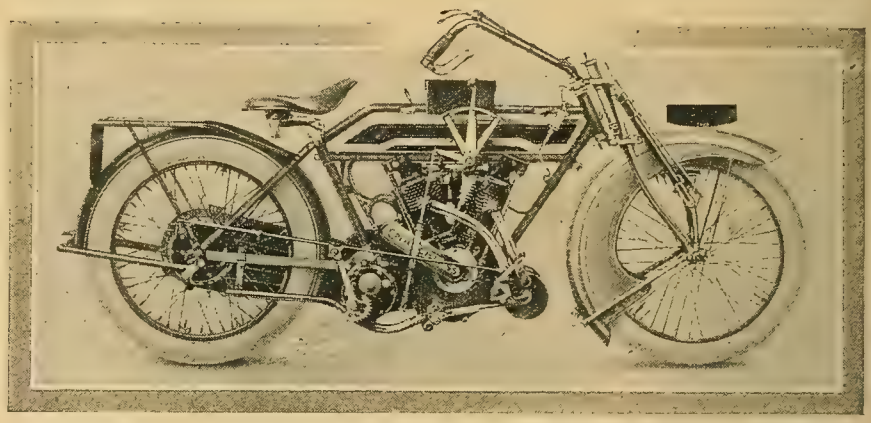


Transmission side of the new four-cylinder F.N., showing footboards, counter-shaft gear, and shaft drive.

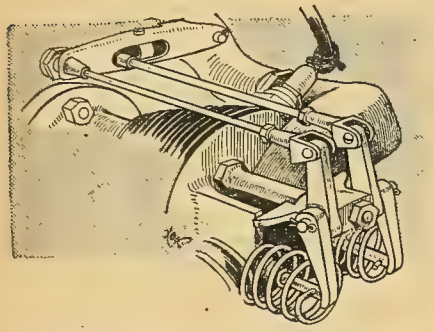
Three Examples of Powerful Chain-driven Twins.



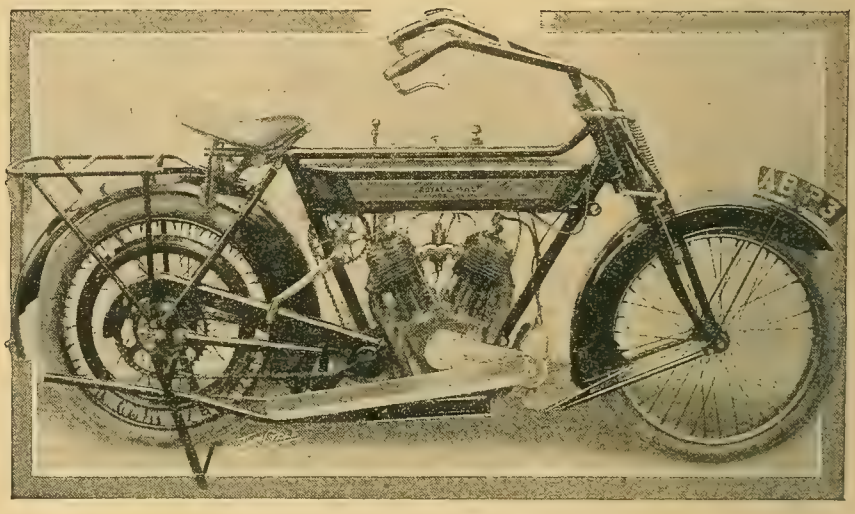
Handle-bars on the Indian showing central bar.



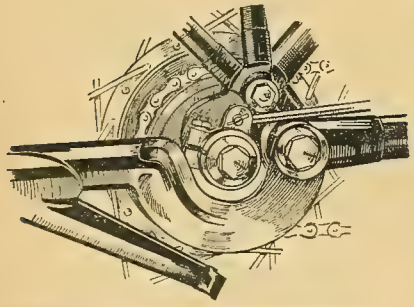
The latest pattern 7 h.p. Matchless, with M.A.G. engine, three-speed counter-shaft gear, and chain drive.



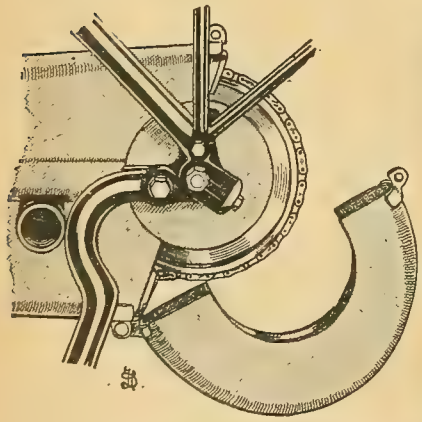
Combustion head of the 500 c.c. horizontal twin Brough, showing valve springs and general arrangement.



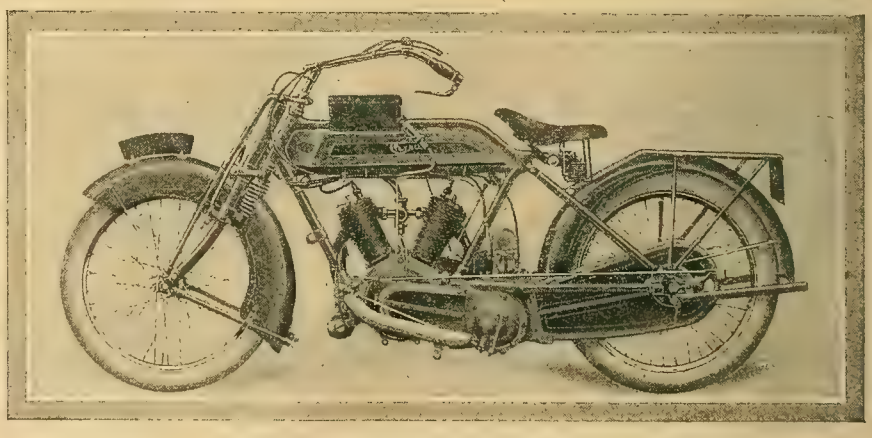
Valve side of the 6 h.p. twin Enfield for 1914.



Triumph three-speed clutch control and method of attaching stand.

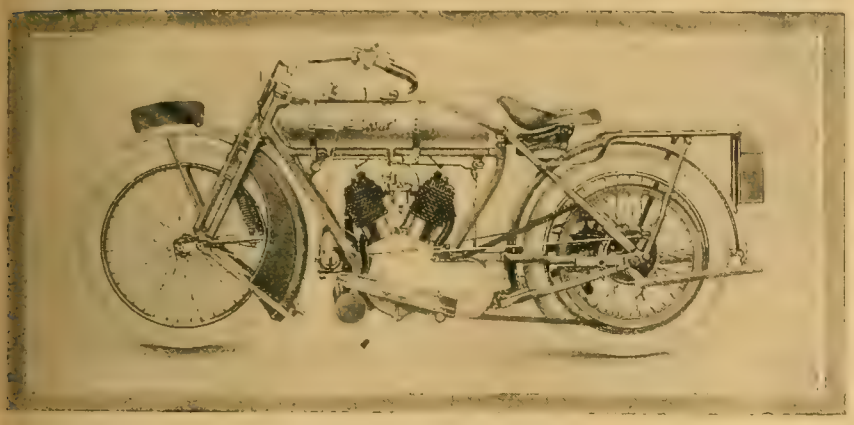


Detachable end piece of the rear chain case on the 1914 James.

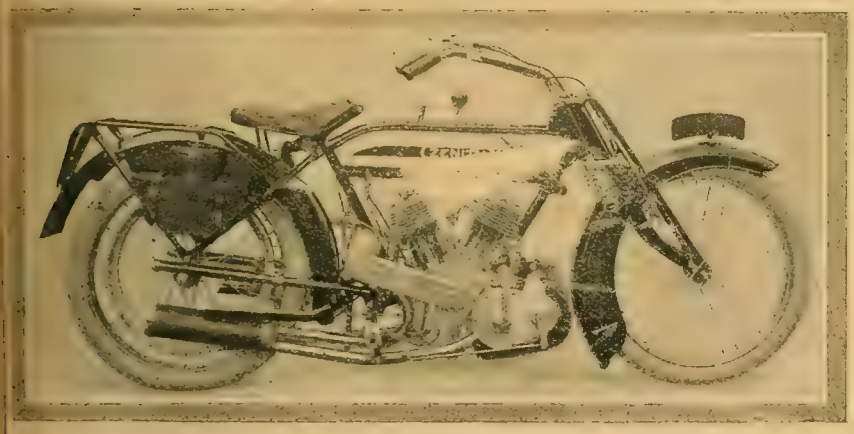


The 5-6 h.p. Clyno in its latest form, showing the footboards, chain drive and magneto position.

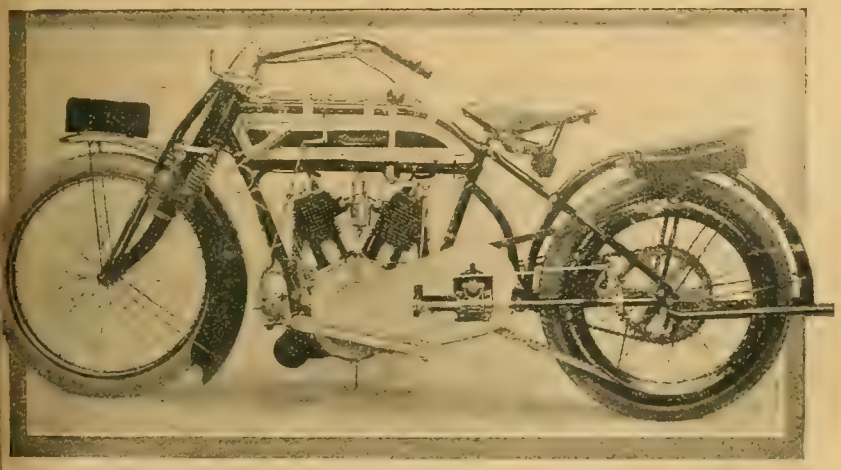
Types of Belt-driven Twin-cylinder Mounts.



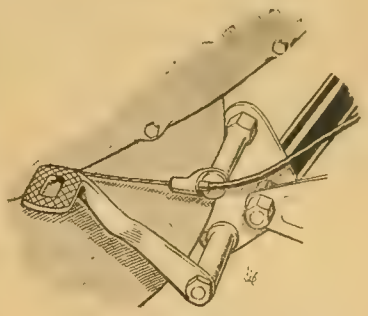
Belt side of 5-6 h.p. three-speed twin Bat.



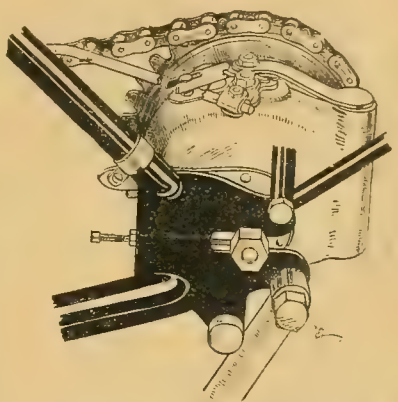
Va've side of the 8 h.p. Zenith with counter-shaft gear, long belt drive and kick starter.



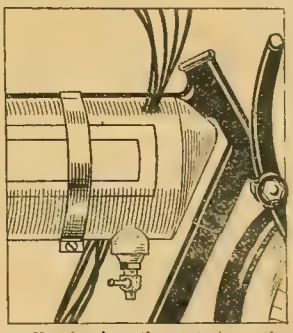
Belt side of the 6 h.p. two-speed Lincoln Elk with belt and chain drive.



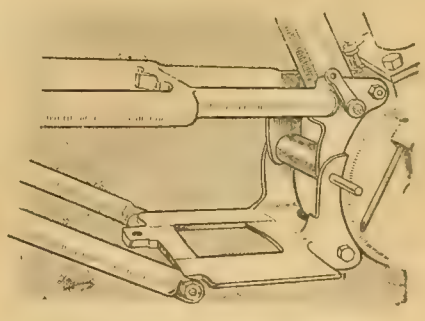
Rudge method of operating the oil pump by a pedal.



Henderson speed gear mounted on the back axle showing chain drive and method of adjustment



Showing how the controls on the 2¼ h.p. two-stroke Triumph are taken from the handle-bars through a hole in the tank for neatness.



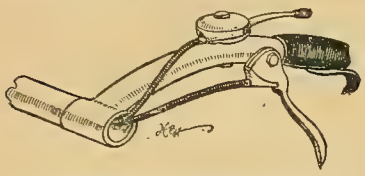
The skeleton gear box platform on the Bat.

The Olympia Show.—

GRANDEX-PRECISION, No. 64.

6 h.p. MODEL (twin): 76×85 mm.; side by side valves; Amac carburetter; chain drive; two-speed selective clutch gear.

GRANDEX-PRECISION CO., 86, Gray's Inn Road, London, W.C.—The latest model Grandex machine is fitted with the Enfield two-speed gear, the front chains being carefully guarded and the rear chain covered on top. A rubber cushion shock-



The partially enclosed Bowden wires on the handle-bars of the Grandex-Precision.

absorbing device is fitted to the rear hub. Mudguards are fitted with ample side wings, which in conjunction with long rubber-covered footboards afford good protection for both rider and machine. A semi-automatic drip feed lubricator is fitted, and front wheel springing is by Saxon forks. The handle-bars are carried out in a somewhat unusual manner, for they have a straight front through which a control wire is passed, giving a neat appearance to the machine.

4 h.p. MODEL (twin-cylinder): 66×88 mm.; side by side valves; Amac carburetter; belt; Sturmey-Archer three-speed gear.

The 4 h.p. model, as is the case with all the exhibits on this stand, is fitted with a Precision engine. In this instance, the new 500 c.c. twin is neatly carried in a frame designed on the standard lines. It may be remembered that the cylinders of this engine are so constructed as to be interchangeable, and flanged joints are fitted to both inlet and exhaust pipes. The kick starter, which works through the hub, is neatly carried out, a special lug being cast in the right hand chain stay to carry the pedal and starting sprocket. A substantial aluminium expansion box is fitted behind the engine, and a tail pipe leads to the rear wheel. A small sump is let into the petrol tank, which, besides facilitating drainage, acts as a trap for any foreign matter which may find its way in with the petrol.

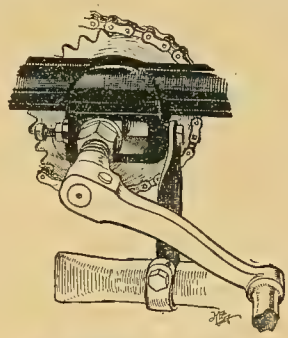
2 h.p. MODEL: 60×60 mm.; horizontal overhead valves; Amac carburetter; belt drive; two-speed with engine gear.

The 2 h.p. model is known by the firm as the "Pup," and is fitted with the Precision Junior, described in a recent issue of *The Motor Cycle*. It is sufficient to remind our readers that the two-speed gear is constructed as part of the engine, and that the valves are placed overhead, and are actuated by long rockers from the primary gearshaft. This unit is carried in a light frame with a dropped top tube, and is fitted in every detail as a miniature motor cycle. Besides the above models a 4¼ h.p. single, 3¾ h.p. single, 2¾ h.p. single, and a 2½ h.p. single are all shown, and also a kick, or hand, starter, which may be attached to practically any motor bicycle on the market.

HAZLEWOOD, No. 124.

2¾ h.p. Jap MODEL: 70×76 mm.; m.o.i.v.; B. and B. carburetter; belt transmission; Armstrong three-speed gear.

HAZLEWOODS, LTD., West Orchard, Coventry.—This model is a serviceable lightweight, following standard practice in every detail. Particularly noticeable is



Slot adjustment for kick-starter chain on the Hazlewood.

the silencer, which is of ample size, also the comfortable aluminium footboards with a ridge to prevent the heel slipping off. The head lug is particularly substantial and is worthy of notice. The dummy belt rim, on which the back brake acts, is of special design, constructed to fit into the grooved brake shoe. A simple type of lubricating pump, provided with a two-way tap, is fitted.

5-6 h.p. MODEL: 70×85 mm.; m.o.v.; B. and B. carburetter; belt and chain; Armstrong three-speed hub gear.

The 5-6 h.p. model is a handsome machine, highly suitable for sidecar work. Among the noteworthy features we may mention the flexible tubing employed for the exhaust pipes, which is led into the spacious expansion chamber, at the end of which there is a short exit pipe. The chain from engine to counter-shaft is partially enclosed and the counter-shaft itself is carried in an eccentric, so that the chain may be easily adjusted. The foot brake is of ample dimensions, designed to be self-aligning and acting on a dummy belt rim. It will be interesting to note also that the shoe is lined with Ferodo. Special attention has been paid to the mudguarding, and a front wheel stand is fitted.

3½ h.p. MODEL: 60×76 mm.; m.o.i.v.; B. and B. carburetter; belt drive; Armstrong three-speed.

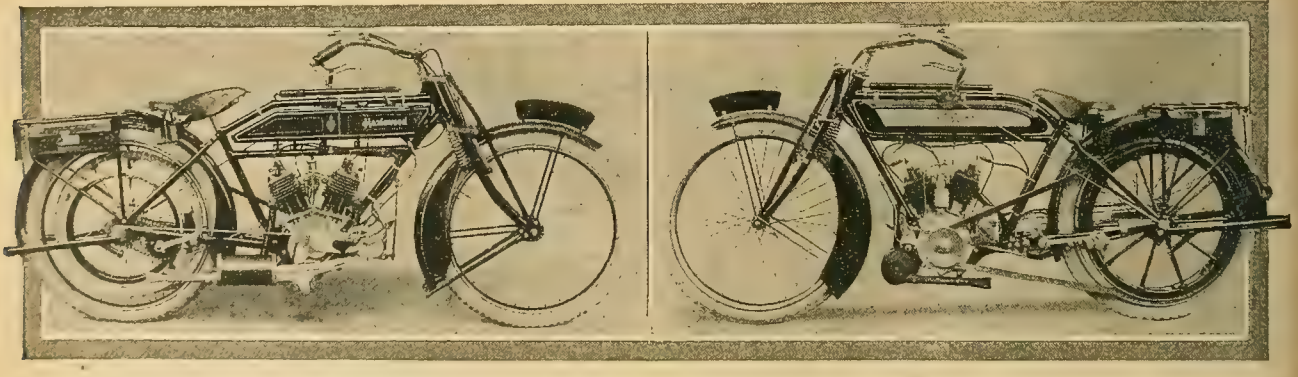
Like the 5-6 model a kick starter is fitted. The chief difference lies in the fitting of an Armstrong three-speed gear, driven direct by means of a belt. The lubrication is by hand pump and two-way tap, and the same exhaust pipe arrangement is incorporated. Like the other models, the machine is well mudguarded and equipped with a front wheel stand. The exhibit consists of the three separate models, which we have briefly described, and includes several examples of the 5-6 h.p., two of which are fitted with sidecars. Of these the one enamelled in French grey has a particularly pleasing appearance.

Induction pipe on the four-cylinder Henderson, showing arrangement for obtaining an even feed.

HENDERSON, No. 119.

8-10 h.p. four-cylinder MODEL: 67×76 mm.; m.o.i.v.; Schebler carburetter; bevel gearing and chain; two-speed epicyclic gear.

ROBERTSON'S MOTOR AGENCY, Great Portland Street, W.—Six models of this interesting machine are staged. A de-



Valve side of the new 3½ h.p. twin-cylinder Hazlewood with Armstrong three-speed gear, footboards, and flexible exhaust pipes.

The 2¾ h.p. three-speed twin-cylinder Humber in its latest form.

Guaranteed for 2,000 miles minimum

Lycett's "Armour-plated" Tool Bag.

Lycett's "V.A." Pan Seat.

When at OLYMPIA

— don't fail to call and inspect "The Good Lycett Lines"— the latest and best productions for the efficient equipment of the modern Motor Cycle — at

Stand "177" Gallery

— HERE we are showing a comprehensive range of Saddles and Accessories — including many new lines that embody certain exclusive patented features, all making for the highest utility and comfort of the rider awheel.

— Chiefly to be noted are the items here illustrated, viz.:

The "RELIABLE" Belt. Built of Rubber and Leather—expressly designed to afford greater grip, flexibility, strength, speed, long life, and absolute reliability under all conditions. The "RELIABLE" Belt has proved its supremacy, indisputably. In the A.C.U. 6 Days' Trials, machines fitted with the "RELIABLE" gained 11 GOLD MEDALS, 5 SILVER and 10 BRONZE—a total of 26 out of 61 medals that were gained by Belt-driven machines. Prices: ½in. 2/-, ⅝in. 2/4, 1in. 2/4 per foot. FASTENER 1/- extra.

The "ARMOUR-PLATED" Tool Bag Made of best quality leather, hand-sewn and lined with Flaxite. Encased in stout metal. Fall front and Patent Spring Lock. Made to strap or clip on carrier.

LYCETT'S "V.A." Pan Seat. Our new improved saddle. Its VERTICAL ACTION SPRINGS, anatomically shaped top, covered with selected Pigskin. luxuriously padded with best felt, roomy seat, and exceptionally LOW RIDING POSITION, comprise points which, combined, kill all vibration, and ensure perfect COMFORT awheel.

— We have a host of good lines to show you — lines that offer you positively the "highest quality" and "highest value" in uniformly reliable Accessories.

— Don't fail to call at "Stand 177" — or, if not visiting, please write for "The Saddle Book," post free.

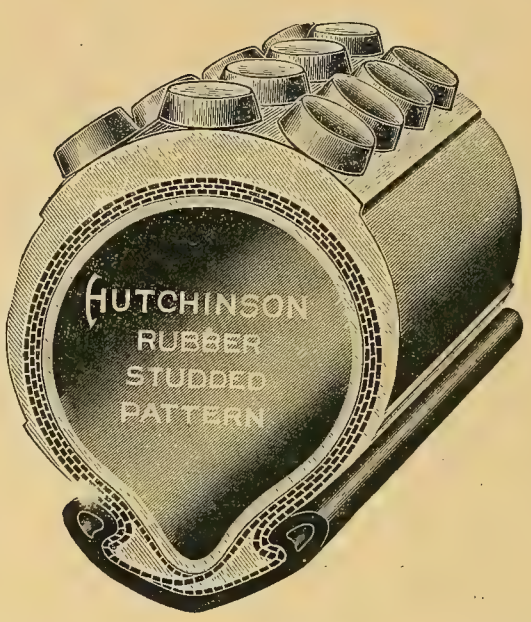
LYCETT'S, "The Saddlery," Birmingham

"LYCETT'S NEW LINES"

In answering this advertisement it is desirable to mention "The Motor Cycle"

HUTCHINS

STAND 129



STAND 129

Hutchinson "Rubber Studded"

New Pattern for 1914.

The Hutchinson "Rubber Studded" has been considerably improved to meet the requirements of the present-day Motor Cycle. The Rubber Studs are now placed much closer together, giving high gripping efficiency. They form an effective non-skid and the wearing surface is greatly strengthened. The Beads have been reinforced also, and for all-round durability and reliability this pattern cannot be equalled.

WINNERS of the

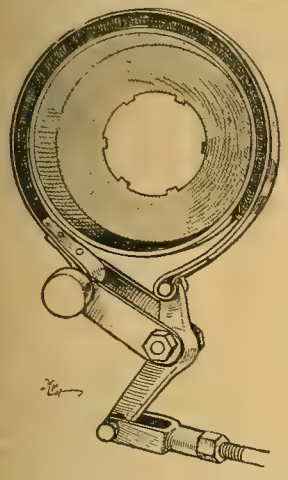
1910	Senior Race	-
1911	Senior Race	-
1912	Junior Race	-
	Senior Race	-
1913	Junior Race	-

HUTCHINSON TYRE CO.

In answering this advertisement it is desirable to mention "The Motor Cycle."

The Olympia Show.—

tailed description of the latest model appeared in a recent issue of *The Motor Cycle*, but we may remind our readers that the Henderson is one of the most powerful four-cylinder motor cycles made. The engine has four separate cylinders, with the exhaust valves on the off side; the inlet valves are of the overhead pattern. It may also be remembered that the inlet pipe is an exceedingly neat piece of work, as its



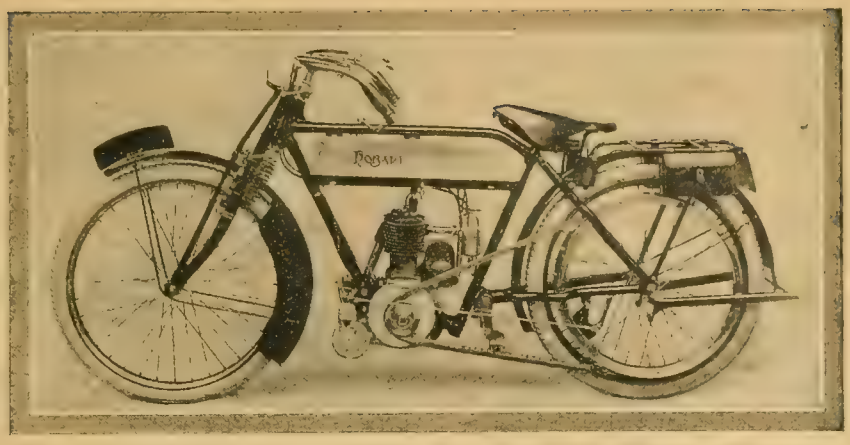
New Henderson foot-operated band brake with improved lever action and adjustments.

interior is an intricate piece of casting, so designed as to allow each cylinder to receive as nearly as possible an equal supply of gas. The warming of the carburetter is also carried out in an interesting manner, as the warming pipe runs right through the expansion chamber of the exhaust gas, and thus effectively heats the induced air. With the new models an epicyclic two-speed gear is fitted, and it is interesting to note that 28×3in. Englebert tyres are supplied with this machine. The speedometer is neatly driven off the back wheel, and to one of the models shown a handsome Bramble sidecar is fitted.

HOBART, No. 67.

4 h.p. MODEL: 85 × 85 mm.; inlet valve over exhaust; Senspray carburetter; belt; Sturmey-Archer three-speed hub

HOBART BIRD AND CO., LTD., Coventry.—The engine of the 4 h.p. is a J.A.P. carried by a very stoutly constructed frame, which has a dropped top tube. The usual fitting of two stands, carrier and pannier tool box, is supplied, the latter being completely enclosed except at the front. New features for 1914 include Best and Lloyd semi-automatic drip feed lubrication, adjustable footrests, and an extremely neat finish in black and gold. The brake and clutch pedals are in each case carried on rods separate from the footrests, so that in case of a fall there is little fear of their being damaged. The clutch control rod is supported close to the rear wheel by a neat lug brazed to the frame. This model is also shown as a single-geared machine, the specification, with the exception of the hub, being identical



Belt side of the 2¾ h.p. T.T. Hobart for 1914.

2¾ h.p. MODEL: 74 × 81 mm.; side by side valves; B. and B. semi-automatic carburetter; belt; Sturmey-Archer gear.

The 2¾ h.p. Hobart is built on similar lines to the 4 h.p. already described. The engine, however, has the magneto mounted directly behind the cylinder, and is gear-driven. The cylinder of this model has been re-designed, and the radiating surface considerably increased. Air ports are now arranged behind the valve chests. The radiating fins are formed pear-shaped. The machine is shown also in the form of a single-geared T.T. machine, and either a Ruthardt or Eisemann magneto is standardised.

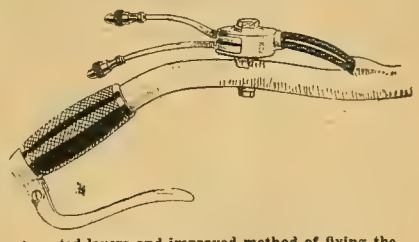
6 h.p. twin-cylinder MODEL: 75 × 85 mm.; side by side valves; B. and B. semi-automatic carburetter; chain drive; two-speed selective clutch.

The 6 h.p. model forms an entirely new exhibit of this company. It is solidly constructed and intended primarily for passenger work, sidecar lugs being brazed to the frame. The gear is of the Enfield type, and the two front chains run in an oil bath, the rear chain being protected by a cover. Very long footboards are fitted, and below them is mounted a cast aluminium silencer, which is firmly bolted to the engine, so that it cannot rattle. A long tail pipe leads the exhaust gases to the rear of the machine and an auxiliary release is formed by a short pipe pointing forwards. In finish and frame details it resembles the models already described, but in this case the mudguards have wings extending completely round the length of the guard. A taking sidecar it attached to this model, and examples of other suitable sidecars are exhibited, making altogether an excellent display. A 3½ h.p. twin-cylinder engine is also staged. It resembles the type known as the 4 h.p. during the past year, and has a bore and stroke of 65×76. Adjustable tappets are now fitted and the cylinder has been re-designed to give improved cooling.

HUMBER, No. 134.

3½ h.p. MODEL: 84×90 mm.; side by side m.o.v.; B. and B. carburetter; belt; special Sturmey-Archer gear.

HUMBER, LTD., Coventry.—The 3½ h.p. Humber is shown in two forms, viz., water and air-cooled, the former having been made to furnish a machine particularly suitable for sidecar work. This model is shown as a sidecar combination, the specification of the two types being almost identical. The engine has a cast water jacket of large dimensions, through which a thermo-syphon circulation is maintained in conjunction with an inclined gilled tube radiator which forms a downward extension of a large capacity water tank, which is set across the front end of



Inverted levers and improved method of fixing the controls on the 1914 Humbers.

the petrol tank. The volume of the latter has been considerably increased. Lubrication is by Best and Lloyd semi-automatic drip. A simple and efficient form of kick starter is used, and the handlebars have a transverse tube.

2¾ h.p. twin MODEL: 60.75 × 60 mm.; side by side valves; B. and B. carburetter; belt; Sturmey-Archer gear.

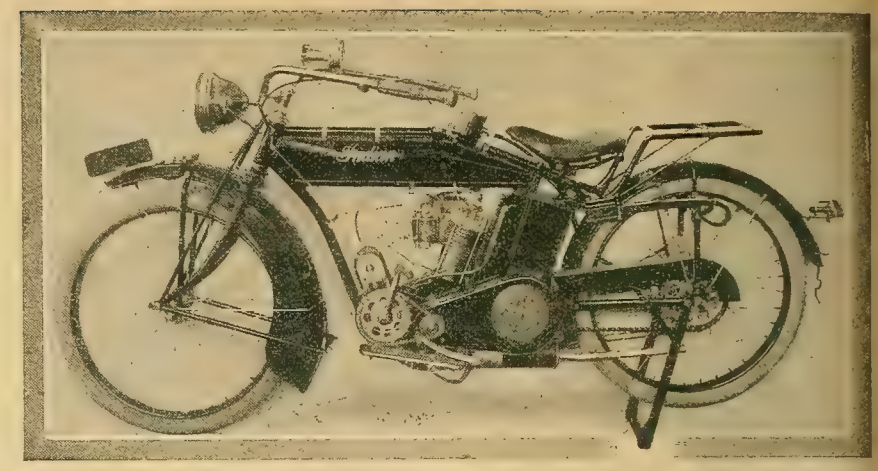
The 2¾ h.p. Humber is shown both in T.T. form and as a standard machine with pedalling gear. It has not been found necessary to incorporate any improvements in this popular model, in which the prominent feature is the offsetting of the cylinders. The frame is pronouncedly dropped. The neat silencer consists of a large expansion chamber, from which the gases flow through a short length of pipe terminating in a fan-shaped nozzle. The 2 h.p. lightweight model, with single-cylinder engine of 60×70 mm. bore and stroke, also remains unchanged, and is shown both in single-geared form and fitted with a S.A. hub. It is a matter of some disappointment to find that a new three-cylinder horizontal opposed Humber engine is not on view, but we understand that the company are so busy with their existing models that it has been decided to postpone any further development of new types.

The Olympia Show.—

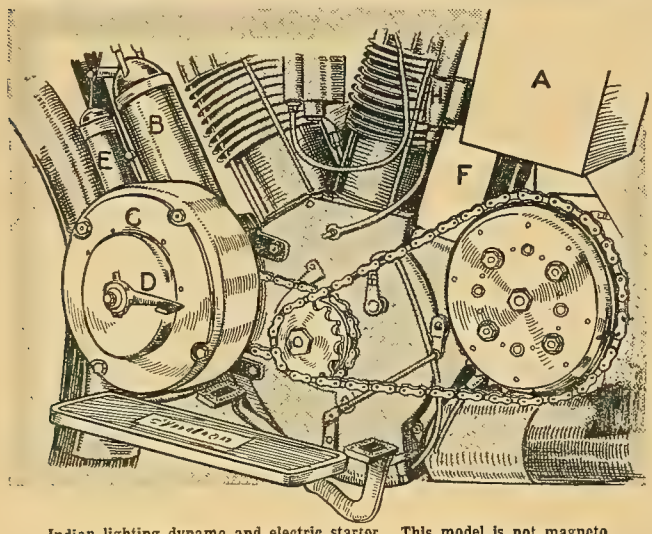
INDIAN, No. 123.

3½ h.p. MODEL: 82.5×93 mm.; overhead inlet valves; Indian carburetter; chain; two-speed Indian gear.

THE HENDEE MANUFACTURING CO., Euston Road, N.W.—The 3½ h.p. is a very handsome model, finished in Indian red, which colour is employed for all other machines on this stand, and is the standard colour for 1914. The new models have been previously described in a recent issue, but we may remind our readers that the same excellent silencing arrangements and efficient form of back springs are still retained, as well as the mechanical lubricator, which has long been such an attractive feature of this machine. It is interesting to note that the Splitdorf magneto, one of the best made American magneto machines, is fitted as a standard. The position of the speedometer just in front of the saddle is also worthy of mention, as the instrument is placed in a visible position, and the drive is taken off the back wheel, the driving ring being mounted with the brake drum. The speedometer is the Corbin, a handsome instrument. This is the ideal place to carry a speedometer, as the flexible shaft has no bends.



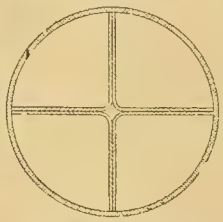
Chain side of the 3½ h.p. single-cylinder Indian, with electric lighting set.



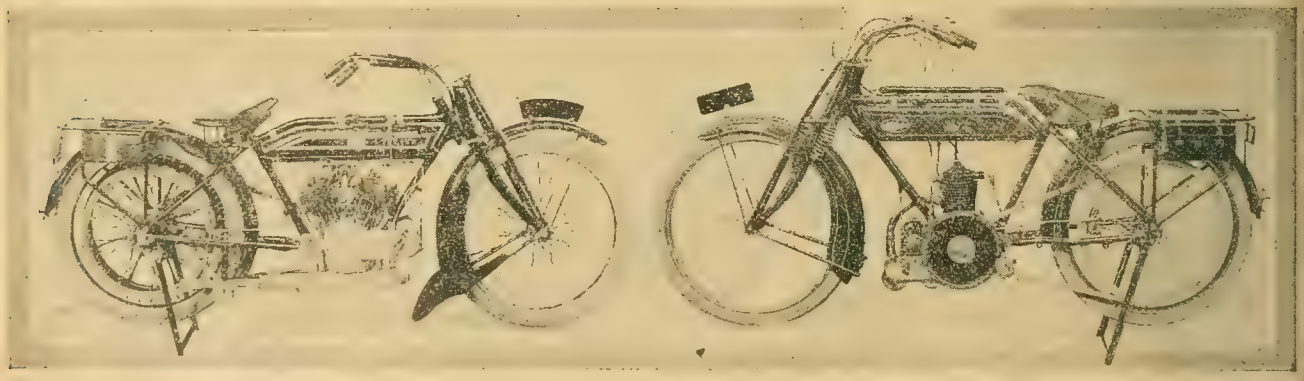
Indian lighting dynamo and electric starter. This model is not magneto ignited.
A. Battery case containing unspillable accumulators. B. Induction coil. C. Electric starter. D. Dynamo starting pedal. E. Automatic cut-out switch or dynamo governor. F. Oil reservoir. H. Hand oil pump.

7 h.p. two-cylinder MODEL: 82.5 × 93 mm.; overhead inlet valves; Indian carburetter; chain; Indian two-speed gear.

The latest model 7 h.p. Indian is undoubtedly one of the features of the Show, being the first machine to be turned out with electric starter and electric lighting. The whole outfit is worthy of the closest study. We may begin by explaining that the dynamo, which is driven by chain off the engine-shaft, is controlled by a switch incorporated with a controller on the top tube. When it is desired to start the engine the exhaust lifter is raised, the action of which then releases a catch, which allows the switch to be pushed over into the "off" position. Thence it can be pushed forward, allowing the motor to start the engine. As soon as the engine has attained a certain number of revolutions the exhaust valve is dropped and the switch pushed right back, with the result that the motor is converted into a dynamo and supplies current for the contact breaker and also to charge the batteries. The whole electric arrangement is very carefully thought out. The wires are conveyed in covered cables to a distribution board, while the lead to the tail lamp, which also illuminates the back number plate, passes through the offside head of the rear mudguard. It is also interesting to note that the dynamo is provided with an automatic cut-out to prevent overcharging. The fact that the Corbin speedometer is capable of being disconnected by pushing back a milled nut is also worthy of mention, so that the speedometer need not register while the engine is being run on the stand. The type of head light fitted is also worthy of special attention, as it is provided with a scientifically constructed reflector.



Section of tubing of the Indian frame showing method of reinforcement.



Valve side of the 5-8 h.p. twin-cylinder three-speed Ivy-Precision.

Pulley side of the two-stroke single-cylinder Ixion

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IVY, No. 41a.

6 h.p. twin MODEL: 76×85 mm.; side by side valves; B. and B. carburetter; chain and belt; Jardine two-speed gear.

S. A. NEWMAN, Lichfield Road, Birmingham.—A fine sidecar combination is shown on this stand equipped with the above details, the colour scheme being French grey with dark green panels. The sidecar is noticeable for a very deep scuttle dash. An adjustable wind screen is mounted right up to the passenger, and the space between the scuttle dash and the wind screen is filled in with a neat detachable waterproof covering. A Cape cart hood is also fitted, and the upholstery is well padded. The transmission on the machine is arranged so that the final drive is by belt running over a very large pulley, thereby enabling easy detachment of the back wheel to be made. Brampton Biflex spring forks are fitted, and the whole turn-out has a most workmanlike appearance. Another sidecar is shown fitted with a 4¼ h.p. single-cylinder Precision engine, the drive being by belt to the back wheel which is fitted with a Sturmey-Archer three-speed hub.

2¾ h.p. MODEL: water-cooled Green-Precision; overhead; B. and B. carburetter; belt; Brampton variable gear.

This is a speedy looking machine of the T.T. type, the engine being a Green-Precision with radiators mounted at the sides of the cylinder. On the top of the tank is mounted a small copper reservoir connected by a rubber tube with the radiators to keep up the water supply. Brampton forks are fitted, and a curious feature is the connection by means of a flexible pipe between the timing case and the carburetter, allowing a small amount of oil vapour to be taken into the carburetter. The machine is beautifully finished, and should prove very speedy. Other models shown are fitted with 3½ h.p. single-cylinder and 3½ h.p. twin Precision engines, the drive in both cases being by belt.

IXION, No. 136.

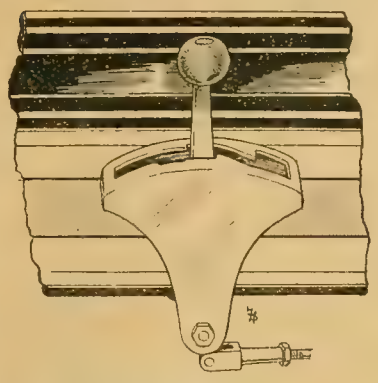
4¼ h.p. MODEL: 89×96 mm.; side by side valves; Amac carburetter; belt; Sturmey-Archer three-speed hub.

IXION MOTOR MFG. CO., Ladywood, Birmingham.—The 4¼ h.p. Ixion machine is shown as a very taking sidecar combination, for which purpose the frame

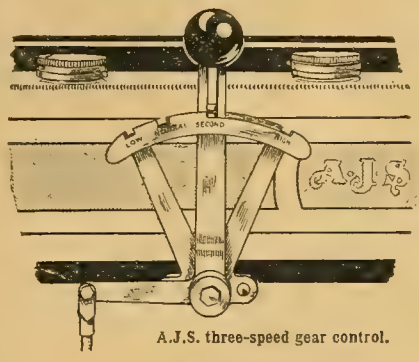
Double silencer and extension pipe on the two-stroke Ixion.

is suitably reinforced where necessary; the sidecar lugs are permanently fitted. The joints employed are of a patent quick detachable type, and have a self-locking action. A specially designed change speed lever is employed, and is carried on the lower frame tube below the tank.

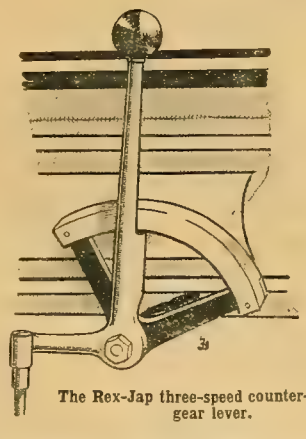
TYPES OF GEAR CHANGE LEVERS ON 1914 MODELS.



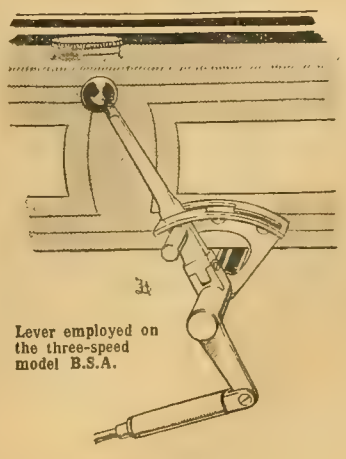
Rover gate change for S.A. gear.



A.J.S. three-speed gear control.



The Rex-Jap three-speed counter-shaft gear lever.



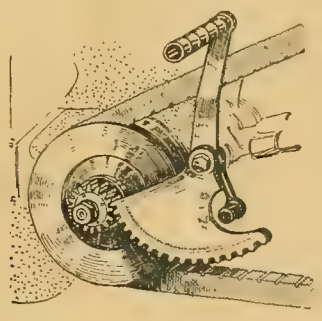
Lever employed on the three-speed model B.S.A.

It is claimed that, owing to its length and disposition, it greatly facilitates gear changing. The foot brake is of the floating (or compensated) type, and is placed so that it does not interfere with the withdrawing of the rear wheel. The seat of the sidecar is hung like a hammock on twenty small coil springs.

The 3½ h.p. model, with a bore and stroke of 85×88 mm., is similar to the above in all essentials, both having Precision engines, Sturmey-Archer gear, and handle starting devices.

2¾ h.p. MODEL: overhead inlet valve; Amac carburetter; belt; Villiers two-speed gear.

This model, which is shown in solo form and also as a light sidecar delivery van, is fitted with a 2¾ h.p. Villiers engine, which combines a two-speed gear in the crank chamber. The enclosed clutch is capable of being operated either by foot or by a lever on the handle-bar. A kick starter is fitted, and this comprises an adjustment device so that the teeth of the rack and pinion can be kept suitably in mesh. Druid spring forks are used, and the footboards on this and all the other Ixion models are of cast aluminium.



Kick-starter acting directly on the belt pulley of the Ixion.

Another 2¾ h.p. model is made, in which the engine is again a Villiers, but of the two-stroke type, having dimensions of 70×70 mm. This model is made with both the fixed and the two-speed gear with chain and belt drive, the box being attached to the bottom bracket. In this machine a special construction of the head is employed to do away with the necessity of using a rail below the tank.

JAMES, No. 61.

4¼ h.p. MODEL: 96×103 mm. side by side valves; B. and B. or Amac carburetter; chain; three-speed counter-shaft gear.

THE JAMES CYCLE CO., Greet, near Birmingham.—The big single will again be a feature of 1914. It has performed so successfully during the past that it has not been considered necessary to make any extensive alterations. The size of the engine has been somewhat increased, and there are some slight improvements in the valve ports and radiating fin design. Both driving chains are enclosed in neat pressed steel cases, which are arranged so as to be easily removable and still leave the rear wheel easy of access. A new feature is the fitting of a spring shock absorber in the

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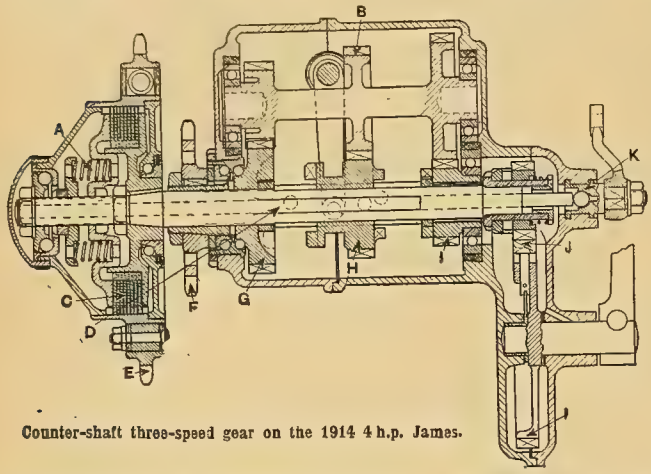
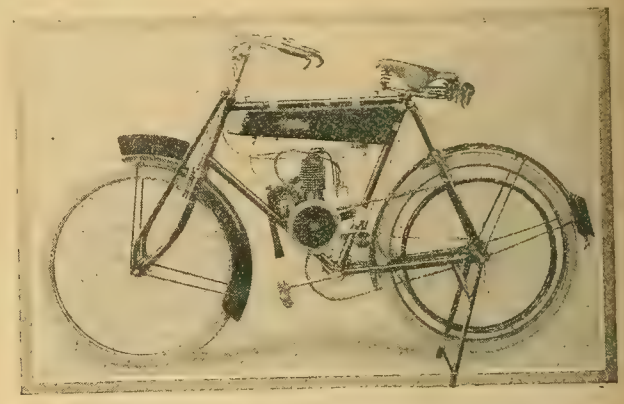
rear hub. It has been found that this type, besides removing all engine shocks, considerably reduces the wear on tyres. The big James is particularly popular for sidecar work, and in consequence it has been found advisable to fit a front hub constructed to run on Timken roller bearings to withstand the extra side thrusts. This is a most admirable point, and is worthy of attention. Attached to this model is a well-finished sidecar, and also to a similar machine a coach-built delivery body, built for newspaper work. As is pointed out by the manufacturers, although the machine is primarily intended for passenger work, it is by no means too heavy or clumsy to be used occasionally solo. The three-speed counter-shaft gear is extremely well designed, and is operated by a stout lever on the right-hand side of the tank. Though not on view at Olympia, belt-driven models may also be obtained.



Counter-shaft three-speed gear on the 1914 4 h.p. James.



A lightweight with the J.E.S. auxiliary motor set—probably the lightest machine in the Show.

3½ h.p. MODEL: 64×77 mm.; side by side; B. and B. or Amac carburetter; chain; three-speed counter-shaft gear.

The 500 c.c. twin James is a striking-looking mount, and has many interesting features. The James staggered radiating fins are, of course, retained, and air passages are formed round the valve chests. An excellent feature is noticeable in the magneto chain adjustment, the sprockets being formed with radial slots, which allow a very fine adjustment. The magneto is chain-driven, and placed behind the engine, where it is extremely accessible, and at the same time well protected from the elements. As in the 4½ h.p. model, a three-speed gear box is employed. This box is very neatly designed, and is of small proportions, though the wearing surfaces have not been reduced in any way. Both driving chains and the kick starter are enclosed, and a simple adjustment is provided for chain stretch. Both James models are fitted with multiple-disc clutches, mounted on the counter-shaft and controlled from the handle-bars. The finish of all models is excellent, and sight feed drip lubrication is employed in each case, assisted by a pump for emergencies.

J.E.S. MOTORCYCLETTE No. 36.

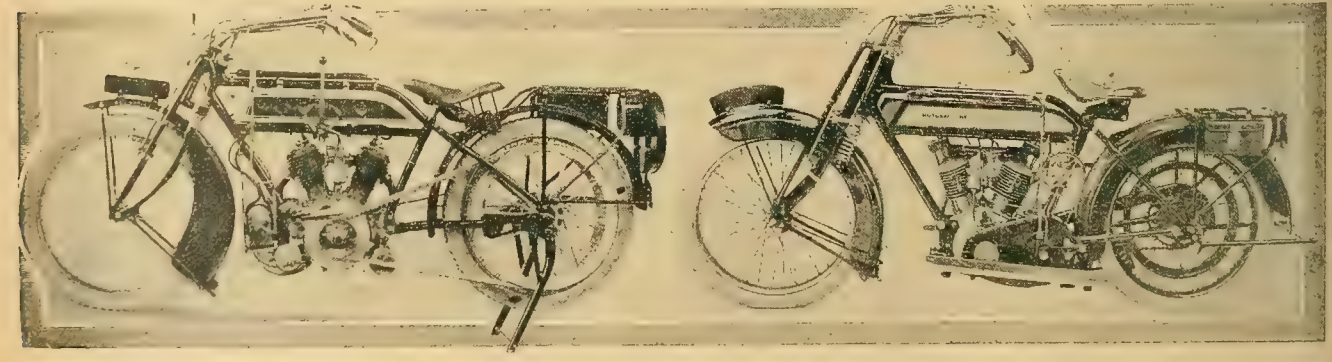
50 × 52 mm.; automatic inlet valve; J. E. Smith's patent carburetter; belt; single speed tranmission.

J. E. SMITH, AUXILIARY MOTOR WORKS, Gloucester.—This little machine is probably the lightest and smallest of any on the market at the present moment, the complete power unit weighing about 24 lbs., and either a complete machine or the power unit alone can be supplied. The motor is so light that it can be fitted to any standard roadster pedal cycle, but at the same time it is capable of attaining a speed of thirty miles an hour, if desired, and runs 180 miles on a gallon of spirit. The control of the carburetter is by means of Bowden wires from the handle-bars in the usual style, and the complete machines shown are fitted with girder forks of the rigid type. The ignition is by Fisher magneto and an outside flywheel is fitted. A jockey pulley is provided to take up the slack of the belt The lubrication is by an ordinary hand pump, and oil is delivered into the timing gear case, and thence it runs into the base chamber. This little machine is very compact, and is in every sense a genuine lightweight. We understand that the company have under test a miniature two-stroke 2 h.p. motor, but this was not on the stand at the time of our visit, though it was hoped that it would be finished in time for exhibition later in the week.

KERRY-ABINGDON, Nos. 222 and 34.

3½ h.p. MODEL: 85×88 mm.; Amac carburetter; side by side valves; belt; Armstrong three-speed gear.

ABINGDON ECCO, LTD., Tyseley, Birmingham.—Amongst the most interesting features embodied in the 1914 models of the Kerry-Abingdon is the crank case, the design of which is very clean. A new kick starter is also fitted. The general design of the machine is pleasing, and it is worthy of note that a mudguard is provided for the magneto, and side shields are fitted to the front mudguards, while the footrests are ad-



TWO 6 H.P. TWINS FOR NEXT YEAR.

(1) The three-speed model Kerry-Abingdon with direct belt drive and Mark VII. Armstrong gear.

(2) Gear side of the two-speed chain driven Motosacoche

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justable. This model is shown attached to a sidecar.

6 h.p. MODEL: 67×95 mm.; side by side valves; Amac carburetter; belt transmission; Armstrong three-speed gear.

The new engine designed by Mr. Blumfield is an excellent piece of work, and the fine finish of the crank case casting should be carefully noted. It has also an ingenious device for priming both cylinders simultaneously. Messrs. Kerry-Abingdon also are showing a handsome sidecar, the wheel of which is suspended at two points, while the frame is built in one tube, bent so that it forms the outline of the chassis, the tube being strengthened by cross members. A very neat, quickly detachable fitting is also supplied with this sidecar. The portion attached to the sidecar frame consists of a spindle, the end of which is grooved; the part attached to the bicycle is provided with a fork clip, which fits tightly over the groove and is afterwards held in position by a spring bolt rendering the fastening perfectly secure. There is a minor point, but one well worth noticing, on this model, and that is the provision of two anchor plates to the hub gear, one on each back stay. By this means twisting of the gear is entirely obviated, however much it may be abused.

6-8 h.p. twin MODEL: 73×95 mm.; side by side valves; B. and B. or Amac carburetter; chain and belt; Armstrong Mark VII. on counter-shaft gear.

The 8 h.p. twin-cylinder is an entirely new model designed specially for sidecar work. The general lines of the engine follow standard Kerry-Abingdon design, but a number of interesting features are to be found on the machine. The transmission is by chain and belt, both of which are protected, and an Armstrong Mark VII. gear is placed on the counter-shaft, adjustment being provided by mounting the gear on a strong swinging cradle; 3in. tyres are fitted, and a long steering head is used to avoid steering troubles with a heavy sidecar. Generous fuel provision has been made, no less than 2¾ gallons of spirit and over half a gallon of oil being accommodated in the tank. The back mudguard is 7in. wide, and for serious touring the machine should prove ideal.

LEA-FRANCIS, No. 68.

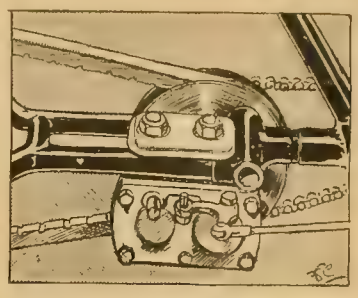
3½ h.p. MODEL: 60×76 mm.; side by side valves; Amac or Everset carburetter; chain; two-speed counter-shaft gear.

LEA AND FRANCIS, LTD., Lower Ford Street, Coventry. — Six machines are shown on this stand, all being to all intents and purposes identical. The engine is a 50° twin J.A.P., and transmits the power through a spring shock absorber to a two-speed counter-shaft gear box. The gear box is mounted in a hollow bottom bracket, and provision is made for chain adjustment by rotating the box, which is eccentrically mounted. Final drive is also by chain, and the transmission is thoroughly well enclosed throughout, the chain cases being quickly detachable. The mudguarding has been very thoroughly carried out, and the rear part of the back guard can be swung away, which, together with a removable rear spindle, permits a ready wheel adjustment for tyre repairs. Long curved footboards are fitted at each side of the machine, and have a useful mud splasher mounted across the front. One of the most unusual fittings of this machine is the front brake, which is of a similar pattern to the rear brake, consisting of a shoe acting on the inside of a V-type brake rim. The magneto lies directly behind the engine, and is driven by chain direct from the crankshaft. A new type of handle-bar having a very pleasing appearance has now been standardised, and the only other new feature is a neat inspection door in the rear chain case. An interesting feature of the stand is a section of the transmission gear, by means of which the whole driving system can be easily seen. All parts exposed to mud and rain are blacked, and three instances are displayed with handle-bars finished in black. In every case a single lever carburetter is supplied. An interesting case showing Lea-Francis parts is displayed, and a particular feature is the new weather-proof detachable hub which is mounted on Skefko ball bearings.

LEVIS, No. 23.

2¼ h.p. two-stroke MODEL: 62 × 70 mm.; Amac carburetter; belt.

BUTTERFIELDS, LTD., Stechford, Birmingham.—The 2¼ h.p. Levis in its simple single-speed model remains practically unaltered, and is about as simple a form of motor cycle as it is possible to imagine, while the weight, of course, is kept extremely low by the absence of any complications. This is also made with a special open frame model for ladies, and the one exhibited on their stand is finished throughout with nickel plate, and forms a very striking exhibit. The upper half of the belt runs in a tube, which completely prevents the rider's dress being entangled or soiled by contact with the belt.



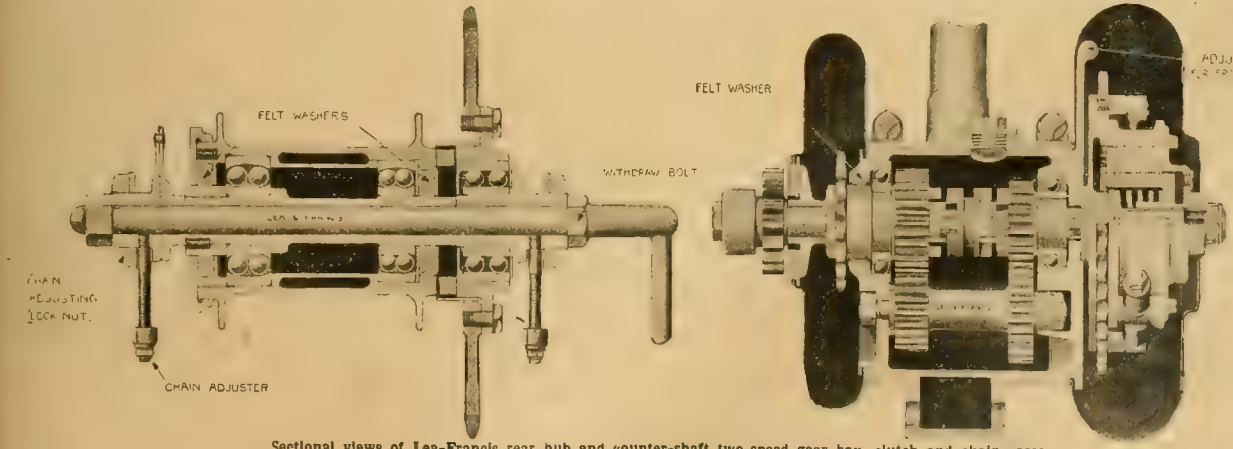
The compact counter-shaft two-speed gear on the Levis, which is readily detachable and adjustable.

2½ h.p. two-stroke MODEL: 73×70 mm.

This forms a more powerful edition of the "Baby," the engine being more powerful, and the wheelbase extended, and larger petrol capacity being given. The filler caps to the tank call for comment, being of the extended or chimney type. The frame of this model is so designed that it may be obtained, if desired, fitted with the Levis two-speed counter-shaft gear, an example of this gear being shown on Stand 27 fitted with a sidecar.

2¾ h.p. two-stroke MODEL: 75 × 79 mm.; Amac carburetter; chain and belt; two-speed counter-shaft.

The engine of this machine is identical with the one that ran so satisfactorily in the Junior Tourist Trophy Race, and the machine is specially designed for use with a light sidecar. The gear box is extremely compact, and although not shown on the stand, Messrs. Butterfield are bringing out an expanding ring clutch, which will be fitted to the flywheel. Adjustment for the high-speed driving chain is provided by allowing the gear box to be moved along the slot, very substantial locking nuts being provided. The gear is changed by a quadrant situated horizontally on the top tube. Lubrication is by a semi-automatic Best and Lloyd. The



Sectional views of Lea-Francis rear hub and counter-shaft two-speed gear box, clutch and chain cases

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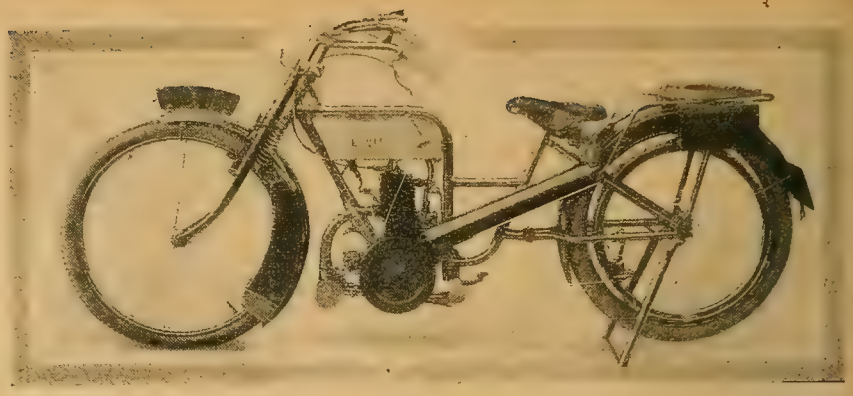
machine is shown fitted with a Watsonian coachbuilt sidecar, painted and upholstered red. A very interesting novelty is the 1¼ h.p. "Levisette," which is practically a push cycle fitted with a 1¼ Levis engine, 58 × 66 mm. (174 c.c.). The drive is by direct belt, and it is not necessary to employ a jockey pulley in the transmission. The total weight of the machine ready for the road will be under 75 lbs. A late arrival on the Levis stand was a 2¾ h.p. two-speed mount, complete with a sidecar. The latter is made specially for a lightweight machine, and has a single tube frame, the body being suspended on Brooks's patent compound springs. It weighs complete but 46 lbs.



Quite one of the most attractive machines in the Show is the Ladies' Model Levis, which is silver-plated throughout and has ivory handlegrips.

LINCOLN-ELK, No. 125.

2¾ h.p. MODEL: 76×77; m.o.i.v.; B. and B. carburetter; belt.

JAMES KIRBY, Broadgate, Lincoln.—This model may be described as a lightweight "runabout," following standard lines in every detail. As regards the engine, both valves are of large diameter and each is operated by its own cam through independent rockers. Although there is no change-speed gear, a variable pulley is fitted.

3 h.p. MODEL: 79×82 mm.; m.o.v.; B. and B. carburetter; belt.

3½ h.p. MODEL: 85×88 mm.; m.o.v.; B. and B. carburetter; belt.

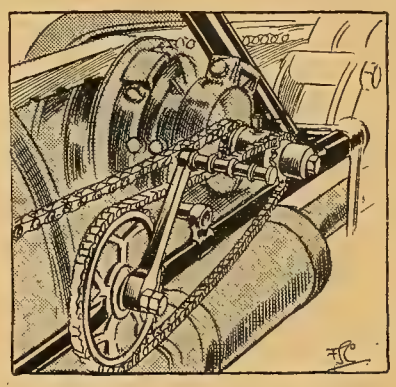
Both the 3 h.p. and the 3½ h.p. models are similar in detail to the 2¾ h.p., being single-geared mounts, and sold to the public at a very moderate figure.

4¼ h.p. MODEL: 89×90 mm.; m.o.v.; B. and B. carburetter; chain and belt; two-speed contracting band counter-shaft gear.

This is a machine capable of taking a sidecar practically anywhere. The transmission is by chain to the counter-shaft, the chain being partially enclosed in an aluminium case. The high gear drive is by belt to a large pulley on the back wheel, a separate chain being used for the low gear. In the case of each gear the drive is taken up by means of contracting band clutches, while a kick-starter is also fitted. The action of the change speed lever, situated on the off side of the tank and within easy reach of the driver's hand, is well worthy of attention. Comfortable aluminium footboards are fitted, while the petrol tank is of ample dimensions.

6 h.p. MODEL: 76×85 mm.; m.o.v.; B. and B. carburetter; chains and belts; two-speed contracting band counter-shaft gear.

Except that a 6 h.p. twin engine of 770 c.c. is fitted, the details are practically the same as the 4 h.p. We may mention, however, that an Enots lubri



The kick-starter on the Lincoln Elk operating on the gearshaft.

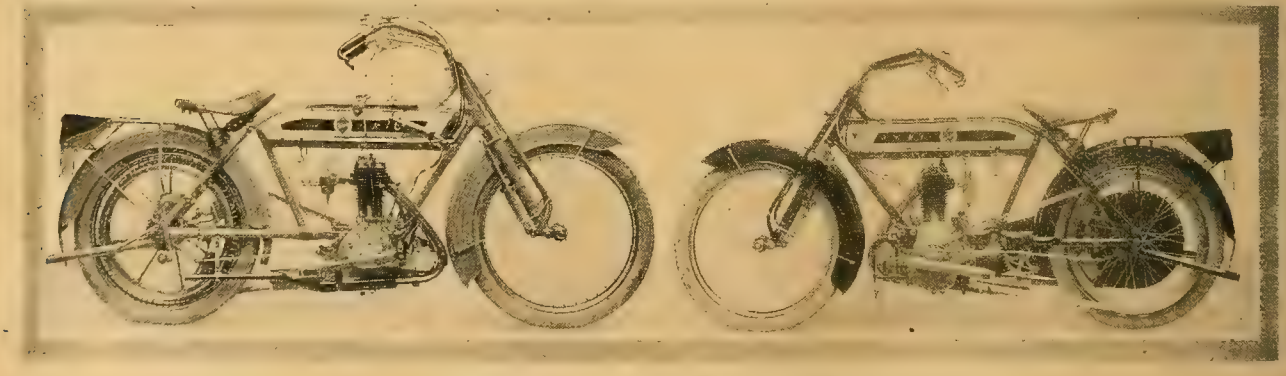
cator is fitted, and 26in. × 2½in. Palmer tyres are standard. The saddle is the comfortable Brooks's B 170; Druid forks are fitted to all models.

Two sidecars are shown on this stand, one of which is a torpedo model specially designed for racing.

L.M.C., No. 70.

4 h.p. MODEL: 89 × 92 mm.; side by side valves; B. and B. or Senspray carburetter; belt and chain; two-speed selective clutch.

THE LLOYD MOTOR ENGINEERING CO., LTD., Monument Road, Birmingham.—The 4 h.p. L.M.C. is specially designed for sidecar work. The engine has undergone only slight alteration, but a mechanical decompressor has been added to the timing case, and is operated by a control lever on the tank through the medium of a coil spring, so that should the cam be in the wrong position to engage, the lever can be set to operate it, and as soon as the engine is turned the decompressor comes into action. The L.M.C. two-speed gear is now well-known, the high gear being by direct belt drive, and the low gear a combination of two chains through a counter-shaft. The operation is carried out by separate clutches of the expanding type, connected by a single pedal placed in a convenient position at the front of the right footboard. A new silencer is now employed, and consists of a large expansion chamber placed immediately below what is usually the pedal bracket, and having an extension pipe towards the rear axle. The spring forks have undergone slight modifications, and the spring is set so that it absorbs both compression and recoil actions. This type of machine can also be procured with the Auto-Varia gear, or Sturmey-Archer three-speed hub. One machine has attached to it a neatly constructed sidecar.



TWO MODELS OF THE L.M.C. FOR 1914.
(1) Valve side of the 3½ h.p. three-speed model. (2) The two-speed counter-shaft gear type with chain and belt drive

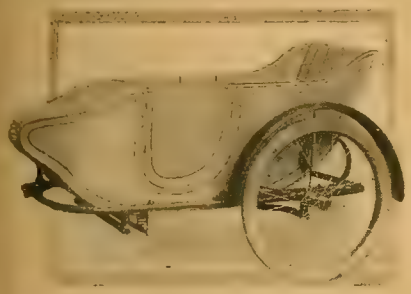
The Olympia Show.—

3½ h.p. MODEL: 85 × 88 mm.; side by side valves; B. and B. or Senspray carburetter; belt and chain; two-speed selective clutch gear.

The 3½ h.p. model follows strictly on the lines already described, and can be obtained with either L.M.C. two-speed, Auto-Varia, S.-A. three-speed hub, or fixed gear. The last-named model is shown as a Tourist Trophy racer, and has a very pleasing appearance. The design of the L.M.C. front forks does not lend itself to the use of a front wheel brake, consequently both rim brakes work on the rear wheel, and are placed one above the other. A very pretty grey-finished machine is staged, and in all there are seven machines on view.

McKENZIE, No. 18.

THOMAS MCKENZIE, Bath Passage, Birmingham.—The display of coach-built and cane sidecars is comprehensive. The most striking is coach-built, fitted with a Cape hood, the colour scheme being khaki with fine dark lines, and the upholstery in a pale shade of leather. A useful flap pocket is provided in the side. The axle is stepped. Suspension is by Cee springs at the rear and coil springs in front, and three-point attachment is provided. These



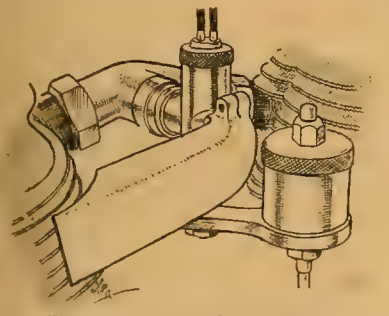
A new McKenzie coach-built sidecar.

sidecars are light in weight, and very deep seats are provided.

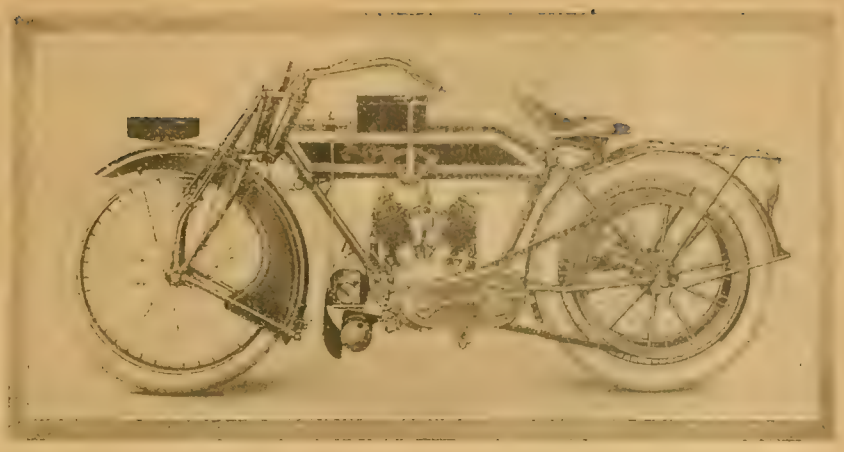
MATCHLESS, No. 50.

7 h.p. MODEL: 82 × 94 mm.; overhead inlet valves; Amac carburetter; chain; three-speed counter-shaft gear.

H. COLLIER AND SONS, LTD., Plumstead, S.E.—This interesting machine presents several new features. The engine is the now well-known M.A.G. Overhead inlet valves are employed, and the operating mechanism is entirely en

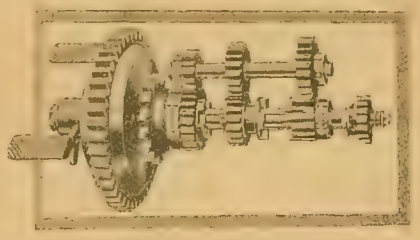


Hot air collector pipe fitted to Amac carburetters on 3½ h.p. Matchless.



3½ h.p. twin cylinder Matchless-Jap with chain and belt drive and hub gear

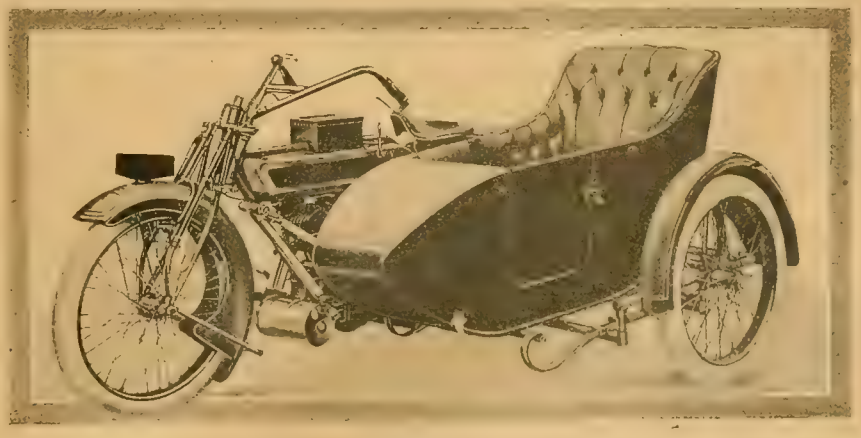
closed and lubricated from the engine through the tubes in which the tappet rods work. This method of construction also prevents air leaks, and consequently enables the engine to run at very slow speeds when required. A special release valve, fitted in the timing gear case, prevents the emission of the oil. The waterproof magneto is carried behind the engine well out of the way of mud and wet. The three-speed counter-shaft gear follows car practice, the direct drive being on top gear. The gears slide on a castellated shaft accurately machined and hardened. The whole gear box can be readily detached from the machine. The transmission is by Renold's silent chain from engine to gear box, and roller chain to the back wheel, a shock absorber being fitted on the engine-shaft. All chains are enclosed in oil-tight cases and lubricated by an overflow pipe from the engine. The back tyre, 650 × 75 mm., has been specially manufactured for Messrs. Collier by the Hutchinson Tyre Co. This is essentially a sidecar model, and the following dimensions are interesting. Entire length 74in., height of saddle 30in., full width 56in., highest point 42in. The tank has a capacity of 2½ gallons of petrol and three pints of oil, and is fitted with large filler caps and semi-automatic drip feed lubricator. Inverted levers are used for brake and valve lifter, which gives a neat appearance to the V-shaped handle-bar. Two pairs of footrests and pan seats make for the comfort of the driver. The standard gear ratios are 4½, 7⅓, and 11½ to 1.



Internal mechanism of the Matchless two-speed counter-shaft gear.

3½ h.p. twin-cylinder: 70×64.5 mm.; side by side valves; Amac carburetter; chain and belt; three-speed Armstrong hub gear.

This model was introduced last year and met with a large measure of success. The two-step drive enables a fairly large pulley to be used without causing the

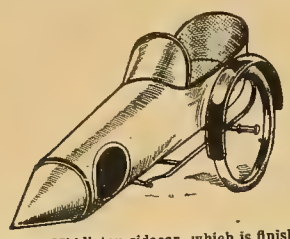


The latest 7 h.p. Matchless sidecar combination.

The Olympia Show.—

top gear to be unduly high, the standard gear being 4½ to 1 on top with usual Armstrong reductions. The engine is a J.A.P., and, like all the engines fitted by this firm, is a twin-cylinder.

The Matchless sidecar is especially built for use with Matchless machines, and is of the same grey colour lined in green and gold. The chassis is built up entirely of straight tubes and provided with four-point fixing and a stand. The body is constructed of three-ply mahogany on a bent wood frame, and supported on long flexible C springs. A small locker is fitted for carrying spares, and provision is made for a petrol can in the rear. The tyre is a 650 × 65 Hutchinson.



The Flying Middleton sidecar, which is finished in yellow and black, has a most striking appearance.

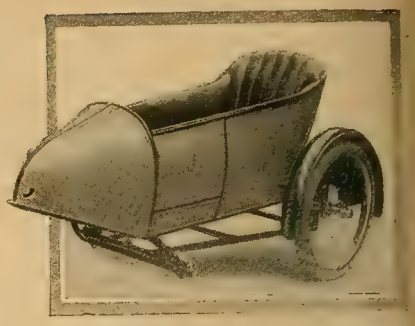
MILLFORD, No. 60.

Mills-Fulford, Ltd., Stoney Stanton Road, Coventry.—One of the oldest established sidecar firms in the country is Mills-Fulford, Ltd. Their exhibit this year is particularly interesting. A new and particularly simple chassis is being produced, the chief features of which are its rigidity and the low position which it affords, permitting the use of practically any type of body. All the side members of this frame are triangulated, and the wheel is mounted at the apex of the triangle. A spring wheel model is shown in which the wheel spindle is mounted between buffer and recoil springs at each side, providing a very easy motion for the chassis. A special model is made to suit spring frame machines, such as the Indian, and excellent mudguards are fitted with deep valances on the inside to protect the rider and bodywork. Unless especially ordered, three points of attachment only are provided except in the case of the tandem-seated body, which is attached to a specially strengthened chassis. The body of this model is neatly arranged so as to provide ample room for both passengers without the body being unduly long. Several very fine bodies are exhibited, both in coachwork and wickerwork. The shapes vary through a very wide range, and provide a very large choice for the purchaser. Parcel delivery bodies are also shown. Models are exhibited attached to Zenith, P. and M., Rudge, A.J.S., and Indian motor cycles. Out of nineteen models exhibited, all but four are coachbuilt, which clearly shows the type of sidecar body required by the public.

MONTGOMERY, No. 111.

5-6 h.p. Twin: 75×78 mm.; horizontal valves on top; B. and B. carburetter; belt; hub three-speed gear.

W. Montgomery and Co., Gosford Street Coventry.—Although the new Montgomery machine had not arrived at the time of our visit, it is one that will claim a good deal of interest. It has horizontally opposed twin cylinders working on a two-throw crankshaft which, like the camshaft, runs on two-row Skefko ball bearings. This camshaft, with cams solid with it, is exceptionally massive, because through it the power is transmitted geared down sufficiently to enable a 7in. pulley to be used. The magneto is on top of the crank case, and is chain-driven from the camshaft. The big end constitutes a notable point in design, for in the connecting rod a slot is cut downwards so that both brasses can be inserted from underneath, they are then held in position in the slot by bolts passing through both jaws of the connecting rod slot and the brasses. Best and Lloyd drip feed lubrication is used. The radiating fins are pear-shaped, and the engine has an outside flywheel. This model has been designed essentially for sidecar work, and is finished in all black with gold lines. It can be fitted with a special design of sidecar finished to match, in which form the combination is known as the Montgomery Duette, the whole equipment being fitted with speedometer, two lamps, horn, luggage grid, and leather valise, together with all accessories and spares, at an inclusive price. Many designs of sidecars are on view, the latest pattern showing the wheel completely mudguarded on the inner side of the top half, while great attention has been given to rendering the fittings adjustable to various types of machines. As far as possible all the framing tubes are straight, and careful provision is made for locking all the attachments. The car body itself is



A type of Montgomery coach-built sidecar.

carried on a transverse plate spring at the front, and shackled to Cee springs at the back.

MOTO-REVE, No. 118.

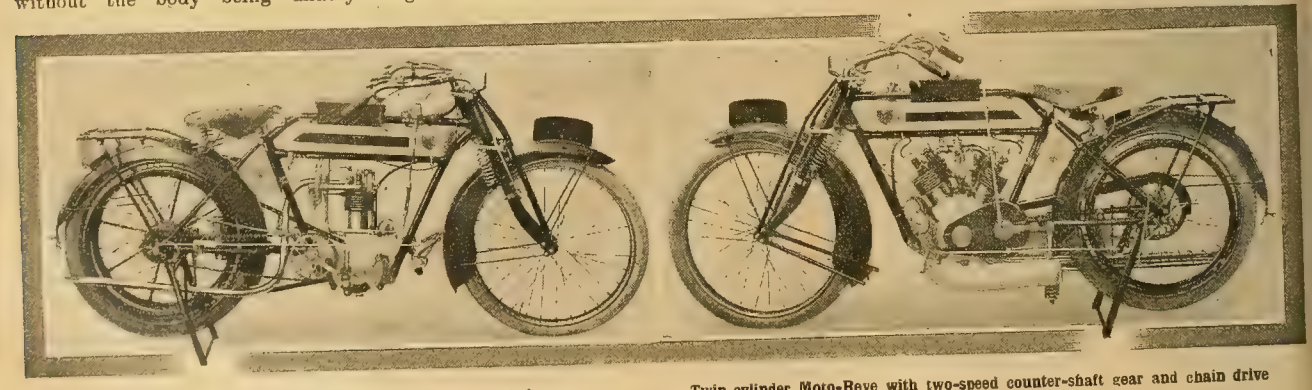
4 h.p. Twin: 63×80 mm.; overhead inlet valves; B. and B. carburetter; chain; Enfield gear.

The Moto-Reve Co., Ltd., Alperton, Middlesex.—On this model chain drive is employed, the front chains being covered in, an Enfield two-speed gear being fitted to the counter-shaft. Both exhaust valves face one another, and the inlet valves are of the overhead type. The operating mechanism of the inlet valves is particularly substantial. Druid forks are provided and also comfortable footboards, and it is worthy of mention that the magneto drive is by gear in a beautiful aluminium case; in fact, the whole finish of the engine is particularly good. The machine is well equipped, and attention is being paid to the mudguarding, while two stands are fitted. There is no silencer, but the two long exhaust pipes have flattened ends. A tool bag is fitted on the top tube. The single-cylinder model is practically a small replica of the above. The Moto-Reves are exquisitely finished and are most attractive machines.

MOTOSACOCHE, No. 90.

6 h.p. Twin: 72×91 mm.; overhead inlet valves; Amac carburetter; chain transmission; two-speed counter-shaft gear

Motosacoche, Ltd., College Park, Willesden Junction, N.W.—A considerable amount of detail relative to the Motosacoche models has already appeared in *The Motor Cycle*, and, as promised

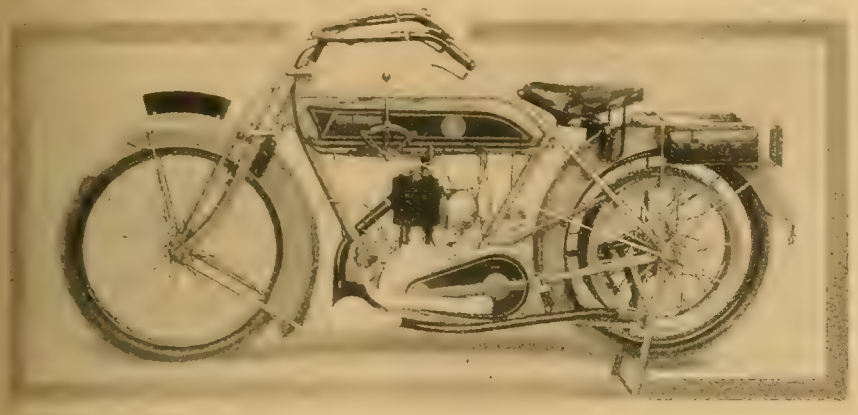


Alp model single-cylinder Moto-Reve with three-speed hub gear

Twin-cylinder Moto-Reve with two-speed counter-shaft gear and chain drive

The Olympia Show.—

in our last number, we now give particulars of the 6 h.p. Motosacoche, one example of which is shown for solo work and another fitted with a well-designed coachbuilt sidecar comfortably upholstered with a spring cushion and wind screen. This machine is fitted with a twin-



Transmission side of the three-speed chain and belt-driven 4 h.p. New Hudson Show Model.

cylinder M.A.G. engine in which the inlet valves are at the side above the exhausts, and the long tappet rod and complete rocking mechanism by which they are operated is neatly enclosed, not only to exclude dust, but also to ensure lubrication by suction of the oil from the crank case up the casting surrounding the valve tappet. Drip feed lubrication of the Best and Lloyd type is provided. Transmission is on Enfield lines, as also is the chain driven kick-starter. A point to be observed is that the guard over the chain from counter-shaft to back wheel does not have to be interfered with in the case of the removal of the wheel, which is facilitated by the design of the rear mudguard, which is hinged and divided so as to swing back clear of the wheel. Incidentally, the mudguarding arrangements on this machine are quite admirable, as the guards are wide and fitted with deep side wings. Voiturette tyres are supplied. One of the items which will attract most interest is the electric lighting equipment. A tiny neat and compact dynamo secured to the right-hand back stay is friction-driven from the side of the back wheel tyre, and from it current is obtained to charge a six volt accumulater capable of keeping alight four lamps (head, side, tail, and inspection). The machine in more respects than one embodies some notable features of design.

3½ h.p. twin: 64×77 mm.; side by side valves; Amac carburetter; chain transmission; two-speed counter-shaft gear.

This twin-cylinder machine with de Lissa valves has lately been described in some detail in *The Motor Cycle*, and we would refer our readers to that description.

2½ h.p. Model: 64×90 mm.; side by side valves in front; Motosacoche carburetter; belt transmission; Motosacoche speed gear.

This is a single-cylinder machine driving by the already well-known Motosacoche belt transmission with jockey pulley.

NEW HUDSON, No. 56.

3½ h.p. Model: 85×88 mm.; side by side valves; B. and B. carburetter; belt; Armstrong hub gear

The New Hudson Cycle Co., Ltd., Summer Hill Street, Birmingham.—This machine is fitted with the new Armstrong Mark VII. hub, the gear lever of which is attached to the tube below the tank, and is a most substantial affair. The aluminium footboards are nicely turned up in front. The Bosch magneto is mounted in the rear of the cylinder between the engine and the carburetter. The black and gold finish on this machine is most attractive. Another machine of the same pattern is finished with a serviceable drab colour. The sidecars attached to these machines are most tasteful in appearance, being painted to match the prevailing colour on the machine to which each is attached.

6 h.p. twin: 76×85 mm.; automatic side by side valves; B. and B. carburetter; chain and belt; Armstrong Mark VII. hub gear.

In this machine the drive is first taken to the counter-shaft by means of a chain, thence to the back wheel by belt. This enables a conveniently low ratio to be used on top gear without using an unduly small pulley. By this means the life of the belt is considerably lengthened. The kick starter is fitted at the rear, driving direct to the clutch and fitted with a free wheel. Lubrication is by Benton and Stone semi-automatic drip-feed, the pump of which is neatly enclosed in the tank. The tyres are 650×65 mm. An interesting exhibit on this stand consists of the New Hudson engine in part section, showing the timing gear, valves, piston, flywheels, and magneto drive.

NEW IMPERIAL, No. 78.

8 h.p. twin Model: 85×88 mm.; side by side valves; Amac carburetter; chain transmission; three-speed counter-shaft gear.

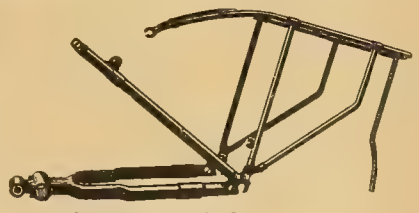
The New Imperial Cycles, Ltd., Princip Street, Birmingham.—The 8 h.p. new Imperial has been designed especially for sidecar work, and, with this end in view, has been carried out on substantial lines, the sidecar lugs being made with the frame. Both chains are partially enclosed, care being taken to protect the most vital points. On the engine-shaft is mounted a slipping clutch device to absorb the shock of the explosion, and thence a roller chain transmits the power to a three-speed counter-shaft gear. The gear has two sliding members, and the clutch is of the plate type having fork inserts. Aluminium footboards are arranged to give comfortable riding position, and the side guards for both front and rear wheels form an excellent protection. The rear guard is detachable from the fork, and can be swung out of the way to facilitate tyre repairs. An entirely new model is a 3½ h.p. twin with a bore and stroke of 70×64.5 mm. In details, however, it is similar to the model just described, though, of course, the frame and fittings are in proportion. The only radical change is the fitting of a two-speed counter-shaft gear instead of the three-speed. Another model, which is also similar except for the engine, is the 4½ h.p. single, which has an engine of 90×93 mm. bore and stroke.

3½ h.p. single: 85×85 mm.; side by side valves; Amac carburetter; belt transmission; Sturmey-Archer three-speed gear.

The 3½ h.p. single-cylinder machine is an excellent example of a touring roadster. The engine is fitted with a decompressor, and the kick-starter is arranged on the rear chain stay. As in most new Imperial models the Best and Lloyd semi-automatic drip feed lubrication system is employed. The filler cap is arranged to act as a petrol gauge, for it has a glass top and a conical enamelled tube within, so that the petrol level may be judged at a glance.

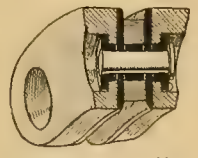
2½ h.p. Model: 70×76 mm.; side by side valves; Amac carburetter; belt.

The 2½ h.p. model is worthy of especial notice, as it is of a particularly simple and clean design, manufactured



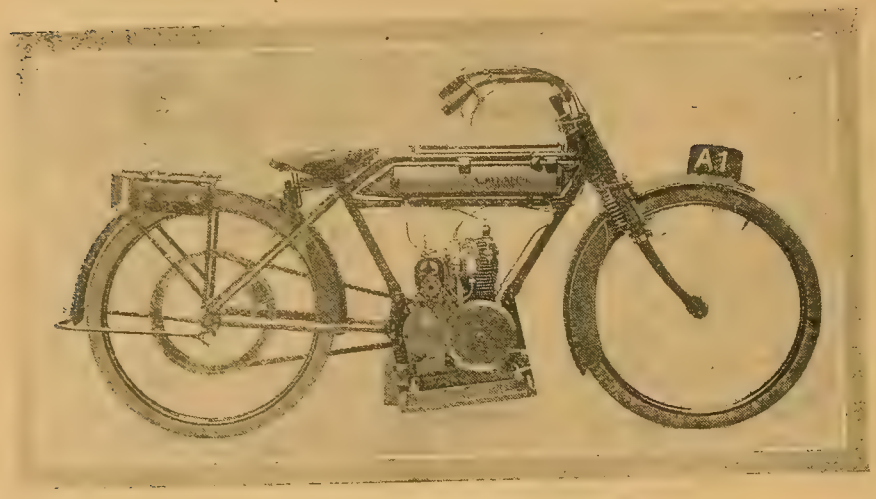
Rear portion of the Imperial frame.

with the intention of placing a lightweight motor cycle on the market at a very moderate price. In this the manufacturers have succeeded admirably, for the machine, though having no startling innovations, is thoroughly well carried out on standard lines, having two stands and a full equipment in every respect. The silencer is particularly neat, for an aluminium expansion box is carried aft of the engine, and a tail pipe extends backwards. The Flexo steel and rubber belt is displayed on this stand, and a selection of sidecars of good design is shown. These latter are designed to suit such New Imperial models as are constructed for passenger work. The finish of the machines is well carried out.

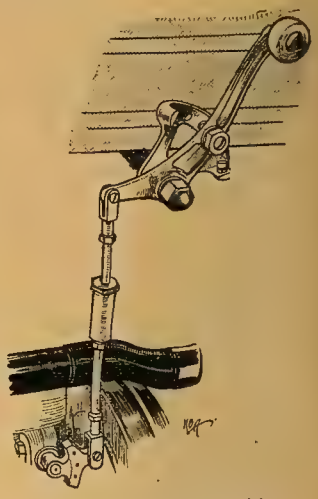


Flexo steel and rubber belt shown on the New Imperial stand. The black portions are steel bushes.

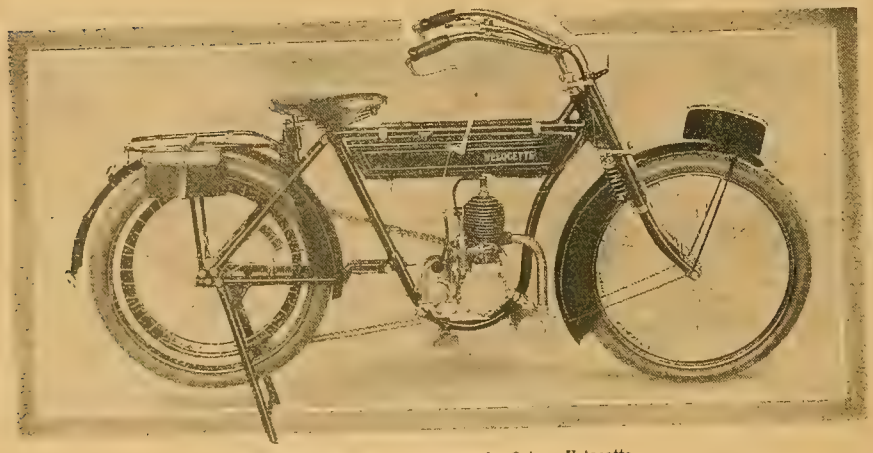
Single-cylinder Featherweight Machines.



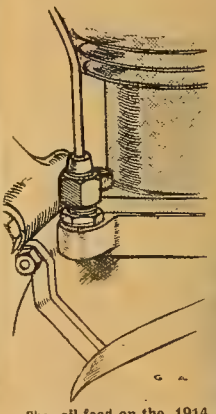
Fly-wheel side of the 2 h.p. belt-driven Calthorpe Junior



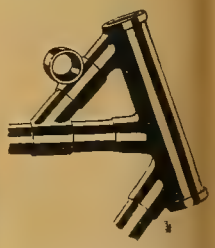
Details of the change-speed lever on the 2¼ h.p. F.N.



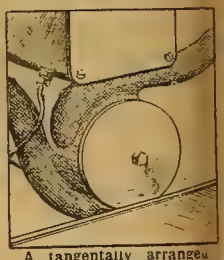
Carburetter side of the two-stroke 2 h.p. Velocette.



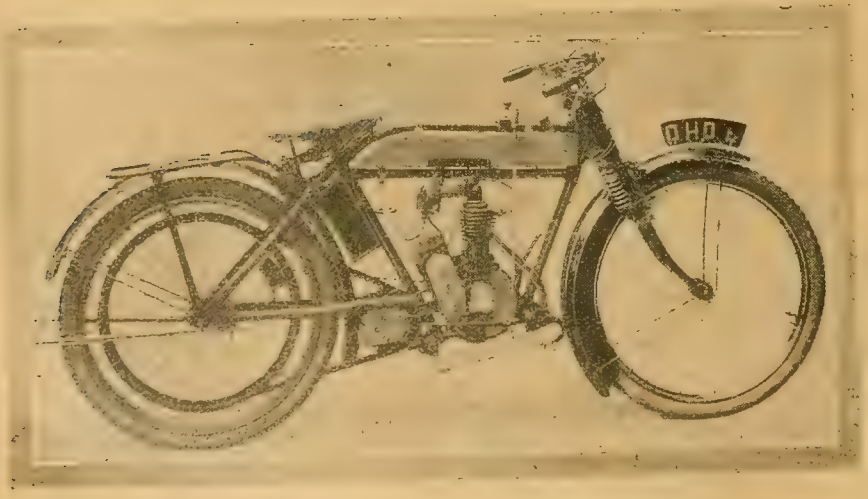
The oil feed on the 1914 Day-Leeds to a receptacle at the top of the crank case



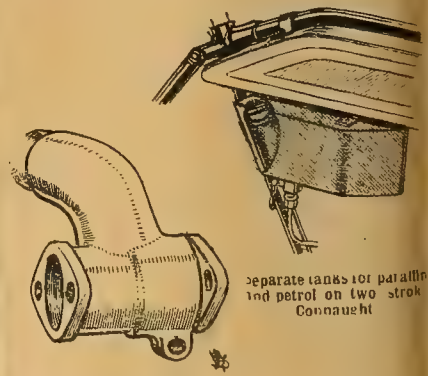
Stout head lug and unusual position of side-car lug on the 1914 Calthorpe



A tangentially arranged exhaust pipe on the 2¾ h.p. Douglas



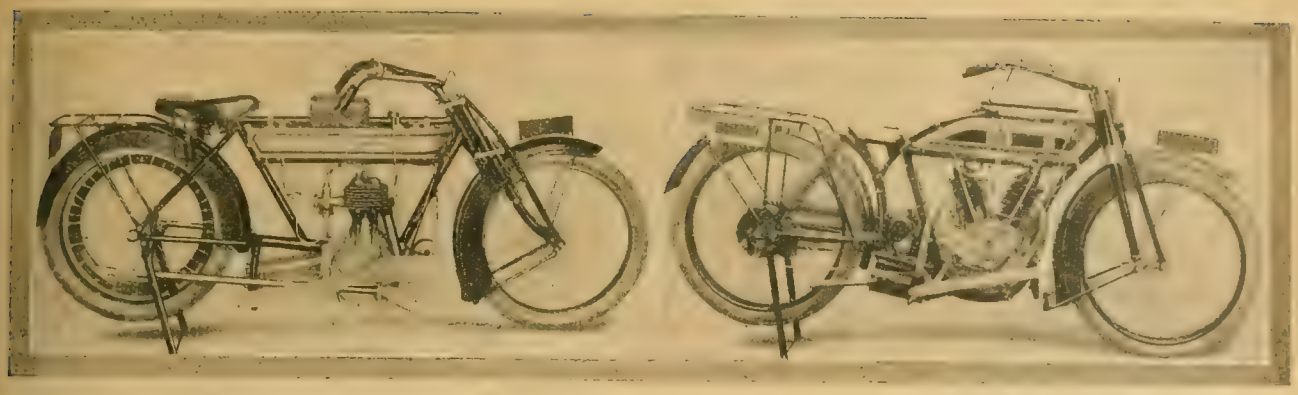
Valve side of the single-cylinder O.K Junior with two-speed counter-shaft gear



Separate tanks for paraffin and petrol on two stroke Connaught

Precision twin inlet expanding pipe

The Olympia Show.—



1914 model 4 h.p. Norton with long adjustable footboards.

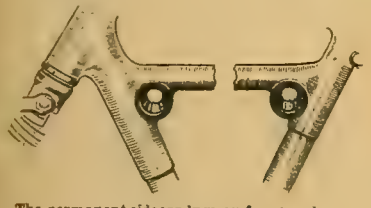
Twin-cylinder N.S.U. with new type of spring frame.

NORTON, No. 29.

4 h.p. MODEL: 82×120 mm.; side by side valves; Amac carburetter; belt; Sturmey-Archer three-speed gear.

NORTON MOTORS, LTD., Sampson Road North, Birmingham.—The feature of the Norton stand is the big 4 h.p. single-cylinder machine, the cubic capacity being 636, and the engine is chiefly noticeable for the long stroke employed. The crank case is neatly cast, the exterior being particularly clean. Very large capacity tanks are fitted with screw-hinge filler caps, and the petrol cap is fitted with a glass top. The change-speed control is on a special bracket, giving great strength and neatness, and which in the event of a fall, is exceedingly unlikely to sustain damage. Very large rubber-covered footboards are fitted, adjustable as to their position. The handle-bars are covered with black celluloid, and the machine has a most serviceable weatherproof appearance. A special

Design of rear fork end on the Norton, with horizontal slot to facilitate refitting back wheel.



The permanent sidecar lugs on front and rear of the Norton frame.

feature of the Norton exhibit is the Brooklands special model, and each machine leaving the works is guaranteed to have exceeded sixty-five miles per hour for one lap at Brooklands, and a Brooklands certificate to this effect is supplied with each machine of this type. The dimensions of the engine fitted to this model are 79×100 mm. bore and stroke. A point to be noted in the three-speed machine is the fact that by a special construction of slots in the rear forks the back wheel does not drop out, for a ledge is afforded by these slots upon which the spindle rests. This saves a considerable amount of time, particularly in replacing the wheel. On the sidecar model, six pints of oil as well as two gallons of petrol can be carried. The holes for taking the lugs for the sidecar attachments are situated where two tubes meet, in order

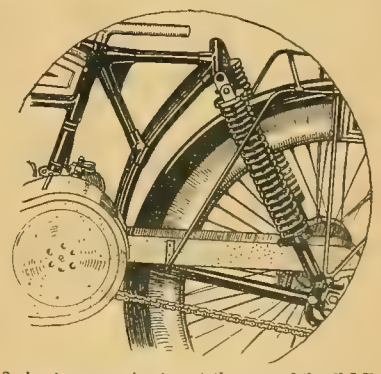
The single ring grooved piston fitted to T.T. Nortons.

to gain the greatest possible strength an extra long steering head is fitted, and the Druid type forks are provided with very long pins at the shackles. Tool kits are carried in serviceable leather wallets on the top tube. For Colonial work the Norton machines have the engine raised slightly higher in the frame to give extra ground clearance.

N.S.U., No. 62.

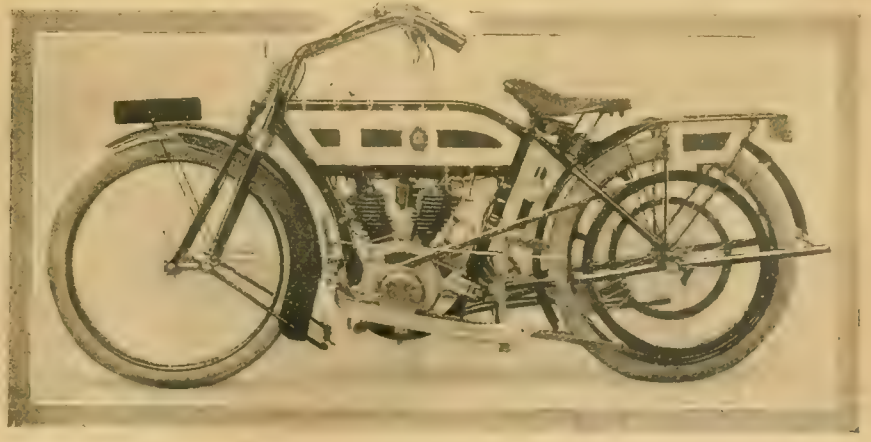
7-9 h.p. two-cylinder MODEL: 80×99 mm.; inlet over exhaust valves; N.S.U. carburetter; chain drive; three-speed counter-shaft gear.

THE N.S.U. MOTOR CO., LTD., Great Portland Street, W.—The 7-9 h.p. model



Spring frame mechanism at the rear of the N.S.U. showing extra long spiral springs

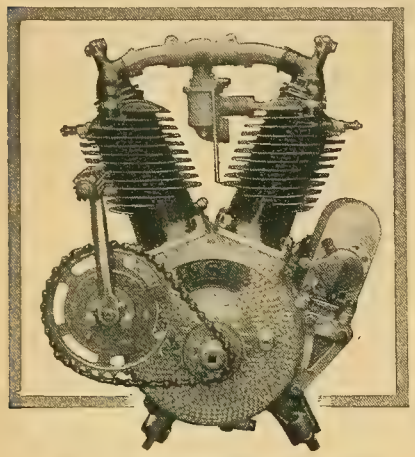
is quite a new type for this firm. The engine is on the well-known N.S.U. lines, with radiating fins arranged parallel with the ground, and, as usual, the inlet valve placed over the exhaust. The lubrication is somewhat unusual, as a plunger pump



Belt side of the 3½ h.p. twin N.S.U. Observe the large footboards upturned at the front to protect the rider's feet.

The Olympia Show.—

forces the oil through a sight-feed drip, whence it is carried through a lead pipe to the front piston. The surplus drains to the crank case, and is splashed in the usual way. From the engine a chain transmits the power to a three-speed counter-shaft gear, which works on the usual sliding principle, the sleeve having a dog at either end and a gear wheel in the centre. This gear is controlled by a lever working horizontally over the top tube, and a multi-plate clutch is fitted. The final drive is also by chain, but whereas the front chain is totally enclosed, the rear chain is covered over



Kick-starter side of the twin-cylinder air-cooled N.S.U. engine.

one side. In this model the N.S.U. spring frame has been somewhat modified, for two sets of springs are employed, one on either side of the frame, and in each case these springs are longer than was formerly the case. The rear brakes are particularly powerful, and consist of a foot brake working inside a drum with a hand brake contracting on to the outside of the same fitting. Specification of the 6-7 h.p. twin is similar except that in this case the bore and stroke of the engine are 75 and 94.

3½ h.p. MODEL (twin): 63×80 mm.; inlet over exhaust; N.S.U. carburetter; belt; engine-shaft two-speed gear.

The 3½ h.p. twin N.S.U. has undergone some modification, and is a strikingly well carried out machine. The well-known N.S.U. engine-shaft gear is now enclosed and is operated by a lever on the handle-bars. The low gear is introduced by raising this lever as far as possible. In a middle position free engine is obtained, and when allowed to drop fully the high gear is engaged. As on other N.S.U. models, long aluminium footboards, covered with rubber, are fitted, and a neat kick starter revolves the engine through the timing gear, a pedal being placed on the near side. An unusual feature is the fitting of metal tool cases, both behind the saddle tube and pannier fashion on the carrier. The lubrication is similar to that described in the previous model. The 3½ h.p. single follows the above specification, but has an engine of 85×88 mm. bore and stroke. Besides this model a 3 h.p. twin, a 3 h.p. single, and a 2 h.p. single are exhibited, all following N.S.U. lines in their general features. In every case in which a kick starter is fitted the pedal is arranged to fold out of the way when not in use. A full equipment is fitted which complies in every way with standard specification.

A special type of sidecar with tandem seat is shown on this stand. The speciality of it is that the chassis, which is of special design, is welded in one piece, and is claimed to be the first sidecar chassis which is made without a single lug. It is interesting to note that in testing the welded joints both in tension and bending the 12 gauge steel tube gave way before the joints. Samples of the tests can be examined on the stand.

N.U.T., No. 37.

2¾ h.p. MODEL (twin): 60 × 61.5 mm.; side by side or overhead m.o. valves; Amac carburetter; belt; Armstrong Mark VII. gear.

SIR WILLIAM ANGUS, SANDERSON, AND CO., Newcastle-on-Tyne.—No motor cycle has sprung into prominence quicker than the N.U.T., which achieved such wonderful success in the last T.T. Race in the hands of Hugh Mason, and which also performed remarkably well in the last severe A.C.U. Six Days Trials. These machines can be obtained with either 2¾ h.p., 3 h.p., or 3½ h.p. J.A.P. motors, and the firm are also making 4½ h.p. and 6 h.p. models which are not exhibited at Olympia. All models have twin-cylinder engines. The general finish and appearance of the machines are extremely neat, the standard finish being nut-brown with gold lines. All models are fitted with belt drive and the Armstrong Mark VII. gear, while kick starters and handle-bar control to both magneto and carburetter are also part of the equipment. It is evident that a very large amount of attention to detail has been devoted to these machines, such details as the well carried out heel-operated brake, which on the T.T. model is fitted on both sides, being specially worth attention. The machine which broke all records at Brooklands recently for 100 miles to six hours in Class B is exhibited on the stand. The firm are experimenting with a counter-shaft gear box with chain-cum-belt drive, chiefly in response to the demands of colonial agents, but Hugh Mason himself informed us that he was thoroughly convinced of the efficiency of belts in conjunction with three-speed hubs, and believes that this is the best form of transmission for machines of the N.U.T. type.

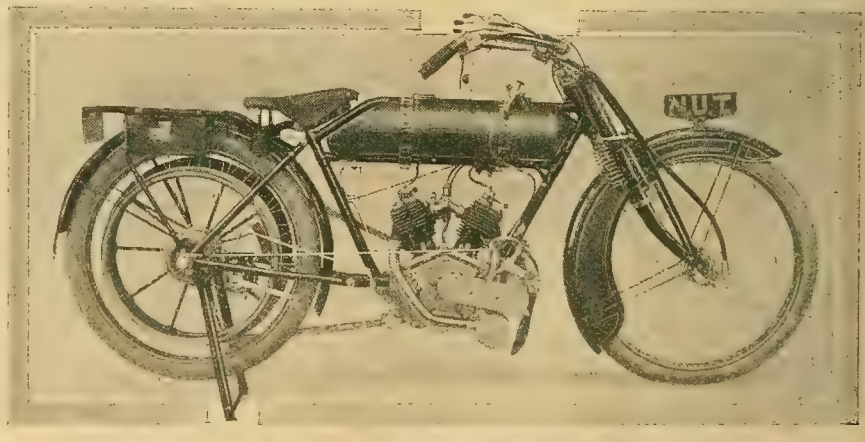
O.K., No. 95.

2 h.p. MODEL: 58×72 mm.; overhead inlet valves; Amac carburetter; chain and belt; two-speed counter-shaft gear.

HUMPHRIES AND DAWES, LTD., Birmingham.—The little 2 h.p. O.K. Junior affords a very neat design. The magneto platform is in one with the casing of the gear for driving. This magneto is a waterproof Ruthardt. Both valve tappets are adjustable. The two-speed gear carried under the chain stay bracket is very compact and is of the dog clutch type and fitted with ball bearings. It gives ratios of 6 and 12 to 1 as standard, which, however, can be varied to suit the rider. The remarkably small size of the engine is a point to note, its cubic capacity being only 190 c.c. From the gear box a belt transmits the power to the wheel pulley, which is spoked independently to the rim of the wheel. Lubrication is delivered by one of Best and Lloyd's gravity feed drip sight oilers.

3½ h.p. TWIN: 63×80 mm.; side by side valves; Amac carburetter; belt and chain; two-speed counter-shaft gear.

The twin-cylinder engine has a capacity of 499 c.c., and in many of its features follows the same practice as the Junior—for instance, in its magneto mounting. The cylinder cooling fins are placed horizontally for the maximum of draught effect. Oil is mechanically forced from a plunger pump on the engine up into the tank, and thence past a sight feed down to the engine, feeding the forward cylinder separately. The handy kick starter drives direct on to the engine, and not through any of the transmission, which latter comprises a chain from the engine to a simple counter-shaft dog clutch type of two-speed gear mounted in ball bearings, and giving ratios of 6 and 12 to 1. With this gear unit is included a cork insert clutch, affording large frictional surface, which is handle-bar controlled.



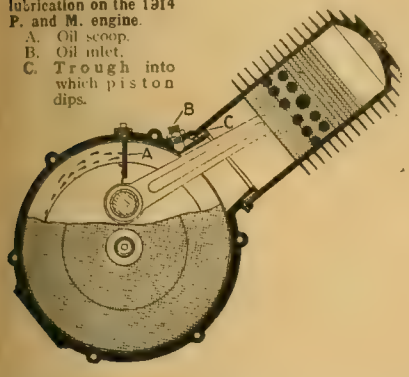
Valve side of the 2¾ h.p. N.U.T., showing clutch control and method of fixing the tank.

The Olympia Show.—

P. AND M., No. 69.

3½ h.p. MODEL: 84.5×88.9 mm.; side by side valves; P. and M. carburetter; chain transmission; two speed selective clutch gear.

PHELON AND MOORE, LTD., Cleckheaton, Yorks.—Owing to the excellent finish of these machines the exhibit is as attractive

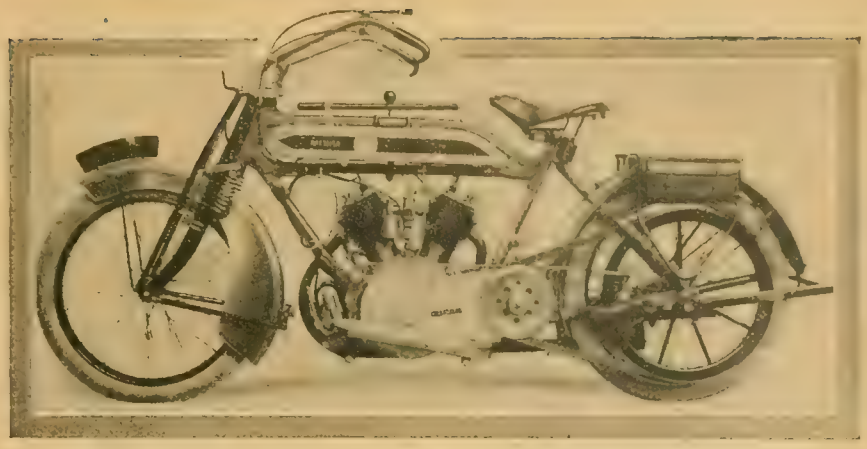


The new system of lubrication on the 1914 P. and M. engine.
A. Oil scoop.
B. Oil inlet.
C. Trough into which piston dips.

as ever, added to which there are several interesting new features to be seen. One of the most important alterations is the fact that the oil is led into the crank case in such a position that it immediately reaches to the piston. Thence it flows to the crank chamber, and is splashed in the usual way, but a scoop is fitted to the crank case between flywheels, which deflects a large amount of the lubricant directly on to the big end bearings. Both chains are now totally enclosed, the front being lubricated through a hole in the crankshaft, and the back by a crank case release. The tank has been somewhat increased in size, and large glass-top screw and hinged filler caps are fitted. Somewhat of an improvement has been fitted in the gear, for the clutches are now expanded from both sides, thus providing a large gripping surface. It will be remembered that the P. and M. carburetter lies directly below the tank, and thus it has been difficult to

Plan view of the 1914 mode 3½ h.p P. & M. showing general arrangement

Expanding rings on the redesigned P. and M. two speed gear.



The 1914 model 7-9 h.p. Premier with chain and belt drive and two-speed counter-shaft gear

arrange the cables neatly. However, the difficulty has been solved by carrying the wires over pulleys, the whole being encased in neat castings. The actuation of the rear brake is extremely well carried out, and the band is contracted from both sides at once. The rear guard is now provided with a hinged rear flap, which is made with a number plate and swings sideways, allowing free access to the

End view of the P. and M. gear, showing the new oil feed.

wheel and tyre. As usual, a metal tube case can be supplied fitted to the rear carrier. Alterations to the frame are very slight, and comprise the addition of sidecar lugs and a slightly lower saddle position. Two colonial models are also shown, but with the exception of having a larger ground clearance, they are practically identical with the standard machine.

POPE, No. 43.

7 h.p. MODEL: 76×89 mm.; overhead valves; Schrebler carburetter; chain; Pope free-engine clutch gear.

THE POPE MOTOR CYCLE AGENCY, Golden Lane, E.C.—The Pope is a well-known machine in America, and is fitted with a very powerful looking twin-cylinder motor with overhead valves. The back of the machine is sprung by means of large coil springs, situated vertically over the rear fork ends, while a leaf spring is employed to spring the front forks. A free engine clutch operated by a long lever on the left side of the tank is fitted on the counter-shaft, and the drive is by chain throughout. The handle-bars are absolutely free from any external fittings, control being by twisting grips. The machine is finished in neat French grey, and is a taking-looking mount.

PREMIER, No. 133.

3½ h.p. MODEL: 85×88 mm.; side by side valves; B. and B. carburetter; chain and belt; Premier three-speed gear.

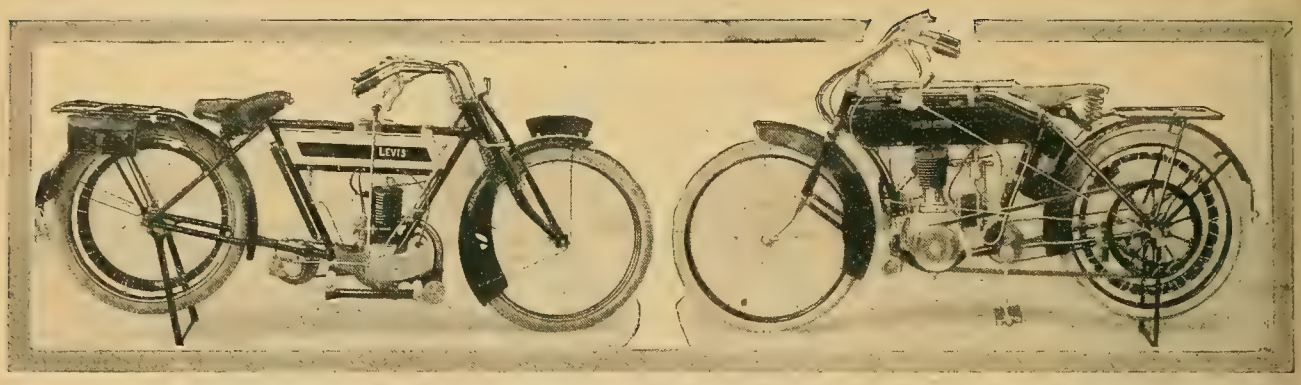
THE PREMIER CYCLE CO., LTD., Read Street, Coventry.—Amongst the features which distinguish the 3½ h.p. Premier is the use of a subsidiary automatic exhaust release which comes into action when the piston uncovers a port at the bottom of the stroke. The chain from the engine to the two-speed gear, which is carried behind the saddle tube and furnished with an aluminium case, is enclosed in a neat aluminium guard which is attached at its forward end to the crank chamber. A kick starter employing a chain and sprocket carried on the lay shaft of the gear box is used. The clutch is operated by a rocking pedal placed immediately above the right footboard, which is of cast aluminium studded with rubber pads. The gear change lever is carried on a quadrant bracket supported from the top frame tube. The same model is made in three distinct forms, the other two being respectively a single-geared type, and one fitted with an Armstrong three-speed hub gear.

2½ h.p. MODEL: Side by side valves; B. and B. carburetter; belt; Armstrong Mark VI.

The design of this machine follows the lines of the 3½ h.p., of which it is a

Three-speed counter-shaft gear on the 3½ h.p. Premier machine.

The Olympia Show.—



Left—the 2¼ h.p. single-cylinder two-speed Levis two-stroke. Right—the three-speed belt-driven Puch (the only Austrian representative).

reduced facsimile. It is made with a three-speed gear, as above specified, and also in single-geared form. Footrests take the place of footboards, and pedalling gear is employed. A notable feature in the design of the engine is the large amount of cooling surface placed round the valve pockets. Druid spring forks are fitted, and careful attention has been paid to the construction of the brakes. The 7 h.p. model, with a bore and stroke of 85×88 mm., follows the same lines as the 3½ h.p., and is fitted with a two-speed counter-shaft gear box driven by chain from the engine and transmitting the power through a belt. This model is shown in the form of a sidecar combination of very pleasing appearance, and is fitted with a complete equipment. In this model the auxiliary exhaust release is not used, but the silencer is of notable dimensions.

PUCH, No. 19.

3 h.p. Model: 68 × 85 mm.; side by side valves; B. and B. carburetter; belt; Armstrong three-speed gear.

H. W. Sidley and Co., Fore Street, London.—The Puch machine comes from Austria, where it has been a very well-known make for a number of years and, in fact, it figured prominently in the International Motor Cycle Race held there some years ago. The outstanding features of these machines are the undergeared pulley and the method by which the magneto is driven from the camshaft, the magneto itself being situated at the rear of the base chamber just in front of the pedalling gear chain sprocket. The spring forks are of special design made by the Puch Company, and are telescopic in action. Although there is a distinctly Continental appearance about these machines a number of English fitments may be found upon them, notably the Armstrong three-speed gear and Brown and Barlow carburetters and Bowden wire control, the last-named feature being remarkable in that the magneto control lever is mounted on the same clip as the air and gas lever. Thus all three are operated by the right hand. On the left handle-bar is the exhaust valve lifter, the magneto switch operating on a wire inside the handle-bar.

4 h.p. Model: 84×90 mm.; o.i.v.; B. and B. carburetter; chain; B.S.A. two-speed gear.

This machine is of semi-T.T. pattern. The motor is obviously designed for speed, and in addition to the overhead inlet valve and large sized exhaust valve, an additional exhaust release is fitted in the front of the cylinder. It is fitted with an enormous exhaust pipe extending to the rear, and flattened at the end, but no silencer is otherwise fitted. The magneto is driven off the camshaft and situated behind the engine, as in the 3 h.p. The drive is by single chain from engine to back wheel. Girder spring forks of the firm's own design are fitted, and torpedo-shaped tank and dropped handle-bars. The machine is a racy-looking mount, but appears to be fitted with rather small mudguards and tyres for such a powerful and apparently fast machine.

QUADRANT, No. 42.

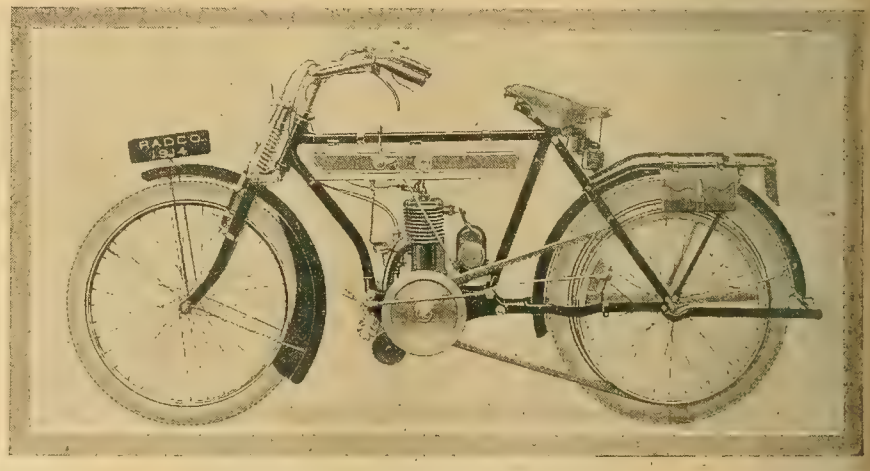
8-9 h.p. twin-cylinder Model: 87×95 mm.; overhead inlet valves; any make carburetter, optional; chain transmission; two-speed counter-shaft gear; handle-starter.

The Quadrant Cycle Co., Lawley Street, Birmingham.—One of the most powerful twin sidecar machines in the Show is the big Quadrant, the capacity of the engine being 1,129 c.c. It is shown with a massively constructed sidecar chassis, and those who wish to tour in the severest country with ample reverse of power will find this machine the very thing for their requirements. The engine is a splendid piece of work, the inlet valves being placed over the exhaust and operated by long rods. A silencer almost big enough for a small car is fitted under the footboard, with exits for the gases fore and aft. Ample fuel capacity is provided for, and any amount of luggage can be carried on the big carrier. Chain drive is used in conjunction with a two-speed selective clutch gear, a handle being fitted for starting.

RADCO, No. 224.

2½ h.p. two-stroke Model: 62 × 70 mm.; Amac carburetter; belt; single gear.

E. A. Radnall and Co., Dartmouth Street, Birmingham.—The magneto on this engine is placed behind the engine platform, to which it is so fastened that it may be slid backwards for the purpose of taking up any slack in the chain. The exhaust pipe runs between the engine plates, giving the exhaust a free passage into the silencer, which is neatly bolted on to the lower portion of the crank case. The lubrication is effected by pouring a measure of oil into the petrol, a system which is becoming increasingly popular among designers of two-stroke engines. A sight feed gauge is provided to allow the rider to see the amount of fuel in the tank from the saddle. This machine is fitted with the latest Radco spring forks,



Belt side of the single-cylinder two-stroke Radco.

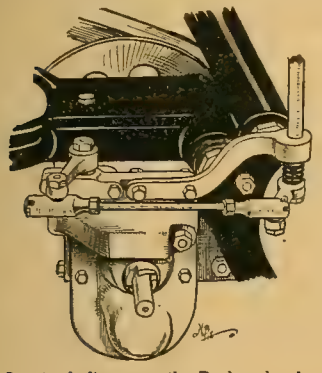
The Olympia Show.—

which have just been placed on the market. These have a parallel action and the portion attached to the forks themselves consists of telescopic tubes, surrounded by a powerful coil spring. The telescopic arrangement keeps the machine perfectly parallel and prevents side play, taking most of the side strain off the links. Means are provided to lubricate all moving parts.

RAGLAN, No. 121.

3½ h.p. MODEL: 85×88 mm.; m.o.v.; B. and B. carburetter; belt; three-speed Sturmey-Archer gear.

M. ADLER, LTD., Sampson Road North, Birmingham.—The 3½ h.p. model is quite a well thought out machine. The



Countershaft gear on the Raglan showing control mechanism.

engine follows accepted lines, and points of convenience have been well studied. Two bags are carried in metal cases, and side shields are fitted to both mudguards, also a front wheel stand. The silencer is of the increasingly popular pattern consisting of an expansion chamber with extension pipe.

The 3½ h.p. sidecar model is fitted with the same engine but has a combined chain and belt drive with an internal cone clutch on the engine-shaft. The transmission is by chain to the counter-shaft, and thence by belt to the rear wheel, while an efficient three-speed countershaft gear is fitted, manufactured by Juck, of Wolverhampton. The gear control is particularly well carried out, adjustable ball joints being fitted to the control mechanism.

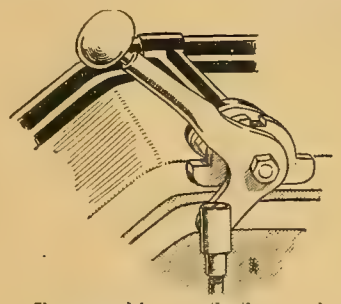
2½ h.p. MODEL: 65×70 mm.; m.o.v.; B. and B. carburetter; belt.

This is a handy little lightweight model following standard lines throughout. Lubrication is by means of a plain tapless pump, while pedals are provided. This firm is also showing a sectional model of a 3½ h.p. engine.

REX, No. 93.

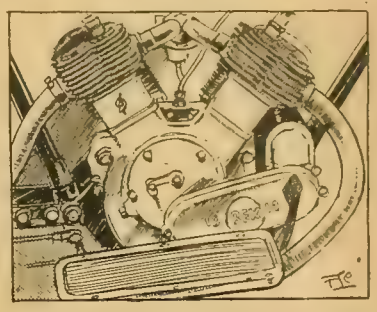
6 h.p. MODEL: 80×95 twin; side by side mechanical valves; B. and B. carburetter; belt; two-speed Roc type or three-speed counter-shaft gear.

THE REX MOTOR MANUFACTURING CO., LTD., Coventry.—With the exception of the engine, which has been practically redesigned, Rex practice remains for the greater part unchanged. The engine has a slightly larger bore and the valve tappet mechanism is enclosed in aluminium covers secured each by a single wing nut, while the valve lifter mechanism is now contained inside the crank casing. The chief characteristic lies in the securing of the cylinders to the crank case. The lower ends are deeply spigoted into the crank case, and in that part of the crank case surrounding them a channel is formed. Into these channels oil is fed, and thence the lubricant passes through holes drilled in the cylinder walls



Change-speed lever on the three-speed counter-shaft geared Rex.

to the pistons. Although a hand pump is fitted as an alternative, this oil supply is automatically obtained by suction, passing through a large sight-feed glass conveniently placed on the top of the tank. Another notable feature is the very large silencer fitted. This is of great length and has rounded ends, the whole affording a fine example of welding. Doubtless as a result of the A.C.U. trials, a 9in. extension pipe is fitted at the end. Most of the sidecars on these machines were exceedingly well equipped, the neat coachbuilt bodies being fitted complete with Cape cart hood, celluloid wind screen, a large tool compartment in the form of a metal valise, and comfortable upholstery. The three-speed countershaft gear also constitutes a departure in Rex practice.



The 1914 twin-cylinder Rex power unit, showing design of crank case and valve covers.

REX-JAP, No. 105.

6 h.p. MODEL: 76×85 twin; side by side mechanical; B. and B. carburetter; chain; three-speed counter-shaft gear.

THE PREMIER MOTOR CO., LTD., Aston Road, Birmingham.—In the Rex-Jap model of this exhibition we find only chain transmission employed, with chains entirely enclosed. The very compact three-speed gear box fitted in all cases is combined with a multi-plate clutch with cork inserts. In the twin-cylinder J.A.P. engine a feature lies in the oil feed, which is effected by force pump with a spring-controlled plunger. The 650×65 mm. Kempshall tyres are fitted. Druid forks and cantilever seat add to the comfort of travelling. These machines are essentially suitable for sidecar work, and the sidecars also embody characteristics worth attention. For passenger work, whether made for Rex-Jap or Indian machines, the body is formed with a pointed nose and an electric lamp neatly fitted in the nose. On the sidecar an equipment is also fitted, with a carrier for a spare petrol tank and for luggage. Admirable examples of sidecars with bodies for trade purposes are also on view. A kick starter is fitted to these machines.

TWO TYPES OF POWERFUL SIDECAR MACHINES.
Left—The three-speed chain-driven Rex-Jap. Right—The chain-driven countershaft-geared twin-cylinder Royal Ruby.

The Olympia Show.—

ROC, No. 143.

4¼ h.p. MODEL: 89 × 95 mm.; side by side valves; Amac carburetter; belt; four-speed Roc gear.

MESSRS. ROBERTSONS, 157, Great Portland Street, W.—One of the machines shown is equipped with a 4¼ Precision engine, and the chief point about it is the new four-speed gear box with internal expanding clutch. The gears are of the usual sliding type to be found on cars, and the change is effected through a patented gate in which the selectors are incorporated. The selecting gear is interlocking. The gears are also provided with kick starters.

A 6 h.p. model is also shown, fitted with the latest type of Roc gear. A new type of rear fork end is fitted, which allows the wheel to be quickly withdrawn, and great care is taken to exclude grit from the interior of the gear, and felt washers are provided to prevent grease from leaking out. The push pin operating the change is keyed, so that it cannot turn, thus minimising wear.

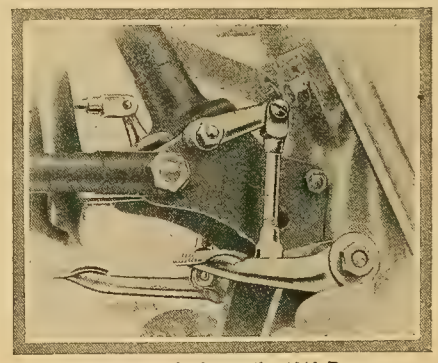
A 2¾ model is also shown, fitted with the lightweight type of gear, in which there are only three planet pinions instead of four. The low speed clutch is of the internal expanding type as fitted and similar to the clutch in the bracket gear.

A part sectional model of the two-speed gear is also shown, which clearly shows the substantial planet pinions employed.

ROVER, No. 107.

3½ h.p. MODEL: 85×88 mm.; side by side m.o.v.; B. and B. carburetter; belt; Sturmey-Archer three-speed hub gear.

THE ROVER CO., LTD., Coventry.—The above specification represents the 3½ h.p. Rover in its most elaborated state, as it is used for sidecar work; but, apart from transmission, one specification covers the entire Rover practice, as it is standardised. Besides the three-speed machines examples are also shown of models with free engine and Philipson hand-controlled pulley, fixed engine, and a T.T. model, which latter has somewhat higher compression, and is fitted with a foot brake that can be worked by both feet with the full weight of the rider. The chief characteristics of 1914 Rover design are in the somewhat altered shape of the tank, giving a very neat streamline effect, and, what is more important, more leg clearance. The back mudguard, which is jointed, so as to fold upwards, with carrier complete, clear of the wheel by the mere undoing of two nuts, is an admirable piece of design, as indeed is the entire mudguarding system, which is very complete. The foot brake



Heel-operated brake on the 1914 Rover.

is applied to a separate rim on the off-side of the back wheel. On this rim the V is reversed, and the brake block applied from the exterior, allowing the wheel more easily to be withdrawn. Another very neat characteristic is in the foot-rests, which are pivoted at about a quarter of their length from the front, and capable of being swung up clear of the pedals and engine. The top links of the Druid spring forks are fitted with coiled springs, so that horizontal road shocks are eliminated.

ROYAL RUBY, No. 44.

6 h.p. twin-cylinder MODEL: 76×85 mm.; side by side m.o.v.; B. and B. variable needle carburetter; enclosed chain; Jardine gear.

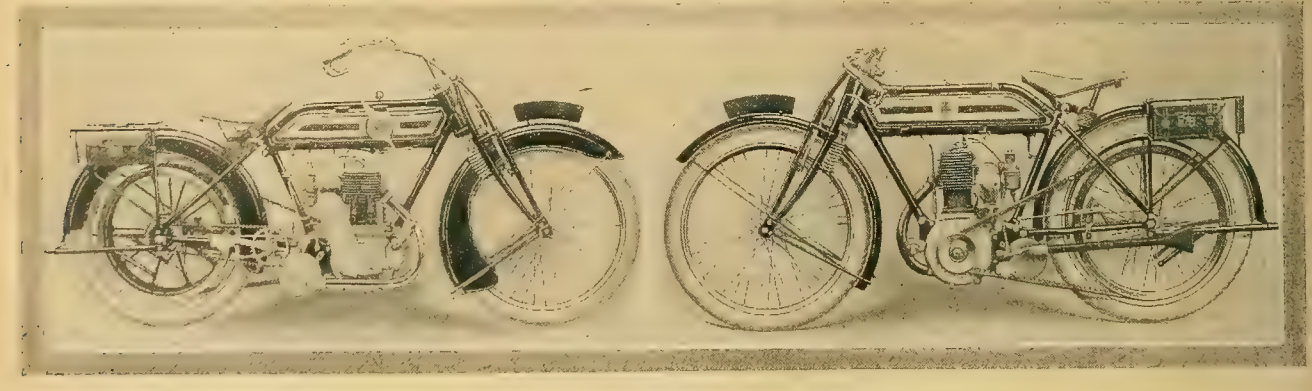
THE ROYAL RUBY CO., LTD., Ruby Works, Manchester.—The magnificent Show finish characterises this very striking machine. All the engines fitted to the Royal Ruby motor cycles are J.A.P.'s, and a very wide range of models is marketed by this firm; in fact, they can supply machines fitted with every type of engine made by Messrs. J. A. Prestwich and Co. The 6 h.p. model is fitted with a two-speed Jardine gear box, the front chain being adjusted by sliding the gear box in a very substantially constructed slot, and the back chain by the usual back fork adjustment. A heel and toe operated pedal works the clutch, and the gears are changed by means of a small lever mounted on the top tube, adjustment being provided. The finish of the machine is a pale French grey, with blue panels on the tank, and a word of praise must be given to the really admirable mudguarding provided, deep valances being fitted to both the front and back wheels. Another 6 h.p. model is shown, fitted with belt drive and Sturmey-Archer gear, and, while capable of being used quite satisfactorily as a sidecar mount, this machine is of considerably less weight than the chain-driven one, and therefore handier for solo work.

4½ h.p. single-cylinder MODEL: 85×95 mm.; m.o. overhead inlet; B. and B. carburetter; belt; Sturmey-Archer gear.

For riders who prefer the simplicity of a single-cylinder, and at the same time one with plenty of power for sidecar use, this model should prove most attractive. Specially large flywheels are fitted to ensure smooth running. The inlet valve is operated by a rod passing through the induction pipe, and thence by means of the usual rocking arm. A special feature of the Royal Ruby models shown is the fitment of the Extractor silencer, which, it is claimed, provides adequate silence without back pressure. Best and Lloyd drip feed lubricators are also fitted, and the ignition on both models is a Bosch enclosed magneto. Brooks saddles are also fitted.

3½ h.p. twin-cylinder T.T. MODEL: 70×66½ mm.; inlet and exhaust overhead valves; B. and B. racing type carburetter; belt; Sturmey-Archer gear.

The outstanding feature of this exhibit is undoubtedly the above model, as it is a perfect high speed touring machine. The engine is a J.A.P., and although the machine is primarily a speed model and is fitted with semi-dropped handlebars, it is at the same time a touring mount for riders who desire a fast machine. No clutch-operating mechanism is fitted to the hub, and the gear is changed by means of a lever on the right-hand side, very similar to that fitted to the Triumph. Each cylinder has its own exhaust pipe, each entirely



TWO TYPES OF ROVERS FOR NEXT YEAR.

(1) The 3½ h.p. three-speed touring model. (2) The T.T. single-geared model, which is supplied with Philipson pulley to order

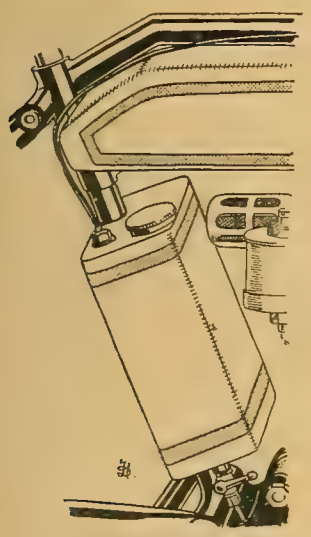
The Olympia Show.—

separate from the other, on opposite sides of the machine; a torpedo tank with large filler caps and Saxon forks are features of this machine. The tank is in red with gold lines, and even the springs and framework of the Brooks saddle and the belt rims are painted red to match—a minor point, but one which shows that great care has been exercised to get a really well finished effect. The back brake has a heel pedal fitted each side, so that in the event of a fall there is always another pedal available, and these pedals are mounted on a separate lug, not on the footrest. Other models shown are a 3½ h.p. single-cylinder and a 4 h.p. twin, both fitted with J.A.P. engines, Sturmey-Archer gears, and Druid forks.

RUDGE, No. 49.

3½ h.p. MODEL: 85×88 mm.; overhead inlet valves; Senspray carburetter; belt transmission; Rudge-Multi gear.

RUDGE-WHITWORTH, LTD., Crow Lane, Coventry.—The Rudge machines remain much as last year, only detail improvements having been found necessary. The multi gear is provided with a small screw on the rear hub by which the belt tension can be altered in a moment by the sidecar passenger while the machine is running. The Rudge spring stands and hinged mudguard flaps are retained on the single-geared machines. The belt rims are attached direct to the wheel rims, thus doing away with a large

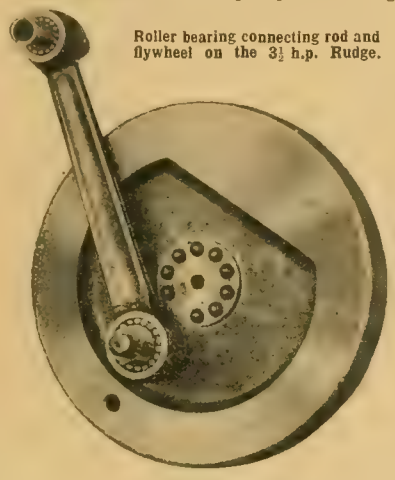


The oil tank fitted to the rear down tube of the Brooklands model Rudge

number of small spokes. Dunlop or Palmer grooved tyres are fitted, 650×65 mm. Speedometers and reflex lights are attached to some of the machines. One of these machines has a dark green sidecar attached. The chassis is attached to the bicycle at four points. This machine is fitted with the Sturmey-Archer three-speed hub in place of the multi gear. Special attention is being paid to this exhibit owing to the fact that the 3½ h.p. Rudge, ridden by Pullin and Green captured nineteen records last week at Brooklands, reference to which is made elsewhere in this issue.

5-6 h.p. MODEL: 85×132 mm.; overhead inlet valves; Senspray carburetter; belt transmission; Rudge-Multi speed gear.

These long-stroke machines follow the general lines of the lower powered model. In some cases a separate tank is fitted to contain the oil supply and attached under the saddle to the rear frame member. The pumps on Rudge



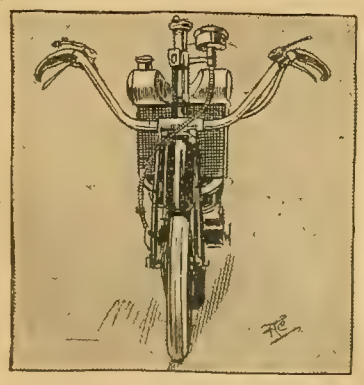
Roller bearing connecting rod and flywheel on the 3½ h.p. Rudge.

machines are for the most part operated by foot. The Ruthardt magneto is a standard fitting. This, although smaller than most magnetos, is claimed to be extremely efficient, especially at low speeds. Models of engines in section and a display of parts are to be seen.

SCOTT, No. 136a.

3¾ h.p. two-stroke MODEL: Scott carburetter; chain: Scott two-speed gear on counter-shaft.

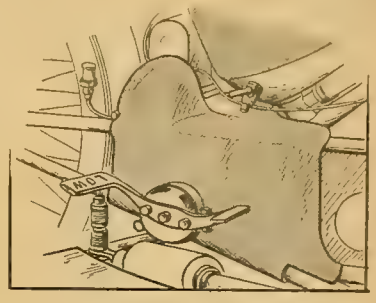
THE SCOTT ENGINEERING CO., LTD., Shipley, Yorks.—The Scott Engineering Co. continue their wise policy of concentrating on one model, of which several examples are shown on their stand. There are no radical alterations in the design



Curious position of the handle-bars on the Scott racing model. They are fixed to the base of the steering column.

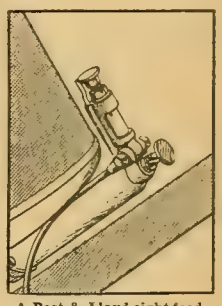
of the machine to record, but one or two interesting details have received attention. The lubrication system has been changed from the original type of forced feed to a semi-automatic drip feed, in which the flow of oil is visible through a glass

The pump plunger is spring-propelled and the rate of feed is adjustable. The pump and the drip feed are placed at the base of the petrol tank. Behind this is an oval-shaped metal tool case, which fills the



The case protecting the gear and magneto drive of the Scott. Also showing lubricator for gear.

otherwise wasted space behind the magneto. The transmission chains are neatly enclosed in detachable dustproof side pieces and a guard is also fitted over the top of the final driving chain. A front stand is fitted, in addition to the kick-up rear one, and is hinged to the engine crank chamber. Nail catchers of the rat-trap type are fitted over both the front and rear wheels. The spring forks, which are of the Scott patent type, have been improved by the fitting of screw-down grease caps by means of which the rollers are easily lubricated. A transverse bar for carrying a speedometer, etc., is fitted across the handle-bars, which are of the all-black covered type. The Scott machine on which H. O. Wood won the Tourist Trophy is an interesting exhibit on this stand

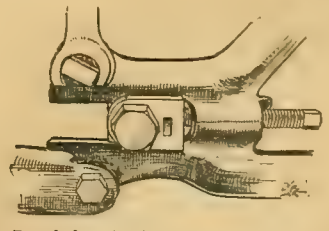


A Best & Lloyd sight feed lubricator, as applied to the new Scott.

SINGER, No. 83.

3½ h.p. MODEL: 85 × 88 mm.; side by side valves; B. and B. carburetter; belt; three-speed Sturmey-Archer gear.

SINGER AND CO. (1909), LTD., Coventry.—The 3½ h.p. Singer remains practically

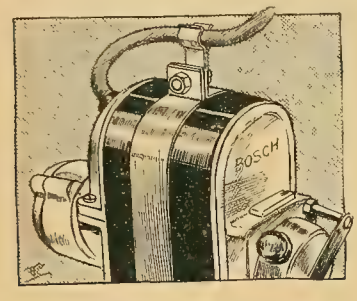


Rear fork ends of the chain driven Singer showing adjustment provided by means of a set screw.

unchanged. The touring machine is very completely equipped, the engine being carried in a stoutly constructed frame with Druid forks, two stands, and metal covered pannier tool boxes. The engine itself is on standard lines. The cylinder castings are particularly clean, and the

The Olympia Show.—

valve cover is produced so as to act as a trouser guard without interfering with the cooling of the engine. The magneto is carried high up in front of the motor, where it is well clear of mud and grit. This type is also shown in the form of a T.T. single-geared model. A rear brake pedal is fitted acting directly on the belt rim. A handle-bar controlled magneto



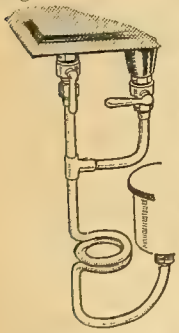
Neat method of fixing magneto and high-tension wire on the Singer.

is supplied to all types, and the levers which operate the controls are fitted with a neat form of ratchet, which automatically locks them in the desired position. The silencer is now provided with a fish tail exit pipe, and a neat double petrol pipe is fitted, which acts as a warning before the tank becomes empty. The 2½ h.p. model, which has bore and stroke of 69 × 80, follows the lines already described throughout. It is also shown both with three-speed gear and in the form of a T.T. racer.

G. E. Stanley's performances on Brooklands throughout the past year have been sufficient to draw the eyes of all the world to Singer machines, for he has probably secured more wins than any other rider during the past season. One feature on Singer models which has not already been mentioned is the new finish to the tank, which is carried out in black and grey, giving an extremely smart appearance. The finish of the frame, guards, and all detail work is excellent throughout.

4½ h.p. MODEL: 88 × 95 mm.; side by side valves; B. and B. carburetter; belt or chain; two-speed countershaft gear.

The 4½ h.p. models have undergone but slight alterations. The previous models have proved so satisfactory that it has been considered unnecessary to make any serious change. The 4½ h.p. has been somewhat increased in size, but its general design is exactly similar to previous types. An extension of the crank case casting forms the two-speed gear box, gear drive being employed to convey the power to the countershaft, on which is mounted a large diameter pulley, whence the drive is through a belt on the right-hand side of the machine to the back wheel. The same



The petrol pipes on the Singer act as a warning when the supply is nearly exhausted.

model is shown with a final chain drive, which is well encased. The gears are of the sliding dog type, operated direct by a firmly stayed control rod. The plate clutch is contained in the gear box, and is in such a position that no long operating rods are necessary. Altogether the unit is a particularly neat one.

SPARKBROOK, No. 92.

6 h.p. MODEL: 76×85 mm.; side by side m.o.v.; B. and B. carburetter; chain and belt; two-speed countershaft gear.

THE SPARKBROOK MANUFACTURING CO., LTD., Coventry.—In both the 6 h.p. and 8 h.p. the Sparkbrook characteristics for 1914 are the same. In both the aim has been to obtain simplicity and strength without superfluous gadgets, and the present designs are the outcome of long and scientifically carried out road tests. In both cases there is a twin V type engine, the drive being by chain on the near side to a counter-shaft gear, thence by a wide belt on the off side. The power is transmitted to the back wheel through a clutch, the plates of which are of hard steel carefully ground. The speed change

New type gear change lever on the Sparkbrook passenger machine.

works by dog clutches, the gear box being the firm's own make. The kick starter has been re-designed to enable the engine to be started with gear in neutral. The starter is of the toothed segmental type made strong enough for any amount of hard kicking. Both hubs are designed for removal of the wheels in about a minute, and though the wheel can be dropped out of the forks as soon as the solid centre wheel-pin is removed from the hub, the weight is taken on the larger diameter of the hollow wheel-pin. Ample provision is made for locking the large diameter hub cone, and really dustproof caps complete one of the finest hub constructions we have seen. Brakes have, of course, been designed to facilitate wheel removal. The tyres are 650×65 mm. Instead of ordinary connecting links on the Druid forks, the forged steel links are shouldered to work inside the lugs—a valuable point. The sidecar frame is built specially to suit the motor bicycle; perfect alignment is maintained by a straight tube chassis construction. The coachbuilt sidecar bodies are fitted with sprung upholstery, and under the seat is a roomy drawer. In the front is a locker containing an effective storm apron. A point deserving particular emphasis is the Colonial Sparkbrook model with 28in diameter wheels and 2½in. front tyre; the rear tyre is a 3in. This is a type that may be found useful on some of the rougher roads of this country.

8 h.p. MODEL: 85×85 twin; side by side m.o.v.; B. and B. carburetter, chain; counter-shaft two-speed gear.

Except for engine dimensions this larger design is identical with that of its smaller brother.

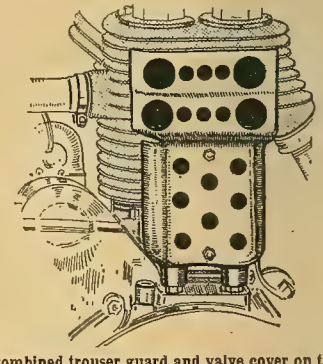
SPEEDWELL, No. 26.

THE SPEEDWELL MANUFACTURING CO., Alcester (Warwickshire).—Three different models of sidecar are displayed. The most taking is the Modèle de Luxe, which is fitted with a detachable wheel, luggage carrier, and instantaneous couplings to the four-point attachment. The upholstery is well sprung, and a neat hood and wind screen are fitted. Large C springs support the body at the rear and small similar springs in front. The coachwork is beautifully finished in tasteful light colours, and the outline is graceful. The Standard model has three-point attachment. A feature of these sidecars is the admirable mudguarding, deep valances being fitted each side of the wheel. The company also show complete back fork attachments fitted with Armstrong Mark VII. gears for fitting to any single-geared machine.

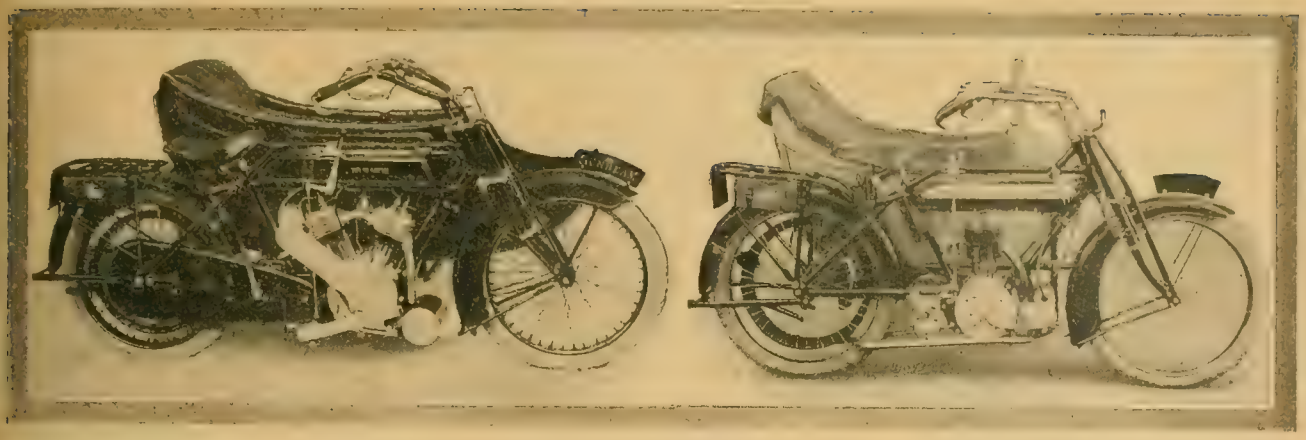
STAR, No. 81.

4½ h.p. MODEL (single-cylinder): 89×100 mm.; side by side valves; Amac or Senspray carburetter; chain; three-speed countershaft gear.

THE STAR CYCLE CO., LTD., Wolverhampton.—The 4½ h.p. Star in all probability has more distinctive features than any other exhibit. The cylinder of the big single has a detachable head, which is held down by four long bolts. The valve springs and stems are almost entirely enclosed by aluminium covers, which are extended over the valve ports to act as a trouser guard. Lubrication is ingenious, for the oil is led from a B. and L. lubricator to the timing gear, whence it feeds to the crankshaft bearing and into a groove formed in the flywheel. From this groove it is thrown to the crank pin by centrifugal force, and thence passes up through a hole in the connect-

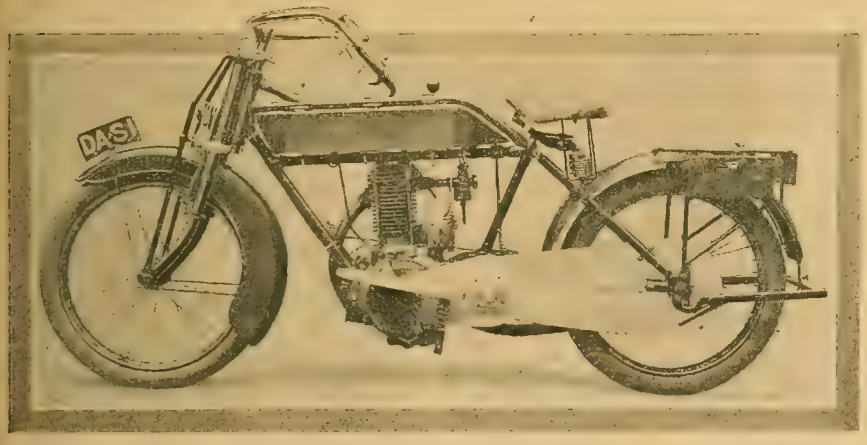


Combined trouser guard and valve cover on the single-cylinder Star



(1) Valve side of the 6 h.p. three-speed Sunbeam with chain drive and kick-starter. (2) The 3½ h.p. three-speed Raglan sidecar machine.

ing rod, through the hollow gudgeon pin and out to the cylinder walls. A large diameter leather-faced cone clutch is mounted on the crankshaft, and drives through an enclosed chain to a three-speed gear box. In the driving sprocket is mounted a cushioning device to take up the shock of explosions. The gear box has two sliding members, and is actuated by a stoutly constructed change-speed lever working in a quadrant on the right-hand side of the tank. The final chain



The 4½ h.p. chain-driven Star.

drive is entirely enclosed in an oil bath case. In the rear hub is mounted an internal expanding foot brake of ample dimensions. The magneto is mounted on an extension of the crank case directly behind the cylinder, and is chain-driven from the cam gear. Long footboards are fitted, and are sprung at the rear end. The specification includes Saxon forks, front and rear stands, powerful kick-starter, pannier tool bags, and well designed mudguards. A twin-cylinder 6 h.p. model is also staged, but is almost the same as the machine just described, except for the fact that it is fitted with a 76×85 mm. twin-cylinder J.A.P. engine. Considerable ingenuity has been shown throughout the design of this machine. A 6 h.p. model is shown attached to a well-designed sidecar, the body of which is slung at the rear ends on enclosed coil springs, which should provide extreme comfort. A parcels delivery van is also shown attached to a 4½ h.p. machine.

SUNBEAM, No. 80.

3½ h.p. Model (single-cylinder): 85×88 mm.; side by side valves; Amac carburetter; chain; three-speed counter-shaft gear.

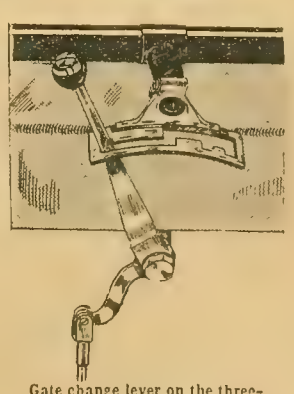
John Marston, Ltd., Wolverhampton.—The 3½ h.p. Sunbeam is a comparatively new model, but since it has made its appearance in competition it has made its name. The engine from outward appearances is built on standard lines, but it is fitted throughout with roller bearings, even the large intermediate gear wheel for the magneto drive being supported on this type. The chain drive from the engine to the gear box is enclosed in a cast aluminium oil-tight case. A multi-plate clutch is fitted, and the gear is of the sliding type. The final chain drive is also entirely enclosed, but to obtain a quickly detachable wheel, a loose spindle and a distance piece are employed, thus enabling the wheel to be withdrawn in a few seconds. A new feature has been introduced in the striking mechanism. The lever itself works as before in a gate quadrant, but the control rod is fitted with a buffer spring at its lower end, so as to prevent damage to the gears should the dogs not be opposite when the gears are changed. Enclosed spring tappets are fitted to the engine. A 3½ h.p. T.T. model is staged, but this differs in no way from the standard model, except that the handle-bars are neatly dropped and a picked engine is used. 26×2½in. Bates tyres are fitted as standard.

2¾ h.p. Model: 75×79 mm.; side by side valves; Amac carburetter; chain; two-speed counter-shaft gear.

In its general lines the 2¾ h.p. model is similar to the 3½ h.p., except, of course, that it is built somewhat lighter. The clutch, however, is of the single plate type, with cork inserts, and a two-speed gear only is fitted.

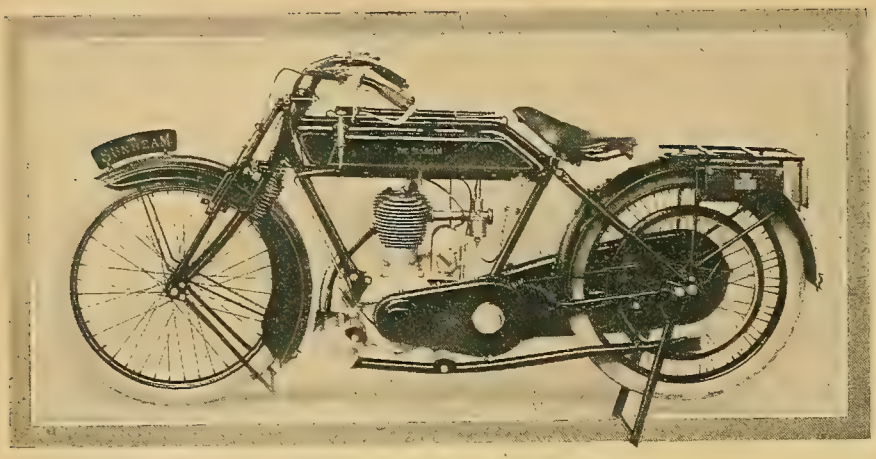
6 h.p. Model (two-cylinder): 76×85 mm.; side by side valves; Amac carburetter; chain; three-speed counter-shaft gear.

This machine follows the lines of the 3½ h.p. model, except for the fact that a 5-6 h.p. J.A.P. engine is fitted. All three



Gate change lever on the three-speed Sunbeams.

types retain this make's well-known features, such as the all-black finish, well-designed mudguards, and rear brake applied on the inside of a V-section rim. A Best and Lloyd semi-automatic drip feed lubricator is also a standard fitting. A particularly smart 6 h.p. sidecar combination is shown. In this case the sidecar is painted in black and lined with gold to match the machine. It is fitted



A new model 3½ h.p. T.T. Sunbeam with semi-dropped bars.

with a stout luggage carrier and excellent accommodation for tools and spares. 650×65 mm. tyres are fitted as standard. The kick starters on all Sunbeam models are carefully enclosed.

SUN, No. 114.

2 h.p. Model (Sun): 60 × 60 mm.; m.o.v.; B and B. carburetter; belt; Precision two-speed gear.

Sun Cycle Fittings Co., Ltd., Aston, Birmingham.—This machine is fitted with a Precision power unit made by F. E. Baker, Ltd., described on page 157 in the issue of Nov. 20th. It will be remembered that the valves are horizontal, and a neat foot-operated two-speed dog clutch gear is incorporated in this unit.

2¼ h.p. Model: (Sun-Villiers) 70×70 mm.; two-stroke; Amac carburetter; belt.

The most interesting part about this handy little machine is the two-stroke Villiers engine, which is of particularly neat design. The silencer is also worthy of mention, as it has two expansion chambers both of practically the same dimensions and joined by a single pipe. From the second expansion chamber there is a long exit pipe. The arrangement should effectively silence the exhaust. The crank case castings are particularly neat, and there is a heavy outside flywheel. Footrests and no pedals are fitted.

2¾ h.p. Model: (Sun Villiers) 77½×80 mm.; m.o.v.; B. and B. carburetter; belt; dog clutch Villiers gear.

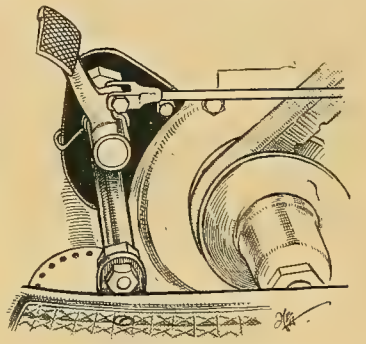
This is a useful model of medium horse-power fitted with the popular Villiers two-speed unit, the details of which are well known to our readers. The all-black finish is noticeable, otherwise the machine is constructed throughout on accepted principles.

3¾ h.p. Model (Sun-Precision): 85 × 88 mm.; m.o.v.; Amac carburetter; belt; Sturmey-Archer three-speed gear.

This is another model of sound design. We may mention that the lubrication is through a Best and Lloyd lubricator, and that particular attention has been paid to detail. The Sturmey-Archer three-speed gear is fitted, and a kick-starting device of the usual chain and free wheel pattern, but in which the spindle of the pedal is eccentrically mounted, so that the chain may be easily adjusted. Comfortable aluminium footboards are fitted.

2¾ h.p. Model (Sun-Precision): 70 × 90 mm.; m.o.v.; B. and B. carburetter; belt.

This is a model which is recommended to those who like simplicity, and is a



Showing method of mounting brake pedal, and position of footboards on the Sun-Precision.

soundly built machine which should serve as a handy runabout.

4 h.p. Model (Sun): 60 × 88 mm.; m.o.v.; Amac carburetter; belt; Sturmey-Archer three-speed hub gear.

The 4 h.p. machine is one which will appeal to the man who likes the smooth running of a twin and does not require excessive horse-power.

5 h.p. Model (Sun-Jap): 70 × 85 mm.; m.o.v.; Amac carburetter; belt; Sturmey-Archer three-speed.

As regards details, this machine resembles in the main the 3¾ h.p., being equipped with Amac carburetter, aluminium covered footboards, and Best and Lloyd lubricator. Since it is provided with a fairly high-powered engine, it is particularly suitable for sidecar work.

It will be noticed that a very wide range of machines is marketed by the Sun Cycle Fittings Co., who lay themselves out to cater for almost every branch of the buying public.

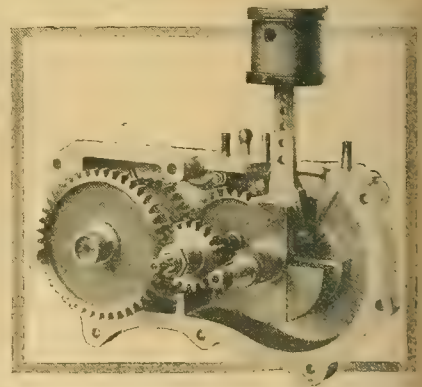
SWAN, No. 28.

Midland Motor and Cycle Co., Oxford.—This firm, who specialise in the Swan sidecar, are showing six examples of their models. One of the most attractive is that painted red to suit an Indian. A feature of the Swan sidecars is the coil suspension at the rear, from which the body is slung, the springs being fixed on a square section tubing running completely round the sidecar. The back of the sidecar is neatly curved. All the Swan sidecars have spring upholstery to the backs. Valances are fitted to the mudguards, and reflex red rear lights are a standard fitment. Another sidecar is shown painted to suit the Matchless machines. An extremely attractive model is shown painted pure white, fitted with a hood and wind screen, and luggage carrier fitted with a suit case, and is altogether a complete touring model. The Modèle de Luxe, which is painted olive green with white lines, has the back of the seat made to hinge at the lower end, and by swinging this forward a box capable of holding a considerable amount of baggage or a two gallon petrol can is disclosed. Another special model of this exhibit has a provision for a child's seat in the front of the sidecar.

SWIFT, No. 91.

3½ h.p. Model: 86×85 mm.; side by side m.o.v.; B. and B. carburetter, single, three-speed hub, or three-speed counter-shaft gear.

The Swift Cycle Co., Ltd., Cheylesmore, Coventry.—The 3½ h.p. Swift is made in three models—(1) single geared, (2) with three-speed Armstrong hub gear, or (3) with a counter-shaft three-speed gear. In all cases the power to the back wheel is conveyed by belt, but in the case of the counter-shaft gear chain transmission is introduced from engine to counter-shaft. The engine is of clean design, and a waterproof magneto placed in front of the engine is driven by a chain encased in an aluminium cover. The kick starter at the rear works on the back wheel through a chain and free wheel arrangement. The back brake has a separate V-rim on the right-hand side of the wheel. In the multi-geared models the gear-changing control arrangements are substantial and convenient. Needless to say, the cycle part of the work coming from a firm of such experience is of the highest order.



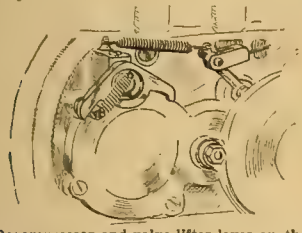
Internal mechanism of the 2 h.p. Precision Junior, showing piston, connecting rod, and two-speed gear.

The Olympia Show.—

TRIUMPH, No. 31.

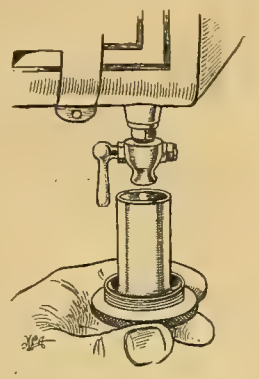
4 h.p. Model: 85×97 mm.; side by side m.o.v.; Triumph or B. and B. carburetter; belt; Sturmey-Archer three-speed gear.

The Triumph Cycle Co., Ltd., Priory Street, Coventry.—The exhibit of the Triumph Co. invariably commands a great amount of interest and attention, and this year even more so than usual, for this firm hitherto so extremely conservative and faithful to the 500 c.c. single-cylinder, have now struck two entirely new notes. Instead of the 500 single, the Triumph Co. are placing on the market a machine equipped with a single-cylinder engine of 550 c.c., the reason for this being that in the past the machines have been extensively used for sidecar work, and the makers have realised that such demands are made upon the 500 c.c. engine that it is almost invariably worked at high pressure. To obviate this, and at the same time to make a machine capable of giving a comfortable solo service, they have introduced the new model as a happy compromise, and there is little doubt that they have thoroughly succeeded. The general details of the machine, of course, follow the usual Triumph practice, and the same exquisite finish and attention to detail is observable on the new models as in the past. The designers have remained faithful to the belt drive, and the new 4 h.p. model is equipped with a specially constructed one-inch belt, which may be relied upon, running as it does on large pulleys, to give perfectly satisfactory service, even when loaded up with the extra weight of sidecar and passenger. The belt transmits the power to a Sturmey-Archer three-speed back hub; but the method of withdrawing the clutch and changing the gear is a speciality of the Triumph Co., changing gear being effected by an exceedingly neat lever mounted on the lower tube of the frame and situated on the right hand side of the tank. No cut-out is fitted, and a long exhaust pipe with flattened end projects from the silencer as far as the rear hub.



Decompressor and valve lifter lever on the 4 h.p. Triumph.

The most noticeable outward change in Triumph design is the frame, which is now dropped, giving a lower saddle position and increased comfort. This has, of course, necessitated the tank being redesigned to fit the rear end of the frame. The Best and Lloyd semi-automatic drip-feed lubrication is shown on this machine for the first time, and the tank has now no petrol gauge, a screw-down needle being used to cut off the petrol at the end of a run. To facilitate easy starting, a decompressor is fitted, working on the inlet cam, and by means of this the engine can be started when cold without the least trouble. Of course the fitment of a more powerful motor and the fact that the Triumph Co. are catering for sidecar use have necessitated the strengthening of the frame throughout, and this has been carried out without in any way sacrificing the elegant appearance of the machine. The machines on the stand are equipped with both Triumph and B. and B. variable jet carburetters. We understand that for the T.T. Race the Triumph Co. will prepare a set of 500 c.c. engines.



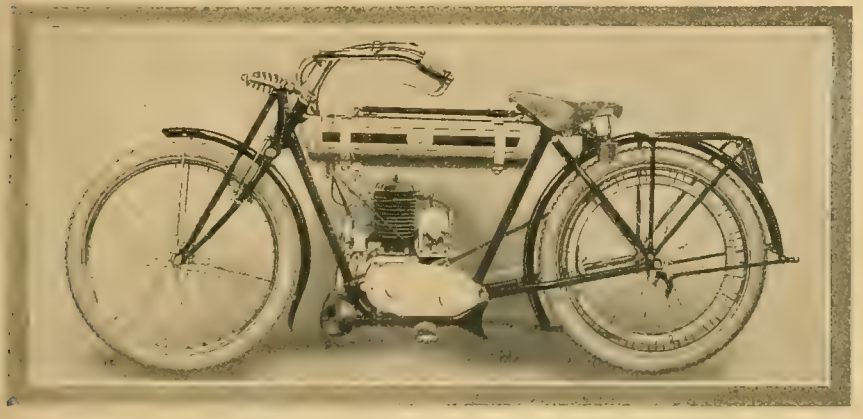
The petrol cap of the two-stroke Triumph has embodied with it a receptacle for the purpose of measuring oil from the forward compartment of the tank.

2 h.p. two-stroke Model: 64×70 mm.; B. and B. carburetter; belt and chain; two-speed counter-shaft gear.

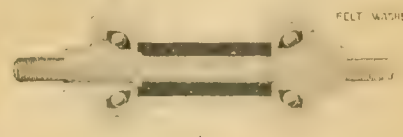
The new model 2 h.p. two-stroke two-speed Triumph attracts enormous attention. It is not exaggerating to say that this is one of the prettiest lightweight models ever put upon the market, the design throughout being extremely neat. The engine, which is 64×70 mm., is situated almost exactly midway between the wheels, which gives such a perfect balance to the machine that anyone standing over the machine can lift it from the ground quite evenly by means of the handle grips. The drive is taken by a totally enclosed chain to a tiny two-speed gear box situated close up to the engine base chamber, the transmission thence being by rubber belt to the back wheel. Flexibility is a great feature of the engine, and the designers claim to have entirely overcome the difficulty which makes the two-stroke engine "four-stroke" at slow speeds. The carburetter is situated at the front of the engine, and the Bosch magneto is mounted high up in a sheltered position behind the cylinder on the top of the gear box. The flywheel is external. Petrol and lubricating oil are mixed, and a new feature just adopted is the provision of a petrol injector to the cylinder head. The actual machine exhibited will have eventually a slightly different mudguard to the front wheel, which will either have side valances or be curved backward at the lower end as on the 4 h.p. model. The tank is a round one. An exceedingly neat feature is the method by which the speeds are changed, this being effected by Bowden wire and lever situated on the left of the handle-bar, immediately underneath the lever controlling the magneto. Needless to say, the finish of this machine and the other Triumph models is, as usual, superb.

Petrol gauge fitted to the tank of Triumph machines

Component parts of the De Lissa exhaust valve fitted to Moto sacoche machines

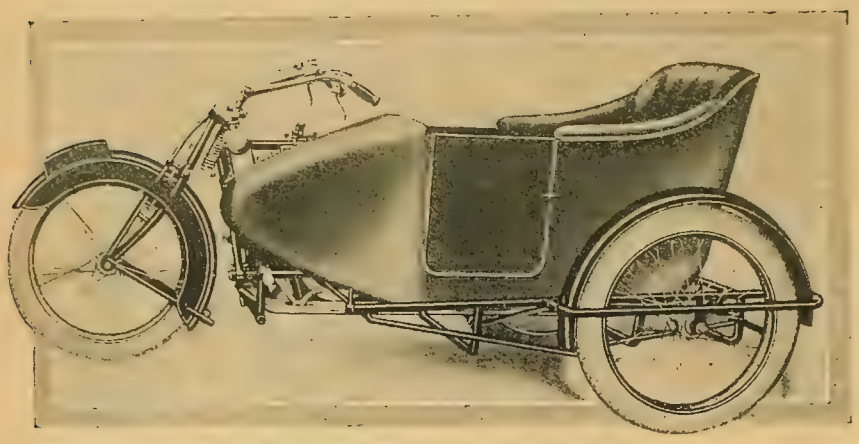


The 2¼ h.p. two-stroke Triumph, showing fish tail extension pipe from the silencer, position of carburetter and magneto, and method of fixing the tank. The bore and stroke are 64 x 70 mm. = 225 c.c.

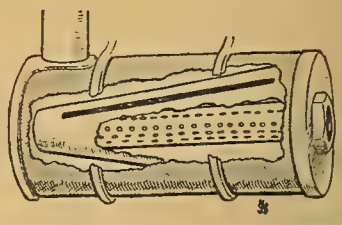


The oil-tight front hub used on Lea-Francis machines

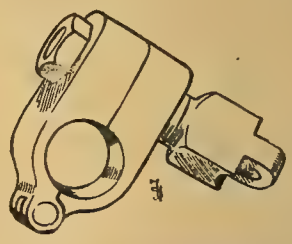
Studies in Sidecar Body Design.



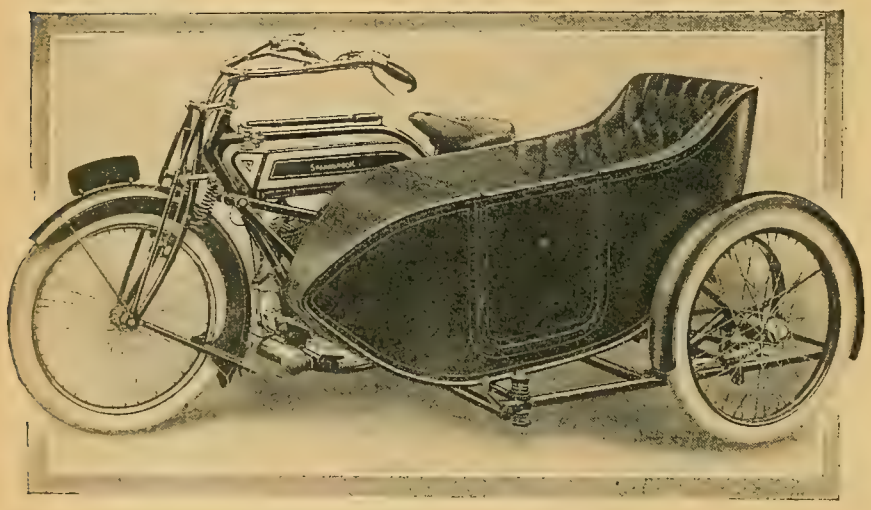
Coach-built sidecar on the 1914 8 h.p. water-cooled Williamson.



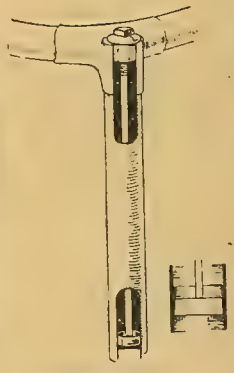
New design of silencer on the 5-6 h.p. Excelsior.



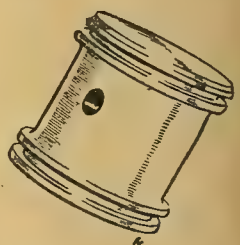
The Limoulette hinged sidecar coupling.



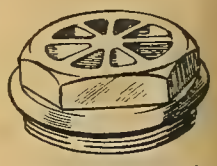
The 8 h.p. Sparkbrook coach-built sidecar outfit.



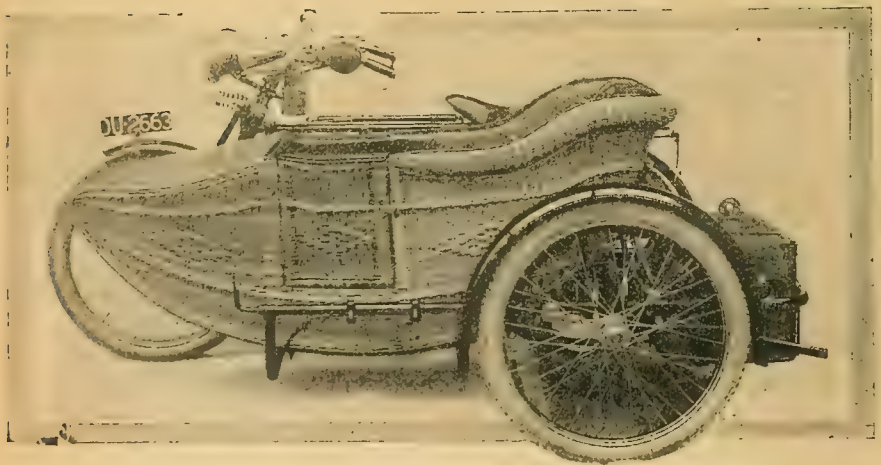
Locking device on the Triumph handle-bars.



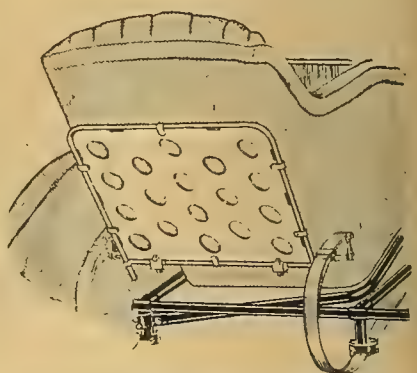
A novel type of piston which has been standardised on all Precision models.



Valve cap on the 1914 Blackburne.



One of the many types of Gloria sidecars for 1914, of a neat wicker work pattern.



Luggage grid at the rear of the P. and M. sidecar. It is shown folded out of use.

The Olympia Show.—

VAL No. 109.

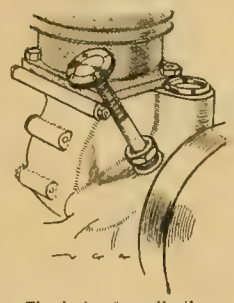
3½ h.p. MODEL: 85×85 mm.; side by side valves; B. and B. or Amac carburetter; belt transmission; single fixed speed gear.

THE VAL MOTOR CO., 314, Bradford Street, Birmingham.—The 3½ h.p. Val is the product of a new firm. It embodies standard practice, and is provided with a single-cylinder engine having the Bosch magneto placed in front and driven by a chain. To the silencer is fitted an expansion box of ample dimensions affording an easy passage for the exhaust. Though the engine exhibited is fitted with hand pump lubrication, we understand that future examples will possess a forced drip feed. On the same stand are some admirable examples of sidecars, one having a particularly interesting pattern springing system for the sidecar wheel. The wheel is mounted on a tube extending three-quarters of the way across the frame and secured at right angles to short tubes swinging around the main transverse member, which is clamped to the chain stays. The swinging movement is under the control of a coil spring, so that, on the wheel mounting any obstacle, it is swung upwards from the cross-member and is always under spring control. A very neat arrangement is seen on the body too. This is torpedo shaped, turned up at the front end, from which a storm apron is carried to the wind screen placed just in front of the seat. Before opening the door, the button attaching the apron to it is undone, and the whole mounting of the wind screen can then be swung clear around a pivot on the far side of the sidecar. This exceptionally neat design is particularly worth attention, and the firm also show an excellent example of sidecar work on more standard lines.

VELOCE, No. 103.

2 h.p. MODEL: 60.5×73 mm.; valveless; Amac carburetter; belt.

THE WILTON CYCLE AND MOTOR CO., Wilton Road, Victoria, S.W.—The two-stroke Veloce engine has already been described. It may be as well to point out that, instead of mixing the lubricant with the petrol, the oil is poured into the crank chamber and distributed by ring lubrication to a recess in the phosphor bronze bearing. Here the flow is regulated by a needle valve and is fed to the whole crankshaft through a hole in the shaft journal. It must be observed that the frame of this model is designed to take a gear box under the chain stay bracket if need be, and an example of this is afforded by the two-speed model chain - driven throughout. The weight is only 101 lbs.



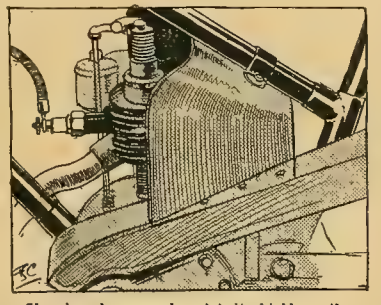
The device for adjusting oil feed on the Velocette.

2 h.p. MODEL: 60.5×73 mm.; valveless; Amac carburetter; chain; two-speed counter-shaft gear.

This is an extremely neat little machine, and even the change-speed gear is controlled from the handle-bars.

2½ h.p. MODEL: 70×76 mm.; valves in front, one above the other; Amac carburetter, belt; two-speed gear in crank case.

In the four-stroke Veloce engines but little alteration has been made, though a

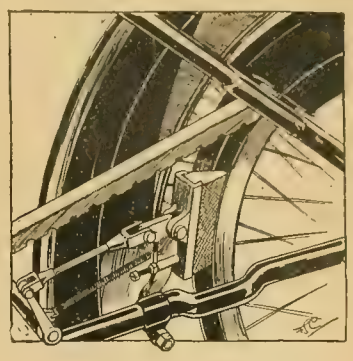


Showing dressguard and belt shield on the ladies' model Veloce

slightly larger model of 2¾ h.p. has been introduced. The gear counter-shaft is embodied with the camshaft, the geared down belt pulley being placed in front of the engine and affording a long belt drive. Lubrication is forced by pump through the counter-shaft to the gears and engine, finally into a sump at the bottom of the crank case, whence it is circulated back past the filter. A lady's dropped frame machine of this type is on view.

3½ h.p. MODEL: 85×85 mm.; side by side m.o.v.; Amac carburetter; belt; three-speed hub gear.

The 3½ h.p. is unlike the other Veloce models, in that it follows the more



Veloce internal operating belt rim brake; also showing mudguard and belt guard.

ordinary standard lines. It is a finely finished machine with magneto in front of the engine, and is a good example of up-to-date standard practice.

VICTORIA, No. 120.

4¼ h.p. MODEL: 89×96 mm.; m.o.v.; B. and B. carburetter; belt; Armstrong three-speed gear.

THE VICTORIA MOTOR AND CYCLE CO., LTD., Dennistoun, Glasgow.—This is a powerful single-cylinder machine, suitable for sidecar work, in which there are several interesting features. The engine is a Precision, and a spring pressure lubricator is fitted. Glass top filler caps are fitted, and special attention has been paid to the mudguarding. The front mudguard has a side shield, and the back mudguard an extension to prevent mud being thrown up by the belt rim. A comfortable Brooks B170 saddle is fitted. In the main, the machine follows standard lines throughout.

4 h.p. MODEL: 60×88 mm.; m.o.i.v.; B. and B. carburetter; belt; Sturmey-Archer three-speed gear.

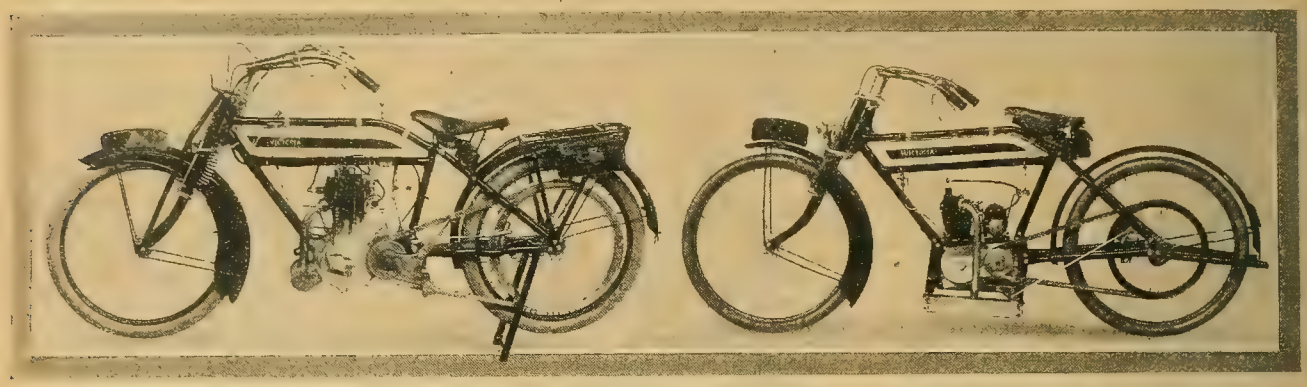
This is a handy little solo mount fitted with a small two-cylinder Precision engine, adjustable footrests similar to

TWO OPEN FRAME LIGHTWEIGHTS.
(1) The 2¾ h.p. Veloce, with belt drive and kick-starter. (2) The 2¾ h.p. two-speed Douglas.

The Olympia Show.—
those fitted to the large single-cylinder model, and in general arrangements resembling it. The lubrication is by splash, the oil being delivered by a spring plunger pump through an adjustable sight feed to the crank case.

chamber the exhaust gases make their exit through a short pipe with a flattened end, in which there are saw cuts. No less interesting is the 2¾ h.p. 74.5×80 four-stroke engine, incorporating a dog clutch, two-speed gear, and kick starter. A phosphor bronze cone clutch is also

It is shown attached to a 2½ two-speed Levis. These two models are not folding, but two examples of folding sidecars are shown, capable of going through a 2ft. 8in. door when fitted to a motor cycle. A tandem-seated cane sidecar with two doors completes the exhibit.



Two types of Victoria for 1914. (1) The 2¾ h.p. two-speed model, showing kick starter and belt drive. (2) The 2 h.p. two-stroke single-cylinder type.

3½ h.p. MODEL: 85×88 mm.; m.o.i.v.; B. and B. carburetter; belt; Sturmey-Archer three-speed gear.

Save that it is fitted with a different-sized engine, the details of this model are practically identical with the 4¼ h.p.

2¾ h.p. MODEL: 74.5×88 mm.; m.o.i.v.; B. and B. carburetter; belt; Villiers two-speed gear.

This machine is fitted with a neatly designed Villiers power unit. A kick starter is fitted, consisting of a ratchet quadrant engaging with a pinion on the counter-shaft, to which the pulley is fixed. It is a particularly well-designed model, and a point worthy of note is the bottom bracket lug, which looks extremely substantial. An Enots lubricator is fitted.

2 h.p. MODEL: 60×60 mm.; m.o.v.; B. and B. carburetter; belt; two-speed Precision gear.

This model is fitted with the new lightweight Precision power unit, and was described in detail in last week's issue. The belt drive is indirect from a counter-shaft, and consequently pulleys of more equal diameter can be fitted, thus ensuring longer life for the belt. A foot-operated two-speed dog clutch gear is incorporated in the engine unit. The rear brake acts on the interior of the belt rim. As a contrast to the other models, all of which are fitted with Druid forks, the smallest model has Saxon forks.

VILLIERS, No. 225.

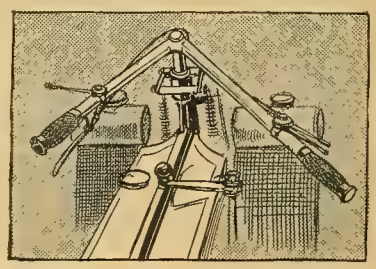
2½ h.p. two-stroke Villiers MODEL: 70×70 mm.; valveless; Amac carburetter; belt.

THE VILLIERS ENGINEERING CO., LTD., Blakenhall, Wolverhampton.—One of the novelties on this stand is a 2½ two-stroke Villiers which is shown as a separate unit and also fitted to Ixion motor bicycles. The big end is fitted with a roller bearing, and the silencing arrangement is well worthy of mention. Two expansion chambers are joined together by a pipe which forms the end cap of the two chambers. In the second expansion

included in the unit, which is operated either by the hand or foot. This enables one to use the hand when engaging the clutch, which is often convenient in heavy traffic, enabling one to start with both feet on the ground. A kick starter is also provided, consisting of a quadrant engaging with a free wheel on the engine-shaft. The air release pipe pointing downwards, so as not to blow the oil on the crank case, is also a very neat fitting. One of these engines is also shown in part section, and one of these units is fitted to a Sun-Villiers motor bicycle.

WATSONIAN SIDECAR, No. 27.

THE WATSONIAN FOLDING SIDECAR CO., LTD., Conybere Street, Birmingham.—A most striking sidecar on this stand has an all-metal body. The special feature is the carrying in the nose of the sidecar of a spare petrol tank holding three gallons. The springing is very luxurious, special shock absorbing spiral springs being fitted to check the rebound of the C springs at the rear. The seat is sprung, and a large luggage carrying boot is supplied at the back of the passenger. Another interesting sidecar shown is a featherweight one, scaling only 46 lbs., ready to attach to the machine. It has a cane body, and, despite its light weight, it has plenty of leg room. The chassis is primarily composed of a single tube, and the body is slung in exactly the same way as a Brooks saddle.

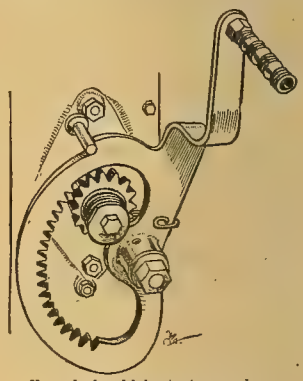


Unusually shaped handle-bar on the Williamson to prevent fouling the cabriolet sidecar body.

WILLIAMSON, No. 85.

8 h.p. TWIN: 85×85 mm.; side by side valves; Amac carburetter; chain; two-speed counter-shaft gear.

THE WILLIAMSON MOTOR CO., LTD., Coventry.—The Williamson exhibit consists of one model which may be obtained either air or water-cooled. As the water-cooled model is the most fre-



New design kick-starter on the 8 h.p. Williamson.

quently seen, this will be described first. The engine has two horizontally opposed cylinders, and remains practically unaltered for the coming year, except for the fact that the crankshaft is now balanced and valve covers are fitted. The water pipes are much neater, and cooling is effected by an improved type of radiator. The main frame tubes are duplicated. Both driving chains are enclosed, and the gear box is of the sliding dog type operated by a lever working horizontally on the top tube. The rear brake drum has been increased in diameter, and the ground clearance raised to 6½in. A new form of kick starter is now fitted, which consists of an internally cut quadrant meshing with a free-wheel which is so arranged that when once the engine is started it is thrown out of mesh. The carrier is strongly constructed, and mounted on either side are large pannier

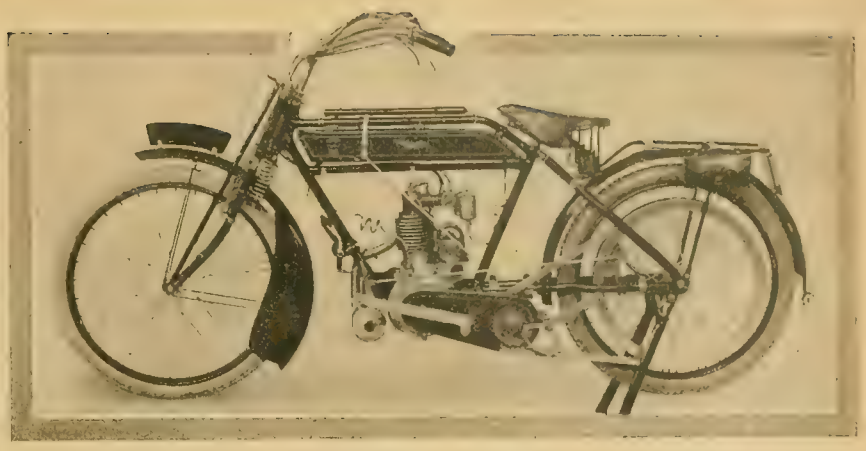
The Olympia Show.—

tool boxes. Mudguarding has received special attention, and the Williamson is probably one of the best protected machines on the road, especially as the long aluminium footboards, which are now sprung at the rear end, help to protect both rider and engine. Lubrication is by sight feed drip, but auxiliary pump supplies for emergency. The water-cooled model is essentially a sidecar machine, and, as well as some excellently designed passenger outfits, a miniature cab is shown with seating accommodation for three, and the body is entirely enclosed, and luggage accommodation is provided on the roof.

WIN-PRECISION, No. 24.

4¼ h.p. MODEL: m.o.v.; B. and B. carburetter; belt; Armstrong Mark VII. gear.

THE WINCYCLE TRADING CO., LTD., 106, Great Saffron Hill, London, E.C.—Two Win-Precisions, one fitted with a 3½ h.p. single-cylinder, and the other with a 4¼ h.p. single-cylinder engine, are shown. The drive is by belt, and an Armstrong Mark VII. gear is fitted to both models. The 3½ h.p. is shown with a folding sidecar chassis, and the 4¼ h.p. with a similar type chassis, on which is mounted a handsome coach-built sidecar, painted French grey with red lines and claret coloured upholstery. The feature of this sidecar is that it will pass through a 30in. doorway, a point of interest to those who have little space for storage. The sidecar body is noticeable for the deep scuttle dash, comfortable upholstery, and arm rests on each side. The motor cycles are extremely substantial in design, the engines being the well-known Precision. Control is completely from the handle-bar, and the gear is changed by the new long lever quadrant, which is an advance on the small levers fitted during the past year. The firm also exhibit a remarkably well-finished cane sidecar upholstered in brown, this chassis also being made to fold when it is necessary to fold the sidecar. The body, of course, has to be detached, but by means of the special self-locking clips this is literally a matter of a moment. The equipment of the machines follows standard practice, and embodies Druid forks, Hutchinson 2½in. tyres, B. and B. carburetter, Bosch magneto, and a kick-starter fitted to the back stays.



The 2½ h.p. single-cylinder counter-shaft geared Wolf, showing kick-starter, footboards, and method of mounting the clutch pedal.

WOLF, No. 22.

3½ h.p. MODEL: 84 × 89 mm.; side by side valves; B. and B. or Amac carburetter; chain and belt or chain; Toroga two-speed gear.

THE WULFRUNA ENGINEERING CO., LTD., Wolverhampton.—The above machine was referred to last week as a 3 h.p. in error. Two models are shown, one fitted with all chain and the other with chain and belt transmission, the Toroga two-speed gear being fitted behind the engine. The engine is a workmanlike-looking job, and is fired by a U.H. magneto placed in a sheltered position high up behind the cylinder. Either Xl-All or Pattison saddles are supplied at option, and the specification includes B. and B. carburetter and Druid forks. The price of the machines is exceedingly moderate, the cost of a two-speed machine with chain drive and complete with coachbuilt sidecar being only 55 guineas. Handle-bar control to the magneto is fitted, and a noticeable feature is that the oil and petrol pipes are copper finished.

2½ h.p. MODEL: 76 × 65 mm.; overhead inlet valves; Senspray or Amac carburetter; chain and belt; Albion two-speed counter-shaft gear; clutch and kick-starter.

An excellent little machine is this model, which retails at the moderate price of 32 guineas. The big bore engine gives plenty of power, and the combined drive enables a large diameter pulley to be used, thus avoiding belt slip. The Albion two-speed gear, clutch, and kick-starter is a well designed piece of work. Comfortable footboards and large mudguards and saddle render this machine a thoroughly serviceable touring mount.

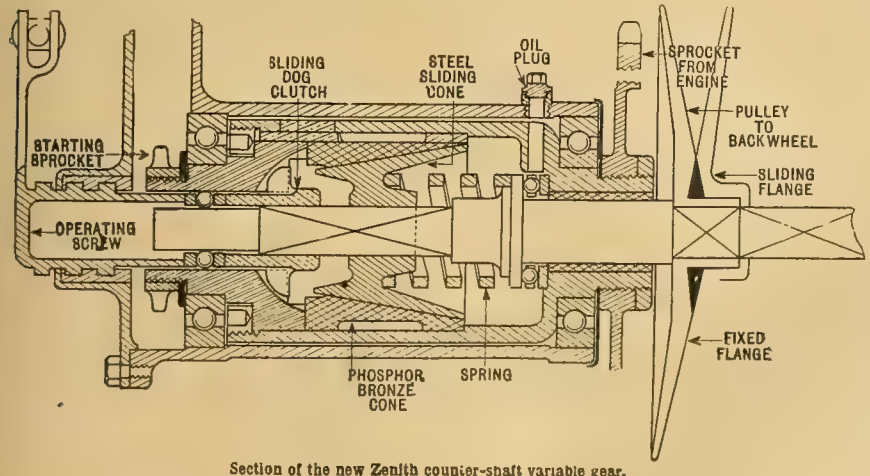
ZENITH, No. 51.

6½ h.p. MODEL: 76 × 85 mm.; side by side valves; Amac carburetter; chain and belt; Gradua gear.

ZENITH MOTORS, LTD., Weybridge, Surrey.—The principal novelty of this machine is the position of the variable pulley, which constitutes part of the Gradua gear. This is placed on a counter-shaft before the engine, thus affording a long and flexible belt drive and the possibility of lower gears than can be fitted when the pulley is on the engine-shaft, as the counter-shaft can then be geared down to any desired ratio. This counter-shaft also incorporates a metal-to-metal clutch, which revolves in an oil bath, and a kick-starter, which is enclosed in the same case. The mechanism for moving the back wheel backwards and forwards as required by the variation of gear is guarded by a small aluminium cover. The magneto is placed behind the engine slightly on the right hand side of the machine. The stand, instead of being fitted in the usual position, is placed amidships. The silencer is alongside the back wheel.

3½ h.p. MODEL: 70 × 64.5 mm.; side by side valves; Amac carburetter; belt; Gradua gear

This model appears to be a very desirable solo machine, but it is fitted with permanent lugs for the attachment of a sidecar if required. The magneto is placed before the engine. The 3½ h.p. Zenith is also made with a new counter-shaft gear as previously described. Other machines to be seen on this stand are racers of various sizes, one of which is fitted with a J.A.P. engine, having overhead valves. All Zenith machines have twin engines, with the exception of the 3½ Green water-cooled engine. The finish is, in most cases, black with green lines, but the racing machines are red.



Section of the new Zenith counter-shaft variable gear.

TYPICAL SHOW MODELS.

(1) The 3½ h.p. chain and belt drive "Wulfruna.

(2) A new departure for Hobart Bird and Co.—A 6 h.p. twin-cylinder two-speed chain-driven model.

(3) Valve side of the two-speed 7-9 h.p. Quadrant which is fitted with overhead valves and chain-drive.

(4) Valve side of the 3½ h.p. three-speed Centaur.

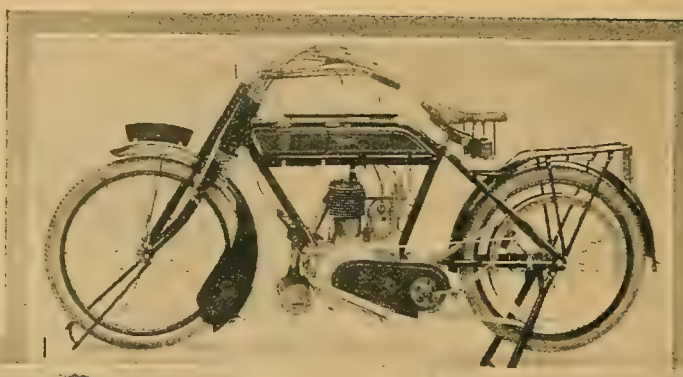
(5) The 3½ h.p. Sturmey-Archer three-speed geared O.K.

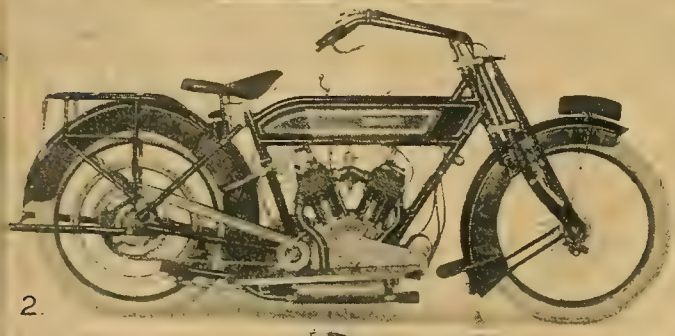
(6) The 4½ h.p. Roc four-speed showing gate change and counter-shaft gear

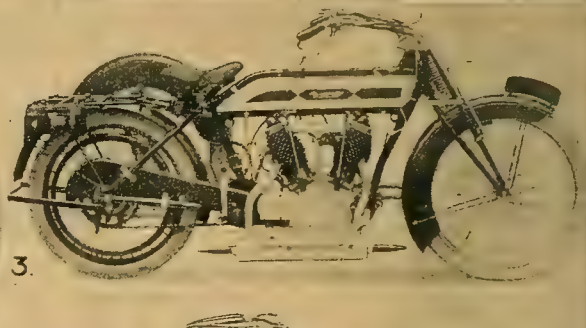
(7) Side view of the 3½ h.p. three-speed belt-driven Day-Leeds.

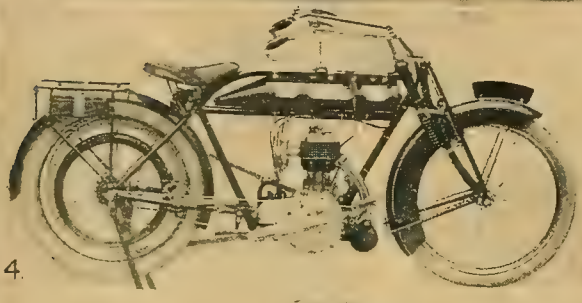
(8) Valve side of the three-speed single-cylinder Singer. Observe the neat valve covers and trouser guard.

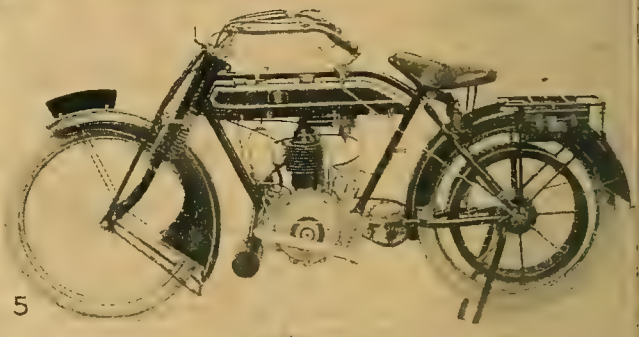
(9) The 3½ h.p. single-cylinder two-speed Rex.

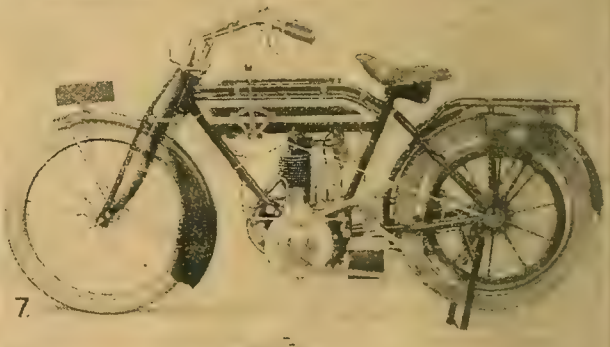












The Douglas EFFECT

SALES OF DOUGLAS MOTOR CYCLES.

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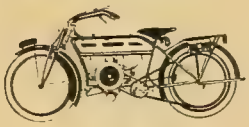
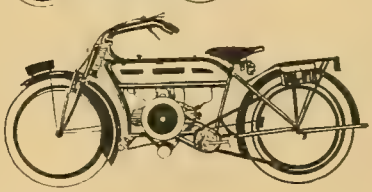
350	1909	
1,000	1910	
2,000	1911	
3,000	1912	
5,400	1913	

In 1914 we are confident that we shall exceed all previous figures, BECAUSE WE KNOW THAT THE PUBLIC KNOW ——The Douglas to be the proved best machine.——

See Stand 84, OLYMPIA.

SEVEN MORE RECORDS BROKEN ON

At Brooklands, Nov. 20th, Mr. C. G. Pullin on a 3½ h.p. Rudge, succeeded in setting up the following records:

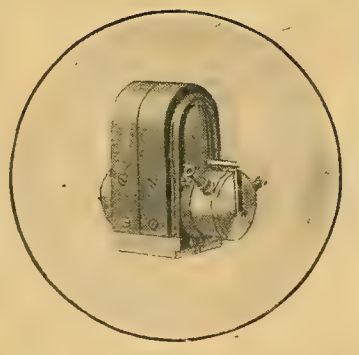
250 miles. Time: 4 hrs. 11 mins. Av. Speed: 59.75 m.p.h.
300 miles. Time: 5 hrs. 1 min. ,, 59.72 m.p.h.
350 miles. Time: 5 hrs. 51 mins. ,, 59.72 m.p.h.
400 miles. Time: 6 hrs. 31 mins. ,, 59.75 m.p.h.

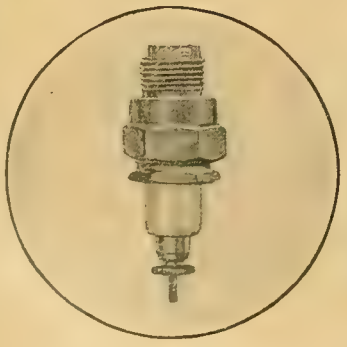
5 hours, distance 298 miles 1,020 yards, average speed 59.71 m.p.h.
6 hours, distance 358 miles 706 yards, average speed 59.77 m.p.h.
Mr. T. E. Greene, on a 3½ h.p. Rudge, also succeeded in breaking the following records:
7 hours, distance 419 miles 823 yards, average speed 59.92 m.p.h.

WAKEFIELD 'CASTROL' Regd. MOTOR OIL.

C. C. WAKEFIELD & CO., Wakefield House, Cheapside, LONDON, E.C.

C.D.C.





YOUR NEW MACHINE

Don't order it until you have inspected the

EISEMANN IGNITION DEVICES

and induced the manufacturer or agent of the machine you fancy to fit them.

On view at

OLYMPIA, STAND 180.

THE EISEMANN MAGNETO CO.,
43, Berners Street, Oxford Street, LONDON, W.
'Phone No.: 4601 City. 'Grams: 'Rousillon, London,"
North of England Agent:
J. H. RUNBAKEN, 7, Peter Street, Deansgate, Manchester.

C.D.C.

Cycle Cars at the Show.

A.C. No. 86.

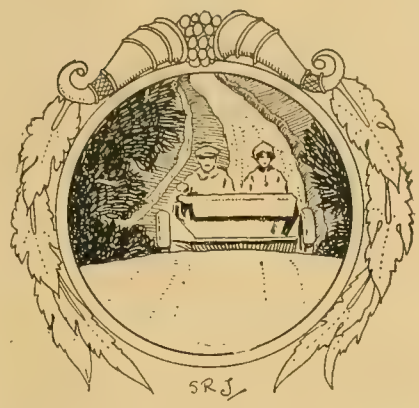
5-6 h.p. single-cylinder MODEL: 95×102 mm. (723 c.c.); air-cooled vertical, cooling by two fans; m.o. valves; B. and B. carburetter; Bosch magneto; two speeds, clutch drive; wheelbase, 5ft. 9in.; track, 4ft. 6in.; 650×65 mm. tyres on wire wheels.

AUTO-CARRIERS (1911), LTD., Thames Ditton, Surrey.—The models staged here have been described from time to time in our columns, and have all the characteristics which are special to this particular make of vehicle. A very large number are in use in London and the provinces for carrier and passenger work, and have been found to be very reliable. The most interesting of the models on the stand are the 10 h.p. vehicles fitted with a four-cylinder water-cooled engine, which was described and illustrated in a recent issue of *The Motor Cycle*. The engine is *en bloc*, thermo-syphon cooled, and the special feature of the design of the chassis is that the gear box and back axle form one unit, the centre torque rod and gear box being in one piece to ensure perfect alignment. An oil-tight partition separates the worm gear and the differential. This model is fitted with 700×80 mm. tyres on Sankey detachable wheels. The firm claim credit for having marketed a really strong and light four-cylinder car that at the same time is a cycle car under the A.C.U. definition, and that this is brought about by the scientific reduction of unnecessary weight in its construction

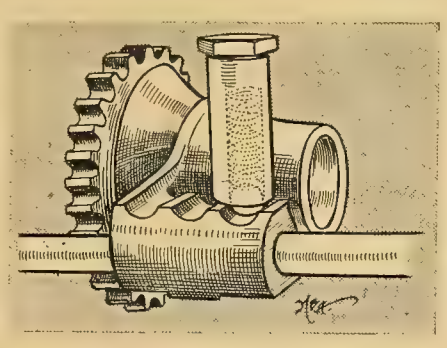
ADAMSON, No. 132a.

Two-cylinder 10 h.p. MODEL: 85 × 95 mm.; Solex carburetter; final drive by belt.

BARTON, ADAMSON, AND CO., Enfield Highway, N.—The 10 h.p. Adamson cycle car was fully described in our issue of October 30th. The engine is a two-



cylinder vertical Alpha bolted straight on to the frame. The gear box, however, is carried on a subframe, and the drive is transmitted from the leather cone clutch to the gear box, which contains three speeds and a reverse, by a shaft provided with a leather disc type universal joint at its rearward end. Two similar universal joints are to be found each side of the counter-shaft, to which the belt pulleys are attached, which runs on ball bearings. Motion is transmitted to the counter-shaft by means of bevel gearing. A V-shaped distance rod runs from the gear box to the rearmost transverse member of the frame, and terminates in a ball joint and adjusting screw by means of which any slack in the belts may be taken up. Points worthy of special study on this vehicle are the seat starting device, the construction of the gear box, the underslung springing, and the distance rod referred to above. The Adamson is low built and possesses particularly pleasing lines.

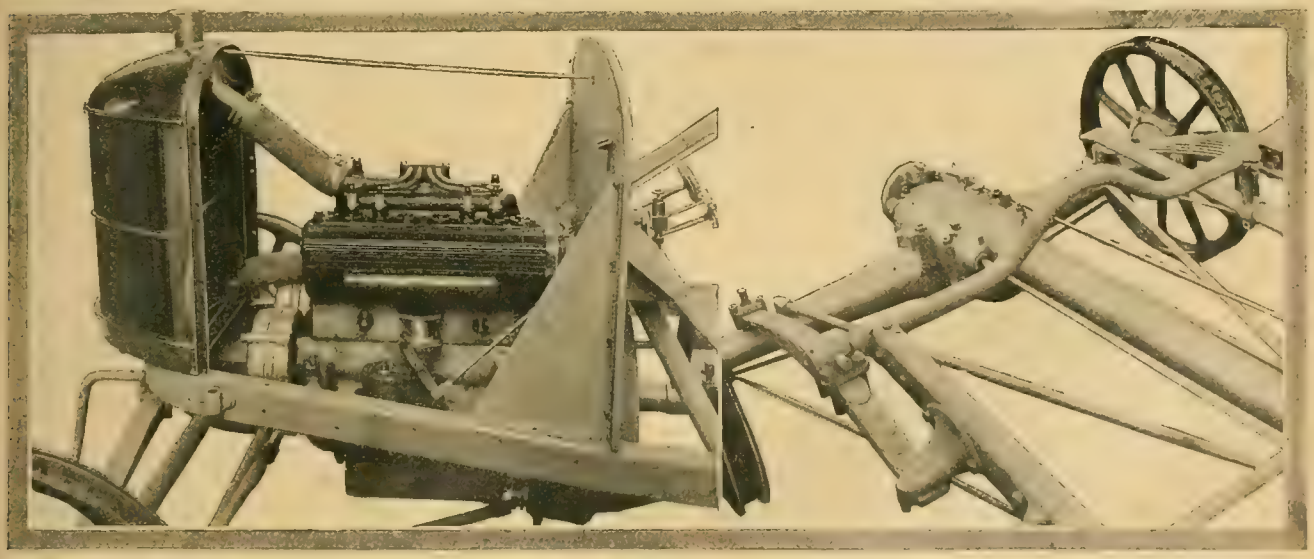


Eccentric locking device of gear striking rods on the A.C

BUCKINGHAM, No. 35.

12 h.p. MODEL: 89×88 mm., twin cylinders, V 90°; water-cooled; m.o. overhead valves; Buckingham carburetter; Bosch magneto; two speeds; chain and belt drive; wheelbase, 7ft. 2in.; track, 3ft. 8in.; chassis weight, 5¾ cwt.; tyres, 26×2½, on wire wheels.

G. N. HIGGS, 31, Vauxhall Bridge Road, Victoria, S.W.—The chassis staged indicates that the engine is a very powerful one and that the transmission should be equally efficient. From the engine crankshaft there are two chains which transmit the power to loose external portions of friction clutches, either of which can be brought into engagement with the internal clutch portions so as to impart the top or lower speed to the large belt pulleys secured to the end of the counter-shaft. Either of the speeds can be engaged by moving the pedal, which can normally be held out of engagement when required by a form of ratchet and sprag, the latter being attached to the pedal. The frame is mounted on a transverse spring at the front and at the back by quarter elliptical inverted springs.

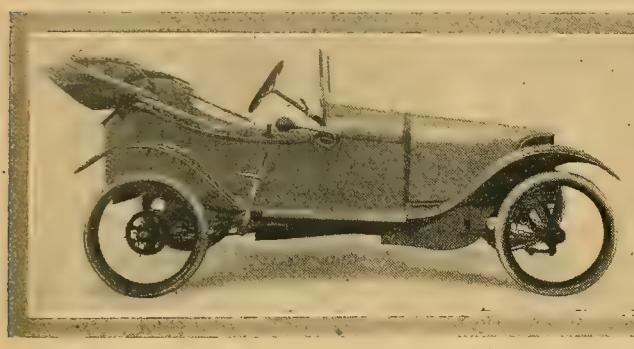


Monobloc four-cylinder engine and radiator of the A.C. 10 h.p. model. A Binks carburetter supplies the gas

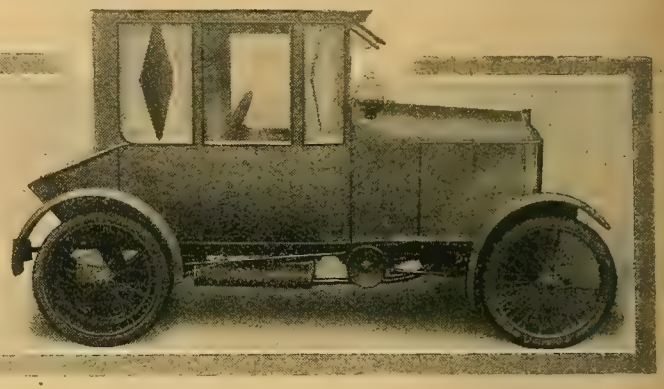
Rear portion of the chassis, showing rear spring anchorage and gear box and back axle unit

The Olympia Show.—

A torque rod is arranged to connect up the rear axle centre and the centre of the frame. Means are provided for adjusting the chains. Both sets of brakes take effect on the inner part of the rear wheel belt pulleys, the brakes being of the single shoe type forced into contact with the belt rim by means of wire cables. The steering is of the bobbin and cable type. The chassis is very well thought out, and the work is good. A twin-seated vehicle complete with body is also staged, together with the various parts, showing the material and workmanship employed in the construction of the engine. A very tastefully fitted coupé-bodied car is also staged.



Single-cylinder four-wheeled A.C., one of the few £100 cycle cars in the Show.



A Buckingham Coupe, with a twin-cylinder water-cooled engine and belt drive, shown by G. N. Higgs.

CARDEN, No. 33.

3½ h.p. single (85×85 mm.) or 4 h.p. twin (70×85 mm.) MODELS: side by side valves; chain drive; Carden two-speed gear.

CARDEN ENGINEERING CO., Farnham, Surrey.—Three models of these speedy-looking single-seated cycle cars are displayed, all fitted with J.A.P. motors. The original type of Carden was supplied with a single gear, and a single-cylinder power unit of 3½ h.p., but for 1914 the firm are marketing two-cylinder models with multi-speed gears, one on the stand being shown with a twin J.A.P. 70×85 mm., 585 c.c., and another with a twin J.A.P. 70×64½ mm., 499 c.c., and a choice of finish in either grey, blue, or red is given. The coachwork is the shape of a cigar sharply pointed at both ends, and the motors are mounted over the rear axle, to which the drive is transmitted by means of a chain, a feature being the new Carden two-speed gear. The Carden is probably the lightest cycle car in the Show, and is designed for use by one person only. The striking feature is the entire absence of a steering column visible to the eye, the dashboard being brought so close to the steering wheel that the latter fitment appears to be mounted directly on the dash. The steering is controlled by wires running through tubes. This velicle weighs far less than many sidecar outfits.

One of the most novel designs of a four-wheeled single-seater is the Carden shown above.

CHATER-LEA, No. 54.

CHATER-LEA, LTD., Golden Lane, E.C.

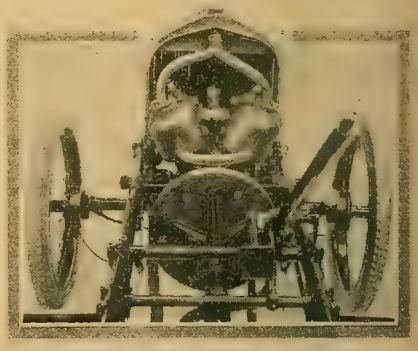
Four-cylinder engine, 59×100 mm., 1,098 c.c.; Sthenos carburetter; three-speed and reverse gear box; wheelbase, 7ft. 6in.; track, 3ft. 10in.; 700×80 mm. tyres; chassis weight, 5¼ cwt.

CHATER-LEA, LTD., 74-84, Banner Street, London.—The Chater-Lea cycle car has been on the market for some considerable time, in a simple form with a two-cylinder V engine, but this year the makers are supplying, in addition, a miniature car type fitted with a four-cylinder *monobloc* engine. The whole design of the vehicle follows car practice throughout, the three-speed gear box being situated in the is by propeller-shaft to a live axle. middle of the chassis, while the final drive Messrs. Chater-Lea evidently recognise that vehicles of this description are capable of considerable speeds, and they wisely provide larger sized tyres than are frequently met with on machines of this type, and their example in this respect is one which might be followed with advantage. The workmanship and design throughout are excellent, as may be expected from this firm. A twin-cylindered chassis, with the cylinders set mitted to the rear axle by means of a at 50°, the motor being water-cooled, is also shown, together with a complete car of this type fitted with a Zenith carburetter. Complete cars as well as chassis are staged at Olympia.

CRESCENT, No. 138.

7-9 h.p. MODEL: Blumfield 50° V-type; water-cooled; thermo-syphon; m.o.v.; Cox carburetter; Bosch magneto; five speeds; friction and chain drive; wheelbase, 7ft. 9in.; track, 3ft. 2in.; weight about 7 cwt.; 650×65 tyres on wire wheels.

CRESCENT MOTORS, LTD., Smethwick, Birmingham.—in this chassis a specially designed Blumfield engine for cycle car work is attached to the tubular side



Showing radiator and twin-cylinder engine of the water cooled Crescent.

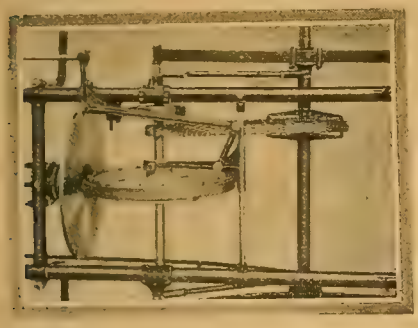
members of the frame by means of brackets, and the drive is taken from the flywheel through a six-armed lug connected to a flat leather ring bolted to the flywheel rim. The flywheel is fitted with vane arms, which act as a fan A long shaft extends from the six-armed lug, and carries at its rear end a friction disc which engages another disc carried on a transverse shaft. The transverse disc has its edge covered with Ferodo. The disc can be moved over the face of the driver disc by means of a hand lever which gives five forward speeds. The drive from the counter-shaft, on which the friction wheel is mounted, is transmitted to the rear axle by means of a

The Olympia Show.—

silent chain. There is no differential, but a type of band brake connects one wheel to the axle, so that slip takes place when turning corners. The steering box is substantial, and the steering is of the worm and nut type. So far as control possible to start the vehicle with the brake on. The chassis is very well finished, and the complete vehicle has very nice lines. It should be remarked that in the chassis model on view a Precision V type water-cooled engine is fitted longitudinally in the frame.

The smart looking water-cooled 8 h.p. Crescent.

and brakes are concerned, one pedal, on being compressed, takes the friction discs out of contact, and a further movement brings into operation expanding bands to the interior of the front wheel brake

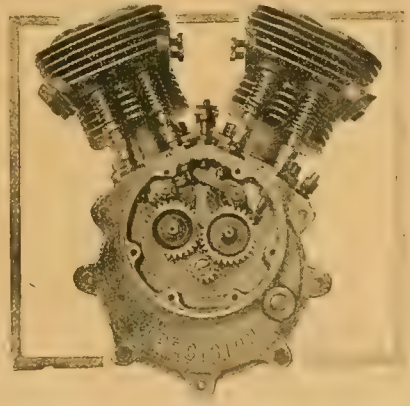


Friction gear and silent chain drive to back axle on the Crescent.

drum. The change-speed lever is also connected to the hand brake lever to apply a contracting band on the shaft on which the second friction wheel is mounted. The change speed lever moves through a gate quadrant to the inner part, when it is desired to apply the hand brake, and to the outer part when it is desired to bring any of the speed ratios into operation, so that it is im-

DAY-LEEDS ABSENT.

A stand had been booked for the Day-Leeds cycle car, which for 1914 has been re-designed with a four-cylinder water-cooled engine and three-speed gear box. It is, in fact, a car in miniature, and we were not surprised to learn on enquiry that it had shared the same fate as two of three other makes and been debarred from Olympia, as its chassis weight exceeded the stipulated limit of 6 cwt.

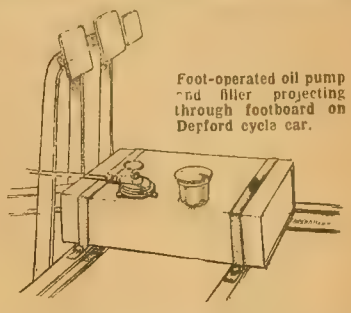


A type of 8 h.p. twin-cylinder Precision engine commonly used on cycle cars. The timing gear cover has been removed to show the mechanism

DEPFORD, No. 137.

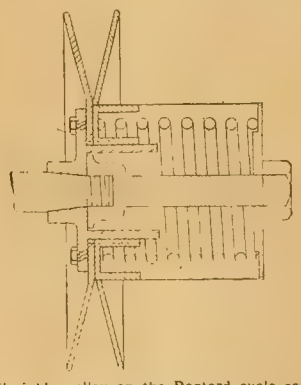
8-10 h.p. Model: The Blumfield, Precision, or J.A.P. 50° twin-cylinder, water cooled; m.o. valves; Solex carburetter; Bosch magneto; four speeds; shaft, counter-shaft, and final belt drive; wheelbase, 8ft. 2in.; track, 3ft. 6in.; weight, 5¾ cwts.; 650×65 mm. tyres on wire wheels.

The Depford Co., Evelyn Street, Deptford, S.E. The chassis staged has



Foot-operated oil pump and filler projecting through footboard on Depford cycle car.

a large J.A.P. racing engine with overhead valves. The drive is taken from the crankshaft by means of a multiple plate clutch and propeller-shaft through a leather flexible joint to the gate change gear box. The changes of speed are operated by the left hand, the speed lever being placed centrally in the chassis. At the end of the counter-shaft

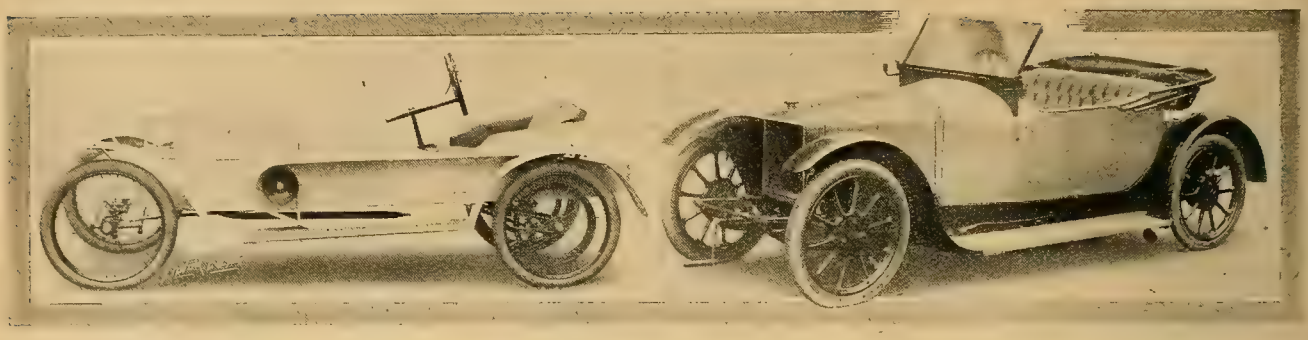


Variable pulley on the Deptord cycle car.

variable pulleys are fitted, from which the drive is transmitted to pulleys on the rear wheels. The tensioning of the belt can be effected by means of a hand lever, which is used for varying the position of the rear wheels. The frame is

The new Deptord cycle car shown for the first time

The Tweenie belt driven cycle car on Messrs. Alfred Dunhill's stand.



Left—The D.E.W. belt-driven air-cooled single-seater. Right—Threequarter front view of the Duo water-cooled two-seater, an entirely new model.

mounted on quarter elliptical springs. For lubrication purposes to the engine an oil tank is fitted beneath the footboard, the oil being passed from the tank by means of a plunger hand-operated pump to a couple of adjustable sight feed drips mounted on the dash; from these the oil is fed to the cylinders and the crank case. The finished vehicle staged presents a very good appearance, as the radiator is helmet-shaped in front, and the lines of the bonnet, scoop dash, and other parts of the body follow through continuously in one curve. The wings are fitted with side valances, and there are also side valances to the footboard, so that this vehicle should keep very clean in dirty weather.

DUO, No. 65.

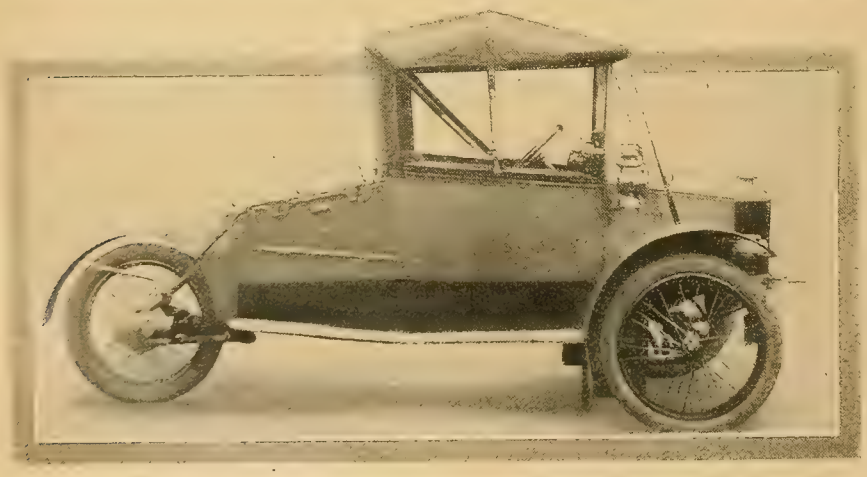
6-8 h.p. MODEL: Buckingham engine; overhead m.o.v.; Claudel-Hobson carburetter; shaft; two-speed epicyclic on back axle.

DUO CYCLE CARS, LTD., 30, Harrington Road, South Kensington, S.W.—The Duo has been entirely re-designed, and it must be confessed its appearance has been very considerably improved. A very taking car is exhibited with a water-cooled engine, the latter having overhead valves. The frame is underslung, giving the car a very low and racy appearance. Instead of belts, as in former Duos, the present model is driven by a long shaft from the engine to the back axle, embodied in the casing of which is a two-speed epicyclic gear, no differential being employed. A five-ply leather universal joint is provided at the forward end of the propeller-shaft. Operation of the gears is effected by a lever in the centre of the gear. A black hood and black leather work are adopted, such as favoured on many American cars. The chassis on the stand has a two-cylinder Dorman engine, but a separate engine (shown) may also be fitted to the same chassis when desired. This is the Mathis 58×100 mm. four-cylinder motor. The radiator is of square pattern, following very much the design of the Rolls-Royce. Cooling in each case is effected by thermo-syphon.

D.E.W., No. 139.

4¼ h.p. MODEL: 89 × 96 mm. single-cylinder air-cooled vertical, 597 c.c.; m.o.v.; Amac carburetter; Mea magneto; two speeds; chain and belt; wheelbase 7ft. 0in.; track 2ft. 10in.; chassis weight, 4¾ cwts.; 26in. × 2½in. Michelin tyres.

THE D.E.W. ENGINEERING CO., Eynsford, Kent.—In this model the single-seated body also forms the frame to which at the front is attached a bracket which carries the inverted laminated plate transverse springs connected by links to the axle end bosses. The front axle is also stayed by two radius rods to a part of the footboard immediately behind the dash. The quarter elliptical inverted spring connecting the body to the rear axle allows a considerable amount of play of the axle, the position of the latter being preserved by means of a V tubular radius rod. On the left-hand side of the engine crankshaft a double chain wheel is fixed, from which the power is taken by two chains to clutches mounted on a counter-shaft. The ends of these counter-shafts have the pulleys from which a long belt transmits the power each side to the rear wheel belt pulley. Engagement of one or other of the clutches causes the low or the high speed to be put into action. This model presents a very racy appearance, and it is fitted with a miniature bonnet which resembles that of the Deasy large cars. The steering wheel is rather novel, as it simply consists of a little more than half a wheel with a single cross spoke attached by its boss to the steering pillar, the steering being by direct lever.



The Eric 9 h.p. four-cylinder three-wheeler, with three-speed and reverse gear. Observe the bevel drive to the rear wheels.

ERIC, No. 30.

9 h.p. MODEL: 56 × 76 mm.; side by side m.o. enclosed valves; Sthenos carburetter; shaft; three speeds and reverse gear box.

THE P. AND C. SYNDICATE, LTD., Northampton (works Bedford).—The Eric Sociable makes a third appearance at the Show in a much improved form. There are two models exhibited, both having four-cylinder water-cooled engines. The engine is placed amidships, and drives first through a disc clutch to a three-speed and reverse gear box, and thence by shaft and bevel direct to the single rear wheel. A leather universal joint is arranged at the forward end, and a star pattern joint at the rear end. The radiator, which is carried well forward in front of the car, is of the gilled tube type, with an imitation honeycomb of semi-circular shape in front, and from the front appearance it resembles an ordinary car. The driving wheel is sprung in a patent way, the laminated spring employed being arranged vertically. A good point to render the rear tyre easily get-at-able is the arrangement for one side of the rear wheel support, *i.e.*, the usual chain stay and seat tube on a motor bicycle, to swing aside, leaving the whole of the side of the wheel exposed. The front of the car is suspended on semi-elliptical springs in the usual car fashion. The frame is tubular. Running boards are provided from front to rear, and provision is made for the carrying of luggage on the engine cover.

Another model has a 12 h.p. engine of 62 × 90 mm. bore and stroke.

The Olympia Show.—

G.N., No. 35.

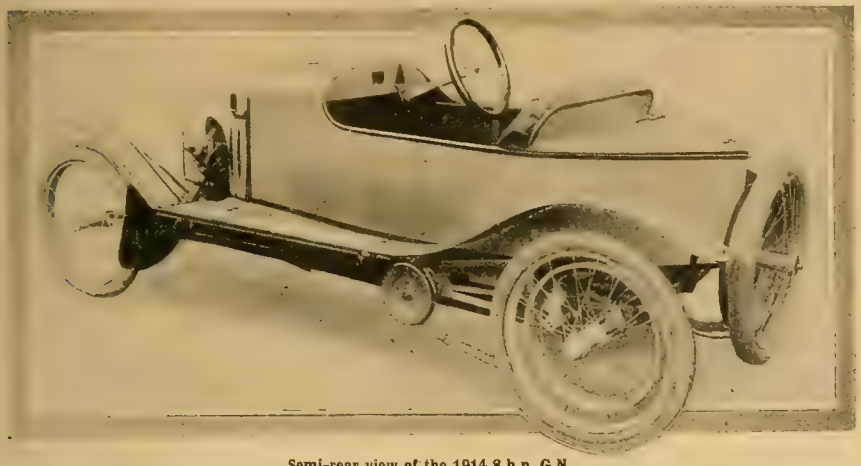
8-10 h.p. Model: 84×98 mm. twin; overhead inlet valves; B. and B. carburetter; bevel counter-shaft and belt transmission.

Godfrey and Nash, Ltd., Bell Lane, Hendon, N.W. For 1914 the G.N., shown on the stand of G. N. Higgs, has not undergone any serious alterations. There have been, however, several small but important improvements in detail. A neatly fitted pipe is provided to each end of the counter-shaft on which the belt pulleys are fixed, connected to the lubrication system, enabling the driver to lubricate this important part of the vehicle from his seat. Means are also provided for excluding all dust and dirt from the bearings. Quarter-elliptic springs are fitted to the front axle, and, whereas in the 1913 models these were double, the lower one has been replaced by a radius rod. The engine is set longitudinally in the frame, and the drive is through a friction clutch and a bevel gear to the first counter-shaft on which the two-speed gear is fitted, thence the drive is by chains to the second counter-shaft on which the belt pulleys are fixed.

G.W.K., No. 38.

8 h.p. Model: 85.8 × 92 mm., 1,065 c.c.; vertical, water-cooled; Solex automatic carburetter; shaft; four speeds and reverse; 4.3 to 11 to 1; friction drive and propeller-shaft by bevel; weight, chassis, 5¾ cwt.

G.W.K., Ltd., Datchet, Bucks.—Wisely, we think, the G.W.K. firm exhibits only one chassis and one car. The alterations made in the 1914 model are details only. The shape of the body has been altered slightly, and is now fitted with a scuttle dash, providing increased knee room inside the body. The depth of the seat from back to front has also been increased. With regard to the engine the cylinder design has been improved, giving increased cooling round the valve ports, and the timing gear has been strengthened. The rear portion of the body has been slightly altered in shape, being made flat above the toolbox, which allows for increased luggage carrying capacity. Heavier tyres are fitted, viz., Michelin Voiturette Légère, in place of the Michelin Trident. B.N.D. steel is used throughout the back axle, and a larger and stronger bevel pinion is fitted. The chassis price is £126, and £150 for the complete car with hood, screen, lamps, and horn. The G.W.K. is one of the cycle cars on the market which has won its spurs, and therefore can be purchased without fear of future reprisals.



Semi-rear view of the 1914 8 h.p. G.N.

HUMBERETTE, No. 135.

3 h.p. Model: V type twin-cylinder, 84×90 mm., 998 c.c.; thermo-syphon, with flat gilled tube honeycomb appearance radiator; m.o.v.; Smith's carburetter; Bosch magneto; three speeds; shaft and bevel drive; wheelbase, 7ft. 5in.; track, 3ft. 6in.; 650×65 tyres on wire wheels. Also staged: 8 h.p. air-cooled models, same size and specification as above.

Humber, Ltd., Coventry.—The general design of the new water-cooled model follows that of the well-known air-cooled. The lever control to the carburetter with a pedal accelerator is very neatly carried out and worthy of special attention. The compact nature of the built up and extended crank case to enclose the fly-wheel and carry the gears, and the neat manner in which the three-point suspension and the staying of the rear part of the crank to the front axle is arranged, are also worth special consideration. The polished water-cooled chassis and the two other finished cars on the stand are excellent examples of the best Humber workmanship. We were glad to observe that the bonnets of the new models are hinged. A refinement for 1914 is the fitting of decompressors in place of the compression tap to each cylinder, thus facilitating starting. The Humberettes fitted up complete look very attractive in their light fawn colour.

J.A.R. No. 215.

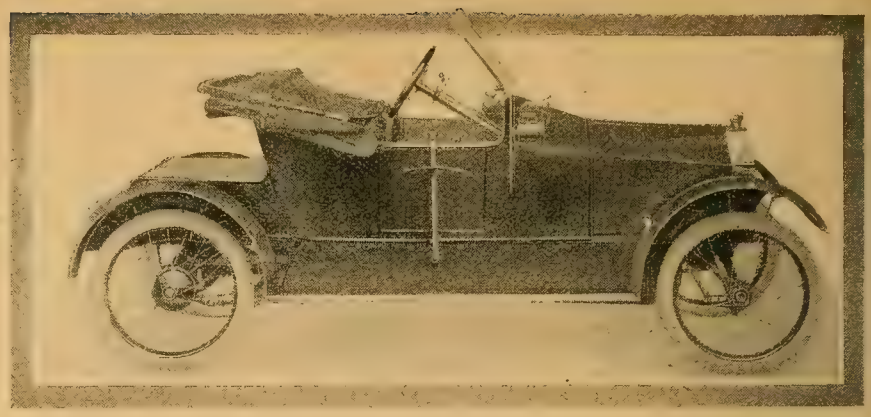
8 h.p. Model: 85×85 mm.; Precision V type air-cooled engine, 694 c.c.; m.o. valves; Sthenos carburetter; Kew magneto; two speeds; chain drive from engine to gear box, and from gear box to back axle; 6ft. 9in. wheelbase, 3ft. 9in. track; 26 × 2½in. tyres on wire wheels.

J. A. Ryley, Martineau Street, Birmingham.—This chassis is staged in the

Power unit and friction disc of the 8 h.p. G.W.K. The 8 h.p. water-cooled Humberette engine and radiator.

The Olympia Show.—

gallery on the above stand to show a complete vehicle built up of J.A.R. fittings, which are sold to manufacturers or amateurs desiring to build a chassis for their own use. The frame is of ash reinforced by steel plate, and is carried on quarter inverted elliptic springs fore and aft. The drive is taken from the engine by means of roller chains to the two-speed gear box, and thence by another roller chain to the rear axle. There is no differential fitted to the latter, but a slipping friction disc which can be locked to the left wheel to give any desired amount of slip when turning corners. The steering is of the rack and pinion type. The clutch is of the flat disc pattern lined with Ferodo and operated by a pedal which also actuates an internal brake on the rear wheels, when the clutch is further depressed. Another pedal-operated brake takes effect on the brake drums attached to the rear wheels, the pedal being held in any desired position by means of a small ratchet.



The latest pattern 8 h.p. water-cooled Humberette.

MARSHALL-ARTER, No. 141.

8-10 h.p. Model: 59×100 mm.: *en bloc* Chapuis-Dornier engine, 1,096 c.c., thermo cooling; m.o. valves; two speeds and reverse; Zenith carburetter, Bosch magneto shaft and final bevel and gear; wheelbase, 8ft. 9in.; track, 3ft. 7in.; chassis weight, 5¾ cwt.; 650×65 tyres on wire wheels.

Marshall-Arter, Ltd., Hammersmith.—This is a most interesting model which makes its first appearance, and is distinctive by reason of the clean design throughout. The power is transmitted from the engine to the rear axle by means of an enclosed flat steel strip which takes the place of the usual propeller-shaft. There is a link-supported universal joint action between the rear end of the propeller-shaft proper and the remaining enclosed portion, which is really part of the back axle. The latter is made in four parts, namely, the two side sleeves and the top and bottom. The top half can be removed. Examination can be made of the first set of driving wheels, which are of the bevel type, and also the two countershafts, which furnish the two-speed and reverse gears. The teeth of the pinions are of large pitch and are wide, and a model shown which has run upwards of 10,000 miles indicates that these teeth will stand up for many more thousands of miles before the wheels require renewal. Two expanding metal-to-metal brake shoes operate on the interior of the drum of the rear wheels. The frame is suspended on quarter elliptical laminated springs fore and aft. It is interesting to note that the American rights for the production of this vehicle have been secured, and that the chassis is to be exhibited at the American Show, which opens on January 5th.

McKENZIE, No. 18a.

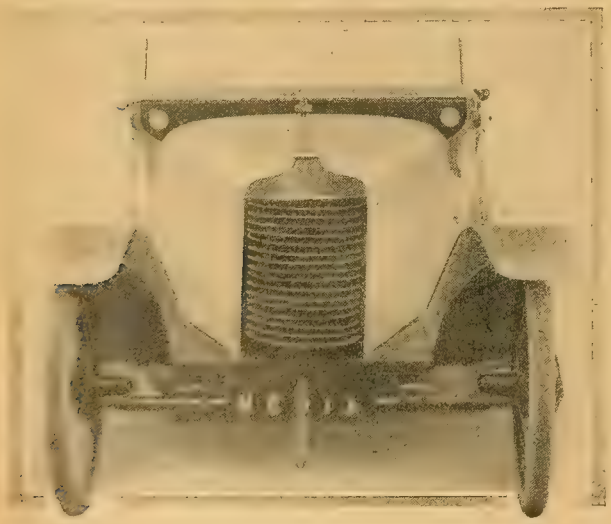
9 h.p. Model: 58 × 104 mm., four-cylinder *en bloc* vertical, 1,096 c.c.; thermo-syphon cooling; m.o.v.; Solex carburetter; U.H. magneto; three speeds, gate change; enclosed shaft and overhead worm drive; wheelbase, 7ft. 6in.; track, 4ft.; chassis weight, 5¾ cwts.; 700 × 80 mm. tyres on Sankey steel wheels.

Thomas McKenzie, Bath Passage, Birmingham.—This is a new model exhibited for the first time, and has practically all the advantages of a large pleasure car. Behind the gear box is a flexible leather joint which transmits to an enclosed shaft driving the overhead worm. With respect to the engine, it has all the valves on the left-hand side, and a large valve cap is fitted to each pair of valves so that both induction and exhaust can be removed. The frame is of pressed steel, and the suspension is on four semi-elliptical springs. The vehicle is well fitted up with acetylene lamps, wind screen, and Cape hood. In the body there is ample accommodation for two passengers, the boot behind being sufficiently large to hold enough luggage for an extended tour.

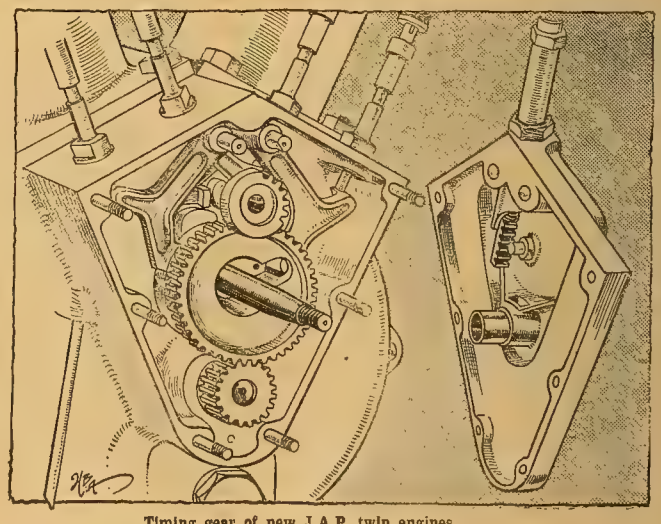
MEDIA, No. 42.

8-10 h.p. Model: 56 × 76 mm.: four cylinders *en bloc*, vertical; thermo-syphon cooling; Sthenos carburetter; Bosch magneto; 700 × 65 mm tyres on wire wheels.

Mead and Deakin, Tyseley, Birmingham.—A new production staged here is known as the Media. The chassis is fitted with a Salmon engine. The radiator is of original construction, being made



Front view of the Media four-cylinder water-cooled cycle car showing novel type radiator.



Timing gear of new J.A.P. twin engines.

TWO FURTHER TYPES OF 8 H.P. MORGAN RUNABOUT FOR 1914.
On the left is the "Standard" model and on the right the "De Luxe." Both models are fitted with hood and wind screen.

up of a vertical central three inch tube, this tube really being part of hollow gills of a foot diameter so that the water circulates through all the gills and down the centre. The clutch is of the disc type, and the power is transmitted from the gear box to the back axle by means of a propeller-shaft. The frame is supported on a modified Lanchester system of semi-elliptic plate springs. The steering is of the pinion and rack type. Rather a neat fitting on this car is the two electric lamps which are flush with the dash

MELEN, No. 102.

10 h.p. Model: 85×95 mm.; twin-cylinder, vertical, *en bloc;* c.c.; thermo-syphon; m.o. valves; Solex carburetter; Bosch magneto; three speeds; shaft and bevel drive.

F. and H. Melen, Ltd., Birmingham.—This chassis is practically identical with the orthodox type of heavier chassis, and is mounted with a very roomy and comfortable body for two, fitted with all equipments necessary for the road. The springing of the frame is all round semi-elliptical laminated plate, the rear spring shackles being further fitted with spiral spring shock absorbers. Steering is rack and pinion type. In addition to the Alpha twin-cylinder engine in the finished vehicle, there is a separate twin engine and also the Alpha new four-cylinder *en bloc* engine staged. This engine is of pleasing design, and has an oil circulating system as a part of the unit. A small force feed pump operated from the camshaft serves the troughs into which the connecting rod ends dip, and, further, the same serves to supply efficiently all the working parts, including the end and the middle crank shaft bearings.

MIDGET, No. 77.

8-10 h.p. Model: 86 × 92 mm.; twin-cylinder vertical; thermo-syphon, water-cooled; m.o.v.; Zenith carburetter; Mea magneto; three speeds; shaft drive by under worm.

Alldays and Onions, Ltd., Fallows Road, Sparkbrook, Birmingham.—One finished two-seater is staged, fitted with full equipment of lamps, horn, wind screen, Cape cart hood, and with valances to the wings and side running boards, making a substantial all-weather vehicle. The design is practically that to which one is accustomed in standard motor car work, with the exception of the springing, which is by inverted semi-elliptical springs at front and rear. This method of suspension gives very smooth riding, and from our experience the vehicle holds the road quite as well as most large cars and better than many. The general finish of the vehicle is excellent.

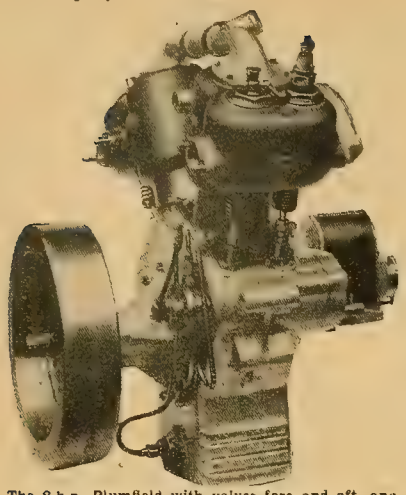
MORGAN, No. 66.

8 h.p. Model: 85×88 mm.; 50° V twin-cylinder, 964 c.c.; air-cooled; m.o.v.; Amac carburetter; two speeds; chain drive; wheelbase, 6ft.; track, 4ft.; 8 h.p. water-cooled Model: 85 × 85 mm.

The Morgan Motor Co., Ltd., Malvern.—The air-cooled three-wheeled chassis staged shows the general arrangement very fully, following out the orthodox lines of the Morgan design. In addition to this chassis, there are staged various Morgan vehicles with water-cooled engine and honeycomb radiator. The lightness of the chassis without undue cutting down of the weight of vital parts merits careful inspection. Several types of runabouts and a carrier for Messrs. James and Co., district agents, of Sheffield, are shown. The general finish of the whole of the ten vehicles staged is exceedingly neat. The chassis is one of the simplest and most mechanically designed that has been produced, and its longitudinal frame members are made up of three tubes, two of which act as final outlets for the exhaust gas, and the third is a large diameter tube enclosing the propeller-shaft. Several types of engines are fitted, and the overhead type as used in the Grand Prix model is water-cooled. This engine is larger than those which are fitted to the standard models, having a cubic capacity of 986 c.c. Binks three-jet carburetters are fitted in some cases. Besides being one of the most thoroughly proved exhibits, it has the advantage of being very moderate in price.

TWO ENTIRELY NEW CYCLE CARS.
1) Side view of the Melen
2) The neat looking New Imperial. Both these machines are fitted with water-cooled engines

The Olympia Show.—



The 8 h.p. Blumfield with valves fore and aft, and radiating ribs at the bottom of the oil sump.

MOTORETTE, No. 105.

7 h.p. MODEL: 95×102 m.m.; vertical single cylinder; water-cooled; J.A.P. automatic carburetter; single chain drive to two-speed epicyclic gear in back axle.

THE PREMIER MOTOR CO., Aston Road, Birmingham.—A comprehensive display of these well-known three-wheelers is made on this stand. Several of the models shown are in the shape of tradesmen's carriers, for which purpose they have achieved a considerable vogue; but a touring model is also shown, a feature being the large amount of luggage space provided behind the seats. The design of this cycle car is exceedingly simple, the gear is of the epicyclic two-speed variety contained within the rear hub. A very large section driving tyre is used. Steering is by means of a tiller. Excellent protection is afforded by the dashboard in front of the driver and passenger, on which may be mounted a screen. There is only one driving chain transmitting the power, and the general design is on the simplest possible lines.

NEW IMPERIAL, No. 78.

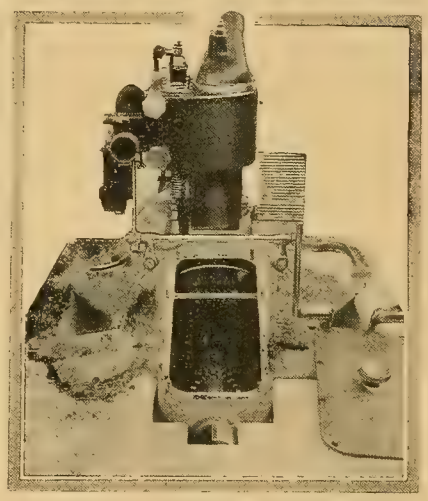
10 h.p. MODEL: 65×85 mm. four-cylinder; m.o.v., opposite sides; Cox streamline carburetter; shaft; three-speed and reverse gear.

NEW IMPERIAL CYCLES, LTD., Princip Street, Birmingham.—The New Imperial is one of the few four-cylinder cycle cars which it has been found possible to keep within the cycle car definition. It is a car in miniature in every respect, the engine, gear box, and shaft drive being exactly in accordance with the usual car practice. The frame is of channel steel, and suspended at the front on semi-elliptical springs, and at the rear on threequarter elliptics. The radiator is a very neat design and of pointed shape, cooling being effected on the thermo-syphon principle. All the brakes are arranged on the back axle, the hand brake being of the internal expanding type, and the foot brake of the external contracting type. The steering is of the worm and segment pattern. The New Imperial looks more of a car than any vehicle in the Show, and some merit is due to the designers for being able to keep it within the 6 cwt. chassis limit.

PERRY, No. 112.

8-10 h.p. MODEL: 72×108 mm., twin-cylinder, *en bloc*, vertical; thermo-syphon cooling; m.o.v.; Zenith carburetter; Bosch magneto; three speeds; propeller-shaft and bevel drive; wheelbase, 7ft.; track, 3ft. 8in.; chassis weight, $5\frac{3}{4}$ cwt.; 700×80 Dunlops on Sankey detachable wire wheels.

PERRY MOTOR CO., LTD., Tyseley, Birmingham.—The chassis exhibited on this stand is very similar in design to the chassis as exhibited last year, but there are several important modifications disclosed in the model on view. In the first place the carburetter is fed by pressure applied to the tank by means of a hand operated pump fixed to the steering post; a gauge on the dash indicates the amount of pressure put on the tank, the latter being carried between the longitudinal members of the frame at the rear. Again, instead of worm drive, bevel drive is now employed, also the detachable Sankey wheels are the same for both axles, and



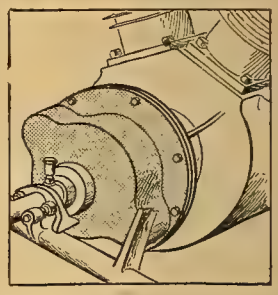
Power unit of the Perry cycle car showing control pedals.

the brake drum is not embodied as part of the wheel, so that, as far as the front wheels are concerned, these now appear very much lighter. The method of springing the frame is by means of semi-elliptic springs at the front and at the rear by similar springs which are underslung to the rear axle flap and also reinforced at the rear by means of a pair of shock absorber springs. The foot and hand brakes are internal, both taking effect on the rear wheel drums and actuated by means of wire cables. Two open type finished cars, complete with wind screen, hood, tool and luggage carrying locker behind the seat, are also staged, and a small coupé suitable for commercial travellers' or doctors' work, the whole exhibit being beautifully finished. A sample of the driving unit and section of the steering gear, showing the complete worm wheel, also illustrates the fine workmanship of the makers. The new four-cylinder model, with bore and stroke of 60×110 mm., was also to have been exhibited, but being outside the limit it is therefore being employed for demonstration purposes outside the Exhibition.

PYRAMID, No. 52.

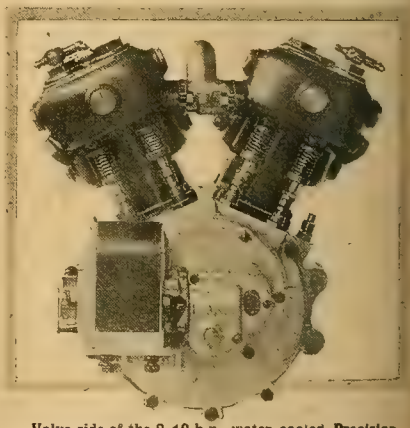
8 h.p. MODEL: 85×85 mm.; V type, 50° twin-cylinder, air-cooled, 964 c.c.; m.o.v.; J.A.P. carburetter; Bosch magneto; four speeds; friction and belt drive; wheelbase, 7ft.; track, 3ft. 6in.; weight of chassis, $4\frac{3}{4}$ cwt.; 650×65 mm. Avon tyres on wire wheels.

THE PAYNE'S ENGINEERING CO., Hogarth Lane, Chiswick, W.—The channel steel frame is supported on the axle by means of quarter inverted semi-elliptic springs. Behind the engine is a very large enclosed universal joint running in oil. To an extension of the shaft which carries the universal joint at its forward end is



The large sized casing for the Universal joint on the Pyramid.

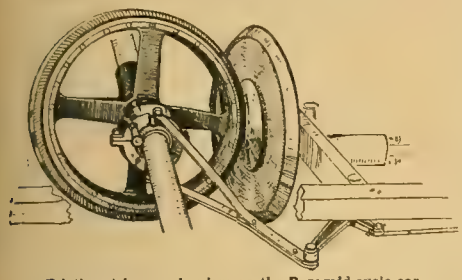
attached a friction disc which is allowed to come in contact with a red fibre friction wheel mounted on the counter-shaft across the frame. By the arrangement of the change-speed lever on a quadrant carrying equivalent holes it is made impossible for the driving disc to come in contact with the fibre unless the gear lever is in a definite position, so that there is no tendency to wear the red fibre unduly. A feature of the transmission is that the driving disc is stepped so that a strong pressure forcing the two surfaces into engagement is variable according to the speed on which the drive is taking place. On the direct drive the cone portion of the driving disc and of the red fibre are in contact, so that if flats are by any means formed on the fibre on the



Valve side of the 8-10 h.p. water-cooled Precision cycle car engine showing position of and gear drive to, the magneto.

The Olympia Show.—

lower gears they do not affect the top gear drive. The ends of the counter shafts have operating pulleys mounted on them through which the drive is taken to the rear road wheels. The foot brake takes effect on the drum attached to the right-



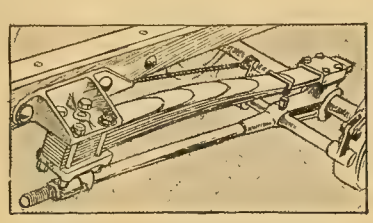
Friction drive mechanism on the Pyramid cycle car.

hand side of the counter-shaft, this brake being of the contracting band type, whilst the rear wheel hand-operated brakes act upon the belt rim. The chassis staged is very well made, the workmanship being exceedingly good, whilst the finished two-seater car presents a neat appearance.

RANGER, No. 117.

8 h.p. Precision Model: V type; water-cooled; twin-cylinder, 85×85 mm., 964 c.c.; thermo-syphon; m.o.v.; Polyrhoe carburetter; Bosch magneto; two speeds; chain drive; wheelbase, 7ft. 3in.; track, 3ft. 10½in.; weight of chassis, 5¼ cwt.; 26in.×2½in. Avon tyres on wire wheels.

Ranger Cycle Car Co., West Orchard, Coventry.—The chassis staged is supported on an inverted half-elliptical cross spring at the front and on quarter elliptical inverted springs at the rear, whilst the two finished cars have quarter inverted elliptical springs to both axles, the rear springs being additionally reinforced by auxiliary spiral compression springs. The side frame members are of ash reinforced by steel angle flitch plates. Steering is of the rack and pinion type. The engine and the gear box are supported on tubular members, those carrying the engine being longitudinally arranged in the frame, whilst the gear box is supported by transverse members. The clutch pedal-shaft is fitted with a small lever brake, which comes into operation when the clutch is depressed to slow up the male member, which is of the cone leather-faced type. A metal flexible joint is arranged immediately in front of the gear box. The external hand brake acts upon a brake drum on the right hand of the gear box, and is lined with Ferodo, whilst the foot brakes are of similar type and size, taking effect on the drums of the rear wheels. The final drive from the gear box is by roller chain to the rear axle, and no differential is fitted, but on the left wheel there is a friction disc which allows for slip in turning corners. One finished model is a open sporting type with nice lines to the body and ample seating accommodation.

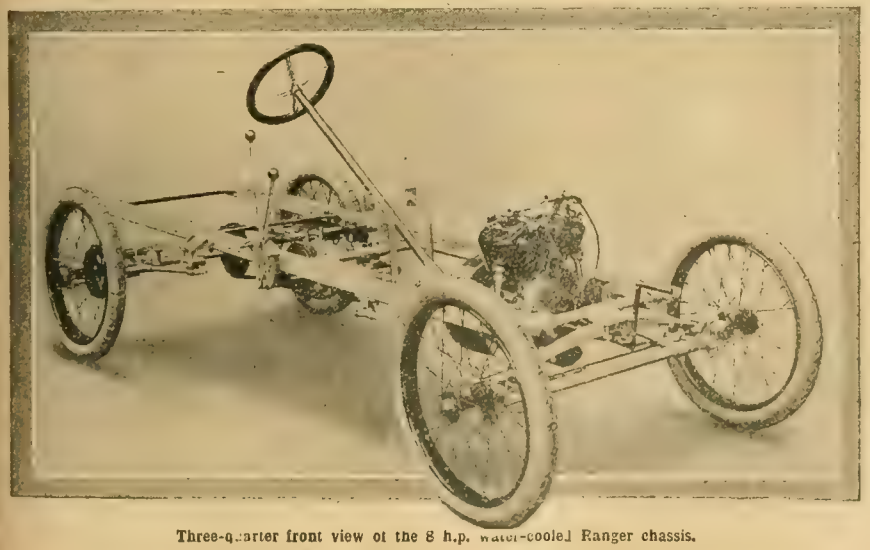


Method of springing the rear portion of the Ranger chassis.

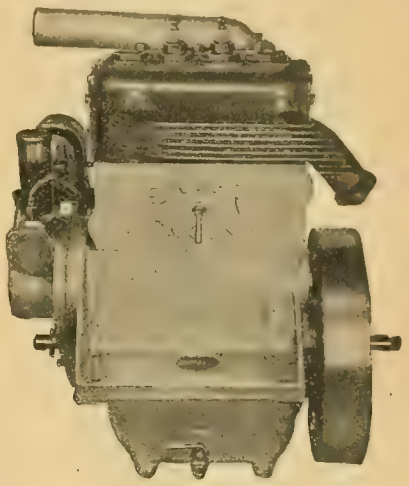
ROC No. 143.

8 h.p. Model: 85×85 mm. twin; side by side valves; Amac carburetter; bevel transmission; two-speed Roc gear.

A. W. Wall, Ltd., Hay Mills, Birmingham.—Roc tricarriage. This is a light form of three-wheeled motor vehicle driven by an 8 h.p. 85×85 mm. Precision engine set longitudinally in a substantial tubular frame which is A-shaped with the apex turned upwards and brazed to the steering head. It is suitably strengthened by tubular transverse members where necessary. An epicyclic two-speed gear is carried separately from the engine, and the final drive is through an enclosed propeller-shaft to the bevel-driven differential. The steering is by wheel acting directly on the front wheel of the machine to which spring forks are fitted. Change of gear is effected by means of a pedal, and the control levers are similar to those employed on motor bicycles and are fitted to a tube fastener to the off side door of the body. The new type of body is comfortable and is provided with a hood and screen.



Three-quarter front view of the 8 h.p. water-cooled Ranger chassis.

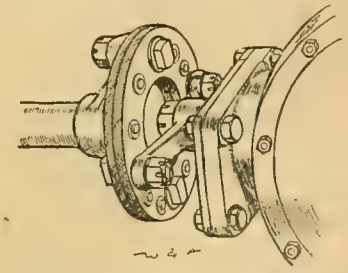


Twin-cylinder water-cooled engine of the 7 h.p. Swift

SWIFT, No. 91-91a.

7 h.p. Model: 75×100 mm., 972 c.c., twin-cylinder *monobloc*, vertical; thermo cooling; m.o.v.; Longuemare carburetter; Eisemann magneto; three speeds, gate change; shaft, bevel drive; wheelbase, 7ft. 3in.; track, 3ft. 7in.; 5½ cwts.; 700 × 80 mm. Dunlop tyres on wire wheels

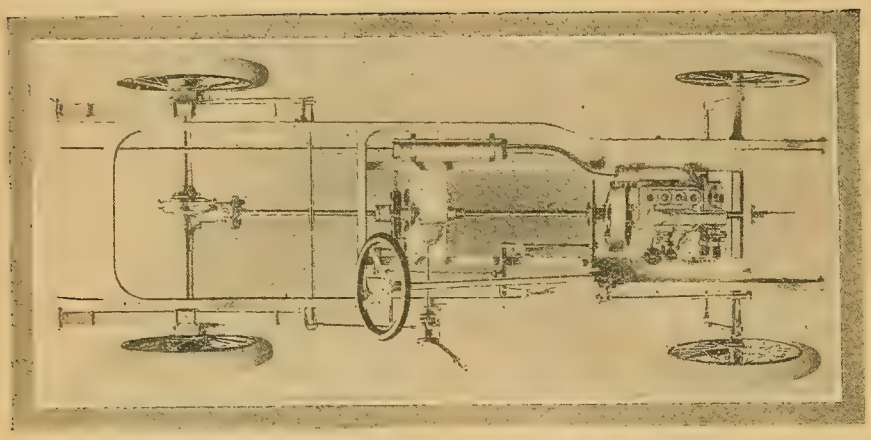
The Swift Cycle Co., Ltd., Cheylesmore, Coventry.—The polished chassis staged shows that an H section front axle stamping and a very nice pressed steel frame are now standard features. The neat arrangement of the cross drive to the magneto at the front of the engine should be noted, also the three spring pads acting beneath the leather of the



The leather universal joint at the rear end of the propeller-shaft on the Swift cycle car.

cone clutch, the clutch withdrawal lever being exceedingly neatly arranged. An outstanding feature is the very well made gear box with short shafts, and the passing of the propeller-shaft through a hole in one of the pressed steel cross members of the frame. The foot brake

The Olympia Show.—



Plan view of the 7 h.p. twin-cylinder Swift showing general arrangement.

adjustment is behind the gear box, and the wire which operates the internal expanding brake to the rear wheel hubs should also be noted. Immediately in front of the front axle there is a twin washer flexible leather joint. Exceedingly long semi-elliptical springs to the rear axle of this light model are an excellent feature. Two finished two-seaters of excellent appearance are also staged.

TINY CAR, No. 142.

8 h.p. Model: 85 × 85 mm., water-cooled; side by side valves; Lukin carburetter; bevel; three speeds.

Nanson, Barker and Co., Yorkshire.—On this stand is to be seen the 8 h.p. Tiny cycle car, which is fitted with a two-cylinder water-cooled engine, three-speed gear box, and propeller-shaft drive, the final drive being through silent bevel wheels. The frame is of channel steel and rack and pinion steering is fitted. The brakes are of the internal expanding type, and ball bearings are fitted throughout. The body is panelled in sheet aluminium and trimmed in leather, fitted with a scuttle dash and gracefully sloping bonnet, which has a very smart appearance. The back of the body is long, leaving room for a third seat and affords ample luggage accommodation.

TWEENIE, No. 21.

8-10 h.p. Model: 72×120 mm.; twin V 30°, 976 c.c., thermo-syphon, water cooling; m.o.v.; Solex carburetter; Ruthardt magneto; seven speeds; friction and chain drive; wheelbase, 7ft. 2in.; track, 3ft. 4in.; chassis weight, 5 cwts.; tyres 650×65 mm. on wire wheels.

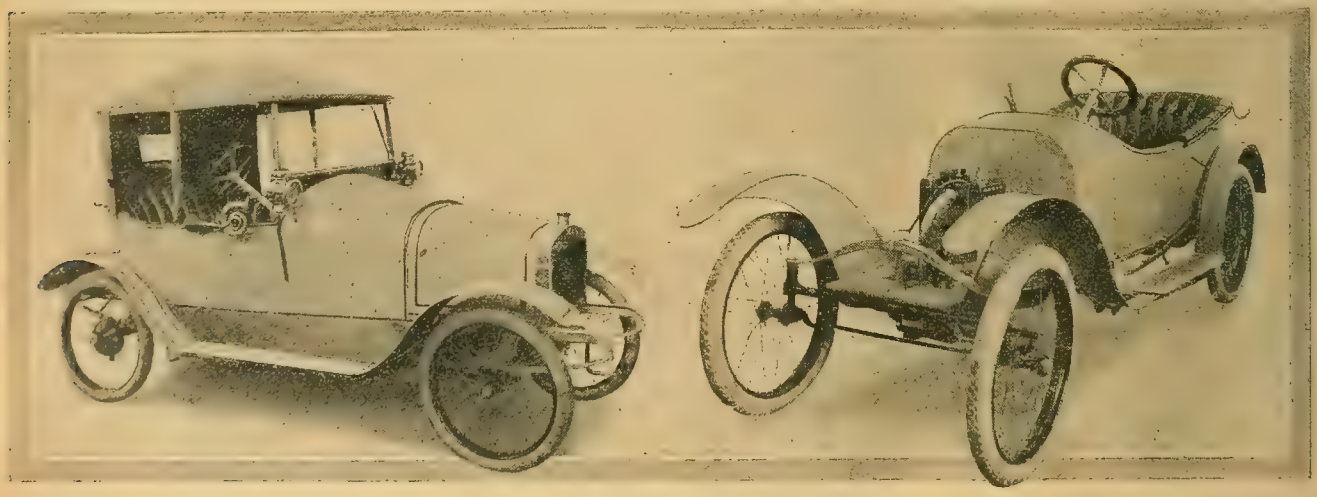
Alfred Dunhill, Ltd., 359-61, Euston Road, N.W.—This model is exhibited for the first time, and is a very welcome introduction. So far as the front portion of the chassis is concerned the springing is by cross springs pressing on the upper part of the swivel pin. At the rear are inverted semi-elliptic springs. This vehicle is friction driven by means of two large friction wheels, the rear one being carried on a cross-shaft, and the end of the cross-shaft is furnished with a sprocket by which the power is transmitted to one of the road wheels. No differential is employed. Accessibility has been very closely studied in this model, for the footboards can be removed and all the moving mechanism is then disclosed and the seat can be taken out bodily so that the rear tool locker is accessible. The model staged has a neat lighting dynamo fitted which supplies current at 8 volts to the two head lights and three other lamps, this fitting being provided at an extra cost of 14 guineas, the vehicle itself costing 110 guineas.

V.A.L. No. 109.

8 h.p. Model: 85×85 mm.; V twin-cylinder, 964 c.c.; water-cooled; thermo-syphon; vertical gill-less tube radiator; m.o. valves; Amac carburetter; Bosch magneto; four speeds; friction and roller chain transmission; wheelbase, 7ft. 6in.; wheel track, 3ft. 10in.; weight, 5¾ cwt.; 650×65 mm. Dunlop tyres on wire wheels. The steering is by means of a small pinion at the bottom of the steering stem engaging in a curved internal cut rack.

5¾ h.p. Model: 85×88 mm. Green-Precision, 499 c.c.; thermo-syphon cooling; m.o. overhead valves; Amac carburetter; Bosch magneto; twelve speeds; friction and twin side belt drive; 26×2½in. Hutchinson tyres on wire wheels; wheelbase, 6ft. 6in.; wheel track, 3ft. 2in.; weight of chassis, 4½ cwt.

The V.A.L. Motor Co., 314, Bradford Street, Birmingham.—The V type model has a withdrawable friction clutch in conjunction with a friction type variable gear. The clutch is of the cone type faced with Ferodo. The bearing carrying the clutch and shaft is carried in an extension of the crank case. The counter-shaft carries a large friction disc by which motion is communicated from the propeller-shaft disc, the ends of the counter-shaft being fitted with roller chain sprockets, whence the motion is transmitted by chain to the hub chain rings. The hand brake operates on the counter-shaft brake drum. The two-seated body is roomy and is fitted with hood and wind screen, the petrol tank being carried in the scuttle dash. The V.A.L. mono type has a single-seated body, and the drive is taken by means of Coventry silent chains from the crankshaft



TWO TYPES OF WATER-COOLED CYCLE CAR.

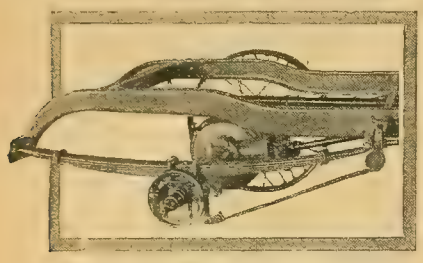
(1) The new 8 h.p. Warne with shaft drive. (2) The single-cylinder Val Monocar with Green water-cooled engine.

A problem that a good many visitors at Olympia will endeavour to solve during the week.

Mr Auto knows buys a catalogue and nearly buy's a lightweight.
and next thinks an Auto wheel will meet his requirements
He then almost decides on a big Twin.
But gets converted to a long wheel base
After which he turns his attention to side cars.
And all but selects a smart combination
He then forms the opinion that a runabout is the thing.
And finally gets struck on a sporting cycle car which he very nearly buys.
G.E. Shepherd

The Olympia Show.—

to the counter-shaft, at the end of which are attached expanding pulleys controlled by a side lever which gives twelve speeds forward. Pressing the speed lever forward expands the pulleys so that the belts stop driving, and at the same time the brake shoe is brought in contact with the outer peripheries of the rear wheel brake drums. The wire controlled pedal brake also takes effect on the smaller of the rear wheel brake drums. This model has direct steering. The tubular frame is mounted on a semi-elliptical spring at the front, and spiral compression springs are fitted on the steering pins; quarter-elliptic springs are used for the rear suspension.



Rear springing of the Swift cycle car, also showing band brake and differential gear.

WALL TRICARRIAGE, No. 143.

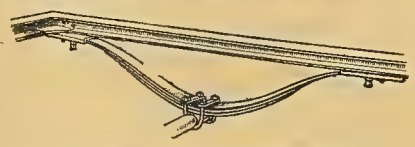
4¼ h.p. MODEL: 89×96 mm. single cylinder air-cooled Precision engine; m.o.v.; Amac carburetter; Bosch magneto, two speeds, shaft and bevel drive; chassis weight ¾ cwt.; 650×65 mm. tyres on wire wheels.

A. W. WALL, LTD., Hay Mills, Birmingham.—On this and the adjacent stand the well-known Wall and Roc tricars are staged in several forms, mainly for goods carrying. Another type is a two-seater which contains similar features as regards the chassis to the well-known carrier, and in this case an 8 h.p. Precision air-cooled engine is fitted.

WARRICK CARRIER, No. 104.

6 h.p. MODEL: 95×102 mm., 723 c.c.; single-cylinder, vertical; air-cooled, with fan; B. and B. carburetter; Bosch magneto; two-speed and reverse; chain drive; epicyclic gear; wheelbase, 8ft.; track, 4ft.; chassis weight, about 5½ cwt.

JOHN WARRICK AND CO., LTD., Reading.—On this stand are six models of carriers designed to suit various requirements for the carriage of light parcels. The chassis arrangement follows the lines of the A.C., but the rear axle moves vertically by means of a special arrangement of arms attached on each side of the axle below the inverted quarter elliptical springs. This does away with the tendency to break chains which is found to occur when the axle tilts. These models also have reverse gears. The actuation of the toggles of the direct drive clutch is brought about in a well-thought-out and mechanical manner, so that the least effort is required to move the sliding sleeve endwise. Another model is one of 8 h.p. with single-cylinder air-cooled engine, 100 bore × 120 mm. stroke, which is cooled by a single fan friction driven off the left hand flywheel. Both valves are on the off side of the engine. In the Post Office model a six-plate metal-to-metal clutch is employed, three plates being of copper and three of steel.



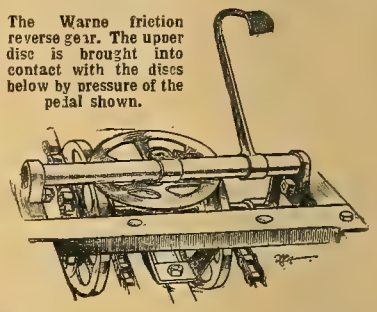
Rear springing of the Warne, showing the slipper guide.

WARNE, No. 106.

8 h.p. MODEL: 85×85 mm., V type twin, 964 c.c.; air-cooled by fan at right-hand side of cylinders; m.o.v.; Binks carburetter; ten speeds; chain, friction, and belt drive; track, 7ft. ×3ft. 6in.; weight, 4¾ cwt.; Michelin 26×2½ tyres on wire wheels.

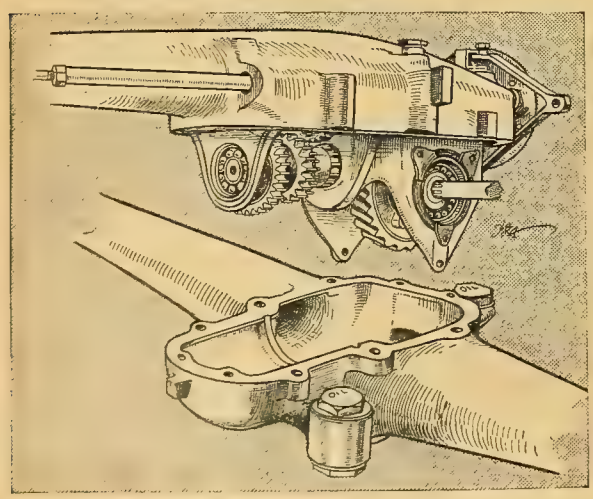
8-10 h.p. MODEL: 85×85 mm. Precision twin, 50°; water-cooled; 964 c.c.; water-cooled by thermo and fan; m.o.v.; Binks carburetter; three speeds, gate change; shaft and bevel drive; track, 7ft. ×3ft. 6in.; weight, 5 cwt.; Michelin 26×2½ on wire wheels.

PEARSALL-WARNE, LTD., Letchworth.—in the air-cooled model the crankshaft is set across the splayed channel steel frame, being carried on an angle steel underframe. The drive is taken from the engine by means of a roller chain to a counter-shaft which gives two speeds forward and reverse. A further counter-shaft is driven by a pair of roller chains on either low or high speed, and expanding pulleys are fitted at the end of this counter-shaft, from which a leather belts transmit the drive to rear wheel belt pulleys. In this way two speeds are obtained from the first counter-shaft, and five from the second, so that ten speeds in all can be obtained.

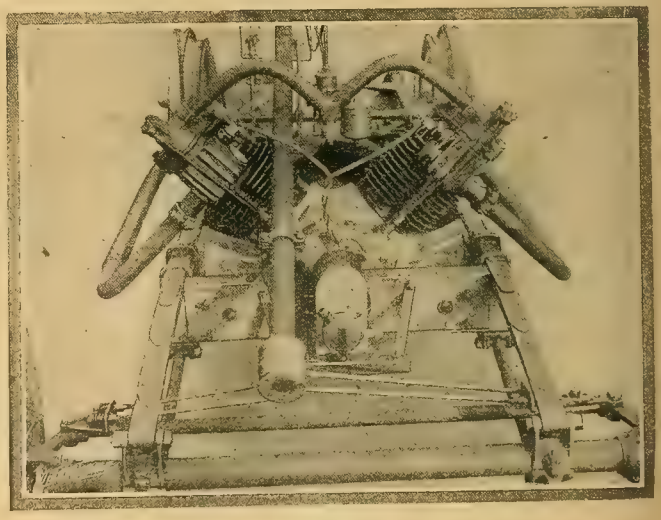


The Warne friction reverse gear. The upper disc is brought into contact with the discs below by pressure of the pedal shown.

The belt can be tightened by means of a hand lever. The foot brake is contracting on the rear wheels drums, the hand brake expanding. The frame is mounted on semi-elliptic springs at the front and at the back, both ends of springs sliding in guides. In the water-cooled model the engine is carried by a bracket vertical to the pressed steel side members, but inclined so that the shaft drive is practically in a straight line. In this model the steering is by worm and sector. A nicely arranged three-speed gate change box is attached by brackets to the side members of the frame. This model has an orthodox method of steering by semi-elliptic springs The foot brake is contracting on the drum behind the gear box; the hand brakes expanding within the drums of the rear wheels. A finished model in grey with hood and wind screen is also staged.



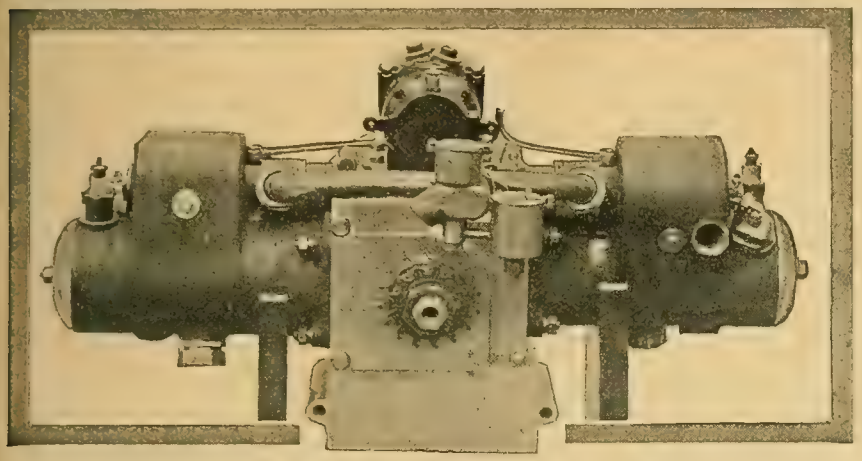
A.C. rear axle showing arrangement of gear box, also brake on end of worm shaft



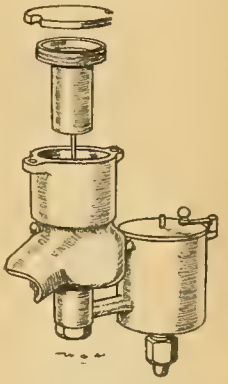
The 8 h.p. G.N. engine showing overhead inlet valves, also position of magneto and steering mechanism.

A New Horizontal Engine.

An exceedingly interesting and ingeniously designed horizontal two-stroke engine is shown on the stand of the Carden Cyclecar Co., and, under the name of the M.I.P., is made by G. Wailes and Co. to the design of Motor Improvements and Patents, Ltd. The particular model exhibited is of 496 c.c., and is intended for passenger motor cycle work. It consists of two horizontally opposed cylinders containing trunk pistons which are connected to a two-throw crankshaft. Each of the pistons has two diameters, which act respectively as working and pump pistons. Over the tops of the horizontally opposed cylinders are placed two rotary distributer valves driven by a worm gear off a disc crank. The cubic capacity of the pump cylinder is greater than that of the working cylinder, so that the inlet gas is already partially compressed when allowed to flow into the working cylinder *via* the transfer ports which are opened by the rotary valve. The latter works under but little pressure, and is kept cool by the flow of fresh gas. As it is not subject to explosion pressure, any looseness it may develop has but little effect upon the actual efficiency of the engine. The lubrication is effected in a very complete manner. A pinion pump draws oil from the crank chamber sump and passes it to a distributer, whence it is directed through separate pipes to each main bearing, and also to each rotary valve. From the latter a supply of lubricant is carried to the pistons and cylinder walls, and the supply is maintained always proportionate to the throttle opening. Thrower rings on the crank webs ensure that a supply is passed to the big end bearings. A Mea magneto is fitted. Mushroom release valves are fitted in each cylinder head and operated by a single Bowden wire. The cylinder heads and liners are efficiently water-cooled. The special feature of the M.I.P. engine is its robust construction and ample dimensions of all working parts. Needless to say, we shall look forward with interest to the road results which are obtained with this interesting engine. Tests, we understand, are shortly to be made on Brooklands track. The carburetter fitted is a specially made S.U., of which a detail sketch is given herewith.



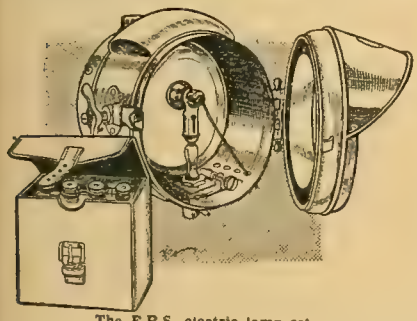
One of the real novelties of the Show is the M.I.P. two-stroke horizontally opposed twin, which is fitted with a rotary valve to each cylinder, latest Mea magneto and S.U. carburetter.



The new S.U. variable jet carburetter on the M.I.P. two-stroke engine.

F.R.S. Lamps.

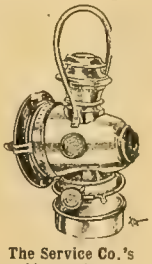
The F.R.S. electric lamp adapter, which we illustrate, is used in conjunction with an accumulator battery. This battery is filled with unspillable composition, and can be recharged as often as necessary. The method of connecting up is to attach one of the terminals to the cycle frame and the other to the adapter, and as soon as the adapter is fitted to the burner the lamp will light up. It is also possible to illuminate different parts of the machine by touching any such part with the adapter. The makers, the F.R.S. Lamps, 7 and 9, Pershore Street, Birmingham, are having a spring made to clip this adapter to any part of the cycle frame, when the lamp adapter can be readily used for making repairs after dark.



The F.R.S. electric lamp set.

Service Specialities.

The Service Co., although not exhibiting at Olympia, have a good exhibition at their High Holborn Depôt, consisting of a representative display of accessories and clothing, among them being the Canada cap, which we illustrate. This is fitted with a woollen extension which can be folded under the cap or drawn out over the ears, brow, and neck. It is a useful headgear for winter riding. Another item marketed this year is a sidecar lamp. This burns paraffin and is provided with a rear red light, and on the near side a white prism. It is extremely light. The paraffin reservoir is hinged to the base of the lamp, and the lamp is nickel plated and provided with a bail handle. This lamp will prove useful for inspection purposes.



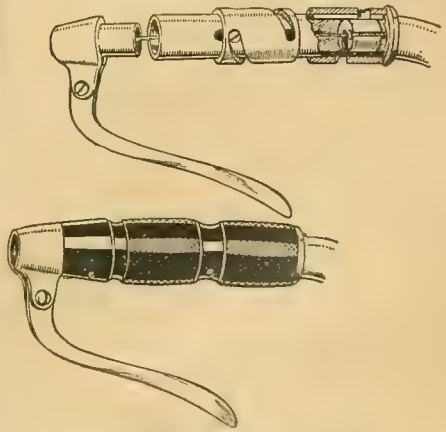
The Service Co.'s sidecar lamp which shows a red light to the rear and white to the side.

A novel type of cap sold by the Service Co. which has a knitted fall to protect the ears and neck.

Olympia.

THE AUTO CYCLE UNION, Pall Mall, S. W. (No. 10).—The A.C.U. is the oldest institution looking after the interests of motor cyclists. The stand is situated adjoining to the Princes Rooms, which may be used as club rooms by members.

AUTOMOBILE ASSOCIATION AND MOTOR UNION, Fanum House, Whitcomb Street, Coventry Street, W. (No. 144).—The A.A. show a telephone box with a scout and information is given with regard to the A.A. and M.U. membership.



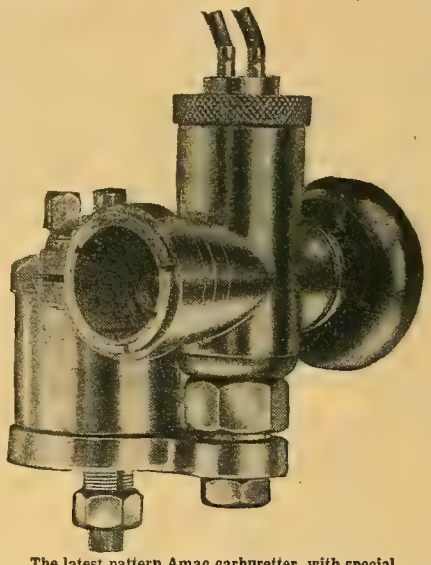
THE BOWDEN TWIST-GRIP CONTROL.
(Top) Part section showing method of operation. (Bottom) How the finished article appears.

ACCESSORIES OF THE SHOW

ABINGDON-ECCO CO., LTD., Tyseley, Birmingham (No. 216).—Three types of engine are shown by this firm: a 6-8 h.p. 73×95 mm. and a 5-6 h.p. 67×95 mm. Both these twin-cylinders have the cylinders set at 50°. Lastly, we may mention the 3½ h.p. 85×88 mm. In these models the clean casting of the crank case is worthy of note. The timing gear cover is provided with a spigot enabling it to fit closely, which prevents any leakage of oil. The question of lubrication has been carefully studied by the capable designer of this engine, Mr. Blumfield. The oil enters through a pipe into the main bearing, which is provided with a groove and a right-hand spiral which gradually works the oil on to a recess on the flywheel, whence it reaches the big ends by means of a special channel. Means are provided for spraying the oil mist on to the tappet rollers, and even the rollers themselves are provided with oil grooves. The system employed is therefore almost as good as if a force pump were used. Adjustable tappets are fitted, and the exhaust lifter employed consists of two arms provided with rollers which are hardened and turn on hardened steel bushes and bear up against flanges on the exhaust tappets. The fulcrum pins are also specially hardened and are provided with oil holes.

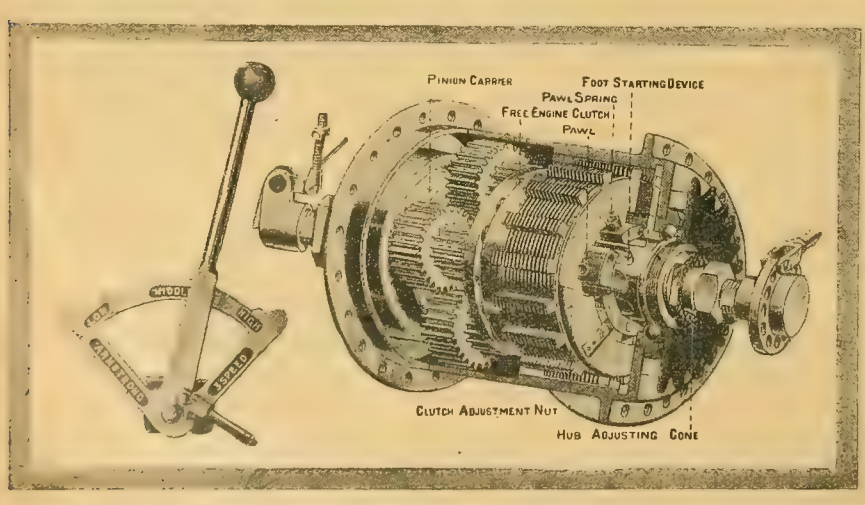
M. ADLER (ENG.), LTD., Sampson Road North, Birmingham (No. 197).—This firm are importers and exporters who do not deal in the retail market.

THE ARMSTRONG THREE-SPEED GEAR CO., LTD., Armstrong Works, Birmingham (No. 187).—The latest type of Armstrong gear, Mark VII., is shown here. This type is suitable for use on high-powered motor cycles and has been through very severe tests which it has passed satisfactorily. The principle of the gear is identical with that of previous types, the only difference being in dimensions and strength. The new system of gear control provides a long lever with plunger and spring in a convenient position beside the tank. This lever has a notch for free position



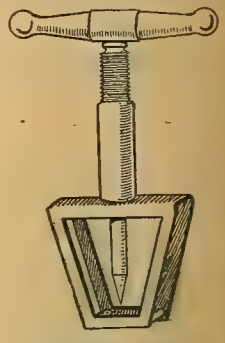
The latest pattern Amac carburetter, with special arrangement to prevent blow-back.

FRANK ASHBY AND CO., Princip Street, Birmingham (No. 223), have on view specimens of their Tanpillion auxiliary seat and various types of luggage carriers and lamp brackets.



Details of the 1914 Mark VII. Armstrong three-speed gear, showing control lever and internal mechanism of the hub.

THE ASTON MOTOR ACCESSORIES CO., Aston Cross, Birmingham (Stand 202).—A well-known vaporiser was described in *The Motor Cycle* a few weeks ago. The 1913 model has been considerably altered, and a new one has many advantages, which include an easily detachable jet, variable choke, and other improvements, all of which have been previously with. An introduction is the Amac cycle car carburetter. This is constructed to work as a single lever device operated by accelerator pedal. The exhibit includes other accessories for which this firm is well-known,

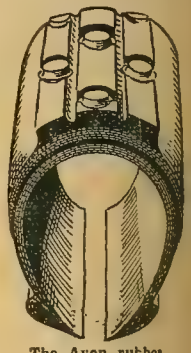


A useful accessory is the Amac belt drift.

namely, decompressors, switches, belt fasteners, spring terminal clips, etc., and a two-lever featherweight carburetter for low-powered machines, which has not been shown before, is exhibited.

A. R. ATKEY AND CO., LTD., Nottingham (No. 237).—A speciality here is the Rodess automatic inflator. A completely automatic device for keeping the tyres at a proper pressure at all times while the machine is in motion. The output of the inflator is such as to enable it to overcome as many as ten ordinary punctures at normal speeds. The device consists of a little pump driven through a simple cam mechanism not liable to break. When the required tyre pressure is reached the pump cuts itself out automatically and revolves without doing any work.

THE AVON INDIA RUBBER CO., Melksham, Wilts. (No. 98).—The Avons are sold in a variety of patterns, the rubber-studded, the Sunstone, which consists of transverse indentations with closed ends moulded at intervals round the tread and a new and practically designed combination cover. The Avon tyres are successfully used on well-known makes of motor bicycles and are rapidly coming to the front, if they are not already there.



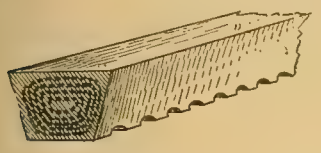
The Avon rubber studded tyre.

F. E. BAKER, LTD., King's Norton, near Birmingham (No. 201).—On this stand is to be found a most interesting exhibition of Precision engines of all sizes, including the new 2 h.p. unit described in last week's issue. A 2¾ h.p. single is shown in part section, and a

The Olympia Show.—

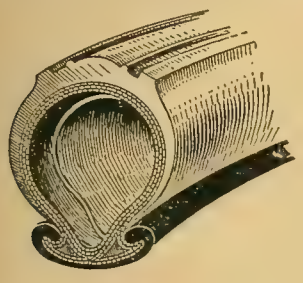
racing overhead twin with ball bearing connecting rods is also shown in part section. A 5-6 h.p. twin, 3¾ h.p. single, a racing 3½ h.p single with overhead valves, an 8 h.p. twin, a Green-Precision fitted with the interesting copper-jacketed Green patent cooling apparatus complete an interesting exhibit.

W. AND A. BATES, LTD., St. Mary's Mills, Leicester (No. 73).—The Bates tyres are shown in all sizes in ribbed and



Bates belt.

rubber-studded patterns. A speciality is also made of a heavy 28in.×3in. cover suitable for the heavier type of machines. Messrs. Bates, Ltd., also show rubber



Bates tyre.

belts in all sizes. Their rubber goods are excellent value for money, and they are one of the oldest firms in the tyre trade.

THE BAVARIAN RUBBER AND ASBESTOS WORKS, 63, Crutched Friars, London, E.C. (No. 46).—The exhibit contains primarily a complete range of Metzeler tyres which have recently been placed on the market. Tests have been completed and these tyres are now ready to be placed before the public. The covers are made of a white quality of rubber of the highest degree of purity. Tyres are shown which have completed 6,000 miles under trying conditions.

The firm also make special tyres for passenger work, designed on the lines of car tyres, but with beads to fit motor cycle rims. The exhibit also consists of a large range of covers, tubes, inflator tubing, and other indiarubber sundries.

PROTECTION FOR THE RIDER.

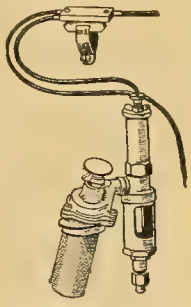
BEARD-BROWN AND CO., Dodridge St., Northampton (No. 238).—This is an exhibit by specialists in leather clothing, who, themselves, dress the leather from which they make their motor clothing. We have examined some examples of excellent material, thoroughly sound finish, and designed to give plenty of comfort and warmth at a very reasonable cost. Another feature of the exhibit is the College patent leather mud-shield, which extends from the crossbar downward, forward of the engine, and then rearward below the crank case. These shields have pockets, capable of taking a spare set of overalls and other impedimenta. The shield with its accompanying aprons goes a long way towards giving comfort to drivers in bad weather. Among other details, the leather pedal bars should be specially noted.

BENTON AND STONE, LTD., Bracebridge Street, Birmingham (No. 244).—The special feature here is a new lubricating system, providing a sight feed automatic drip of oil. In addition to this, by means of a by-pass and a plunger device, an extra supply of oil—the quantity of which is in every case visible—can be put through at will without any adjustment to the control of the automatic lubricating system. Other exhibits here mark the firm as specialists in matters of lubrication and its application. Also air pumps, foot pumps, and hand pumps for pressure feed are exhibited.

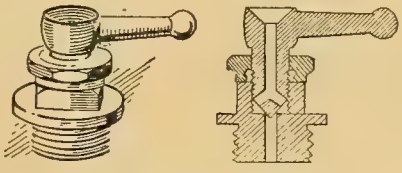
The Benton and Stone combined petrol can pourer and filter.

A NOVEL LUBRICATOR.

BEST AND LLOYD, LTD., Handsworth, Birmingham (No. 242).—Semi-automatic, forced, sight feed lubricators. Special types are shown designed for the Scott, Douglas, and New Hudson machines, also special types with Enots domed glass. A very interesting exhibit is the system of lubrication by throttle control, the idea being to provide a supply of oil in exact relation to the work that the engine is doing at any moment. The use of a special adaptor or junction box allows the ordinary handle-bar control to operate the lubrication as well as the control. A neat little fitting is a combined petrol tap



Interconnected throttle control lubricator by Best & Lloyd.



A neat cone-seated compression tap by Best and Lloyd.

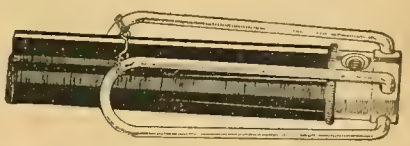
and filter, and interest also attaches to well-designed hinged tank fillers and fillers of the screwed hinged type. An apparatus which combines a number of purposes is a positive reserve supply petrol gauge valve, sump, and filter.

THE BIRMINGHAM SMALL ARMS CO., Small Heath, Birmingham (No. 183).—This firm's main exhibit of motor cycles and accessories is on Stand 58 on the ground floor, but a few parts and components are shown in the gallery. A complete engine is exhibited, together with the parts going to make it up, shown separately. There are also B.S.A. carburetters, an example of the B.S.A. three-speed gear, and samples of frame components and other parts.

BLUEMEL BROS., LTD., Wolston, near Coventry (No. 157).—The Bluemel accumulators are already well-known, and the exhibit also includes sparking plugs, steering wheels, pumps, mudguards, etc.

Bluemels celluloid handle-bar grip.

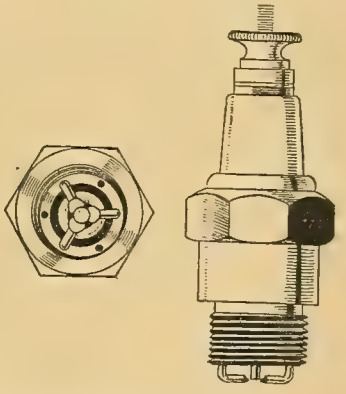
There is a neat and satisfactory adjustable wind screen for cycle car use. A new type of pump, specially adapted for cycle car owners, which is strong and well



Bluemels pump showing clip for holding foot extensions together.

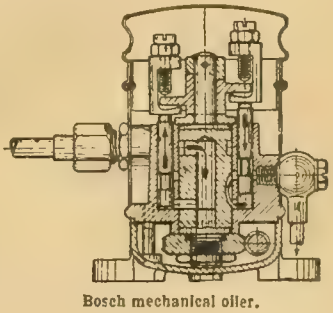
finished, but not too bulky or heavy, is also shown. The same remark applies to a rather similar pump, the Powerful, intended for motor cycles.

THE BOSCH MAGNETO CO., LTD., 40-42, Newman Street, W. (No. 196).—A description of the Gallery exhibits would be in-



Latest Bosch three-point plug.

complete without reference to the makers of the famous Bosch magneto, an electrical device which is almost universal on motor cycle engines. A detailed reference to this magneto would be superfluous, as it is so well known, but readers will be interested to examine the various types for different engines, also the Bosch system of automatic force feed lubrication, a small mechanical pump with various leads,



Bosch mechanical oiler.

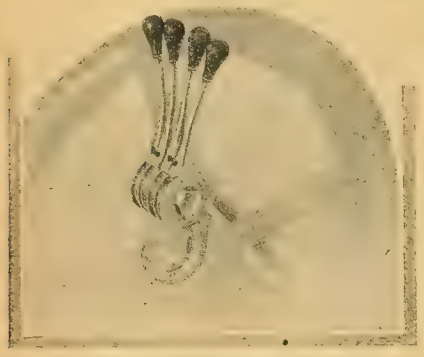
The Olympia Show.—

directing oil to different bearings and other parts which necessitate constant lubrication.

THE BOWDEN BRAKE CO., LTD., Tyseley, Birmingham (No. 235).—Motor cycle front brakes, controls for magneto, carburetter, and change speed gears. Motor cycle handle-bars completely fitted, also steering wheel showing control fitted for different operations.

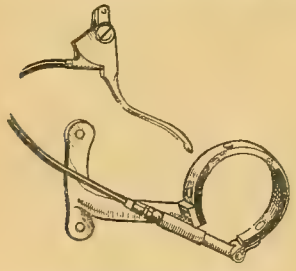
WIRE CONTROL.

BOWDEN WIRE, LTD., Pratt Street, Camden Town, N.W. (No. 211).—Almost any moving part on a motor cycle or cycle car from carburetter control to gear changing can now be effected by Bowden wire, and one of this firm's latest fitments is a quadruple cycle car control in which four levers are arranged on a little bracket neatly clipped to the centre of the steering column above the wheel, the levers being held in any position by the well-known "Bowdenloc" system. Thus it is easy to arrange the gas, air, magneto control, and half com-



The Bowden quadruple control levers for cycle cars.

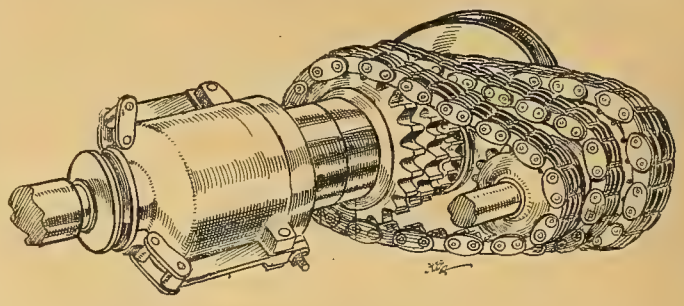
pression device all to be operated from the wheel. Another clever fitment marketed by Bowden Wire, Ltd., Pratt Street, Camden Town, N.W., is an extra air inlet device, designed to decrease petrol consumption and increase engine efficiency. This fitment may be obtained



Handle-bar control for the Philipson pulley marketed by Bowden Wire, Ltd.

in various sizes, and in lengths of cable suitable for cycle cars or motor cycles, and it has the further advantage of being easily fitted and neat in appearance.

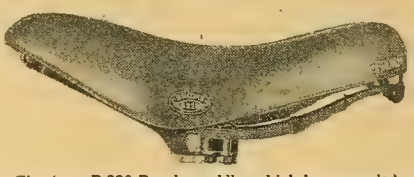
BRAMPTON BROS., LTD., Oliver Street, Birmingham (No. 186).—The chief item of interest is the Sava three-speed gear for motor cycles. This is a counter-shaft gear, the drive from the engine to the counter-shaft being by three pairs of chain sprockets and three chains, the sprockets being of varying diameters. The variation of the gear ratio is obtained by locking one or the other of the three counter-shaft sprockets to the wedged



Details of the Saver three-speed gear and silent chain drive.

clutches. Another gear is the Brampton variable pulley gear, which provides seven speeds and a free engine. The faces of the pulley flanges are grooved to provide a better grip for the belt. The exhibit includes chains, hubs, spring forks, handle-bars, brakes, etc. Readers should ask to see the patent dustproof front hub for motor cycles.

J. B. BROOKS AND CO., LTD., Great Charles Street, Birmingham (No. 227).—The usual extensive range of motor cycle saddles, tool bags, carrier bags, and the like. Also all kinds of leather fittings for cycle cars, as, for example, tool bags, tool cabinets, and luggage boxes for fitting either to the running board or to the back of the car. There are no very big novelties here, though several de-

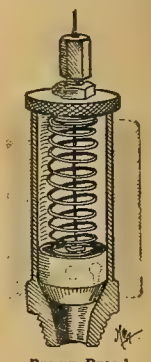


The type B 220 Brooks saddle, which is suspended on leaf springs.

tailed improvements have been embodied and deserve attention. A novelty is a patent spring legging that may be put on and taken off instantaneously, and fits either leg.

BROWN AND BARLOW, Westwood Road, Witton, Birmingham. (No. 241).—The B. and B. for 1914 was fully described in a recent issue, and at the same time we published our own experiences with the semi-automatic variable jet model. Readers may remember that this carburetter is fitted with a tapered needle interconnected with the throttle lever. This gives a very small jet for slow running, and when more gas is required for power purposes, such as hill-climbing, the tapered needle allows for a more copious flow. In addition to operating the jet, the throttle provides about sixty per cent. of the total air required, an extra air lever being only requisitioned to strengthen or weaken the mixture as desired. The same firm show a new type of automatic carburetter for cycle cars, various descriptions of metal float chambers, petrol strainers, and small taps, etc.

BROWN BROS., LTD., Great Eastern Street, E.C. (No. 160).—In addition to complete machines, this firm, as usual, exhibit a very full range of motor cycle



Brown Bros.' auxiliary air inlet.

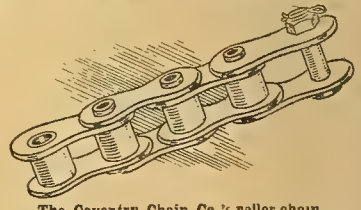
accessories of a great variety. One of the novelties is the "Vapo" patent atomiser, which is in the nature of a variable jet designed to effect economy in petrol consumption. There is also a new mode of Autoclipse acetylene lamp with spherical body. Another new exhibit, appealing more to cycle car users, is the Brown sprayer for washing down engines with paraffin spray. The necessary pressure behind the spray is obtained by a simple hand pump embodied in the can of the contrivance. A neat and quite cheap little set of tools for removing carbon deposit from cylinders and pistons without dismantling the engine also claims attention. These are but a few of numerous points of interest to be found on this stand.

ARTHUR CAKE AND CO., LTD., Cumberland Street, Birmingham (No. 165).—Trade only. Chain wheels and cranks.

CAPON, HEATON, AND CO., Birmingham (No. 99).—This firm make a speciality of repairs of all kinds of motor cycle tyres. They also supply the trade with a large assortment of repair bands, plasters, and inflator tubing.

THE CLIPPER TYRE CO., LTD., Steelhouse Lane, Birmingham (No. 12).—A large number of Clipper motor cycle tyres are to be seen on this stand, which are mostly of the three-rib and rubber-studded patterns.

THE COVENTRY CHAIN CO., LTD., Spon End Works, Coventry (No. 161).—The usual extensive variety of chains of roller and noiseless types will be found here. Special interest attaches to a motor



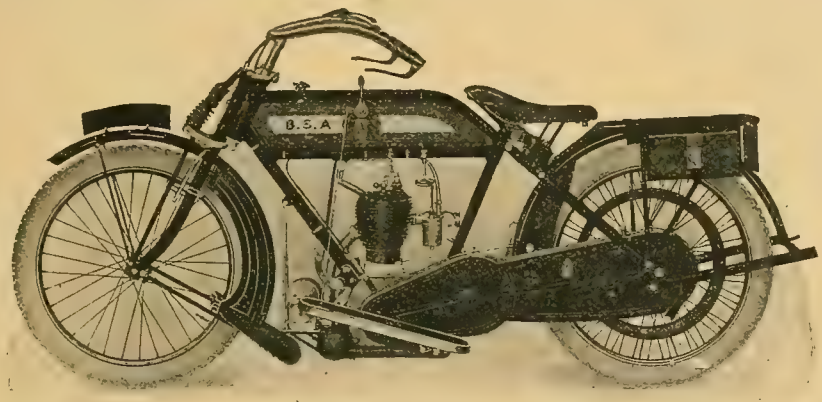
The Coventry Chain Co.'s roller chain.

cycle chain drive embodying a spring wheel. The drive is designed to transmit 5 h.p. at 1,200 r.p.m. The "Coventry" chain is fitted to the drive from the engine shaft to the shock absorption wheel, the final drive to the rear wheel being by roller chain.

B.S.A.

Motor Bicycles

FOR SOLO AND SIDE-CAR WORK.



THE B.S.A. 557c.c. MOTOR BICYCLE FITTED WITH B.S.A. COUNTERSHAFT THREE-SPEED GEAR AND CHAIN DRIVE

This machine should be inspected at Olympia, Stand 58, by everyone interested in motor cycling. Many improvements and refinements are embodied, which place it in the forefront of passenger machines. It is an ideal mount for side-car riders who object to the expense and strain of a heavy twin. Owing to its wonderful flexibility there are very few hills which cannot be ascended with power to spare. Other B.S.A. Models to be seen at the B.S.A. Stand are the Fixed Engine, Free Engine, Countershaft Three-speed Chain-cum-Belt Drive, and Tourist Trophy, and also the new B.S.A. Side-cars. It will pay you to obtain full particulars of the B.S.A. Motor Bicycles and Side-cars before selecting your new machine.

BIRMINGHAM SMALL ARMS Co. Ltd. TRADE MARK B.S.A. BIRMINGHAM

OLYMPIA

Stands - - - **58** GROUND FLOOR **183** GALLERY

Write for Latest Catalogue.

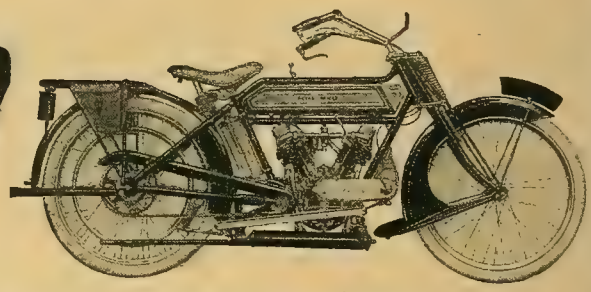
THE BIRMINGHAM SMALL ARMS COMPANY LIMITED,
13, Small Heath, BIRMINGHAM.

A Motor Cyclist's Advice: "Always use B.S.A. Cylinder Oil for your engine."

In answering this advertisement it is desirable to mention "The Motor Cycle." C43

ENF

The Motor Cycle of Brooklands Fame.



This 3 h.p. model is now offered with an equipment never before approached in a solo model. New "kick-starter," Enfield patent two-speed and free-engine gear, automatic lubrication, cush drive hub, chain drive, and Palmer cord tyres.

Net Cash - - - - - - 50 Guineas.

Positively the best solo motor cycle. At Brooklands, on September 13th, these models beat a representative entry of the best known $3\frac{1}{2}$ and 7 h.p. machines, a feat never equalled by any other make of motor cycle.

The 3 h.p. Royal Enfield has accomplished feats impossible to other machines—because it is the best and most reliable.

Note the specification—and the price.

$2\frac{3}{4}$ h.p. Two-speed model - - - £45 net cash.

You will find Royal Enfields at Stand 88, Olympia. - -

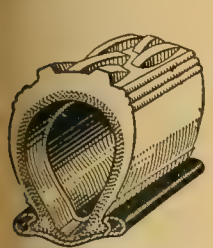
We should like you to read our latest booklet, "Something Done." The performances reprinted therein are proof you need before buying any motor cycle. And afterwards your choice will be a reliable Royal Enfield. Send postcard for booklet and 1914 Catalogue. :: :: :: :: :: :: ::

The Olympia Show.—

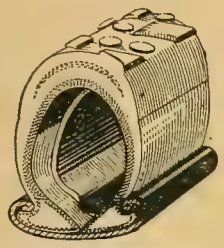
THE COVENTRY PLATING AND PRESSWORK CO., LTD., Coventry (No. 167).—This firm show the usual fine selection of well-finished examples of plating and presswork. Among the specialities of the firm are mudguards, belt rims, and tanks, and to this list has now been added radiators for cycle cars.

COMPONENTS, LTD., Birmingham and London (No. 228).—Trade only (see Ariel) in complete machines.

THE CONTINENTAL TYRE AND RUBBER CO., Thurloe Place, South Kensington (No. 96).—The principal patterns shown on this stand are the combinations in which squares are placed diagonally around the tread and interspersed with



Section of the Continental Basket pattern heavy tyre.



Continental combination rubber and steel-studded tyre.

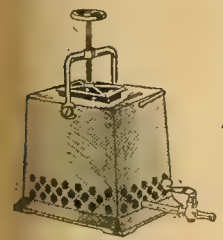
steel studs, the rubber-studded pattern, the basket pattern, and the corrugated type of tread. The quality put into these tyres has always been good, but it is

The latest pattern Continental butt-ended tube.

greatly improved for 1914, as the covers are built on similar lines to those on which the Tourist Trophy was won in 1911. Cycle car tyres and motor cycle belts are also shown.

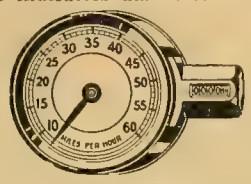
A PORTABLE VULCANISER.

THE COUNTY CHEMICAL CO., LTD., Birmingham (No. 246).—Here are found examples of the new Chemico tyres in the wired-on and beaded-edge varieties. An interesting little accessory is the Facet rear light, designed to radiate over a very broad field. Vasol is a well-known and efficient lubricant, and Chemico repair outfits are useful fittings for motor cycles and cycle cars. The firm exhibit a handy portable vulcaniser, suitable for dealing with covers and tubes of motor cycle tyres. The method of heating is either by coal or gas, or by acetylene.



The Chemico vulcanising outfit.

THE COWEY ENGINEERING CO., LTD., Kew Gardens, S.W. (No. 219).—The most important novelty on this stand is the Cowey speed indicator, built specially for cycle car work. The principle is, of course, the same as that of the other types of indicators manufactured by the

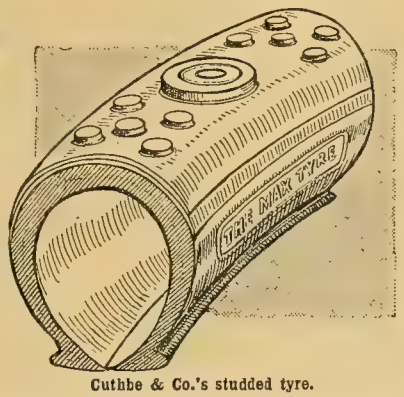


The Cowey speed indicator and mileage recorder.

same firm, which have been successfully used for a long time past on all classes of motor vehicles.

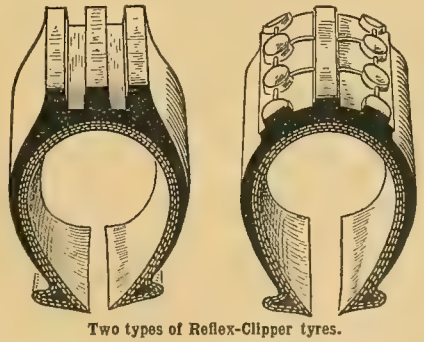
A NEW NON-SKID TYRE.

CHAS. L. CUTHBE AND CO., Great Eastern Street, E.C. (No. 75).—The most conspicuous tyres on this stand are the Cy-car pattern, the tread of which consists of a single groove, in which lozenges of rubber are moulded at intervals. The tread has the letter



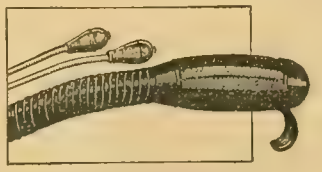
Cuthbe & Co.'s studded tyre.

"T" moulded upon it in steel studs. A new type of tyre is the Super, which has a leather tread with large hollow rubber studs projecting through at intervals, and between them at intervals a series of steel studs. Serviceable motor cycle suits are also exhibited on this stand.



Two types of Reflex-Clipper tyres.

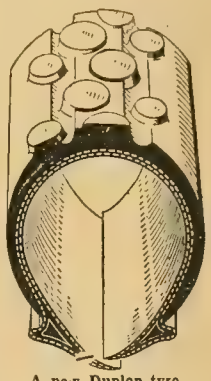
DOVER, LTD., Northampton (No. 218).—One novelty here is a new motor cycle



Hooked handle and spiral wound bar by the Dover Co.

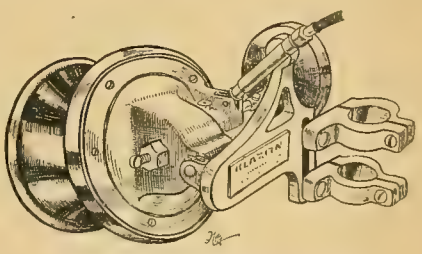
tyre inflator, which will be shown in operation on the stand. A very interesting exhibit is a motor cycle handle-bar covered with Exonite wound spirally to form practically a solid shield. To this same pair of handle-bars is fitted a new design of handle with hook grip. The firm also show wind screens for sidecars and cycle cars and steering wheels for the latter.

THE DUNLOP RUBBER CO., Aston, Birmingham (No. 4).—On this stand are to be found various patterns of the well-known Dunlop tyre, including the latest, in which the tread consists of large and small rubber studs and grooves; a transverse grooved light voiturette cover for sidecar machines and cycle cars; the rubber-studded pattern; the lozenge-shape pattern, etc. Also belts and tyre accessories.



A new Dunlop tyre.

THE EAST LONDON RUBBER CO., Great Eastern Street, E.C. (No. 224).—In addition to complete machines, a variety of sidecars, engines, and components, this exhibit includes a number of interesting accessories. Among these is the Volta lite, a little dynamo of almost pocket size, designed to drive off the front wheel of a motor cycle and to provide light when the machine is moving. Great efficiency is claimed for the new models of this device. The Yutu horn bulb is



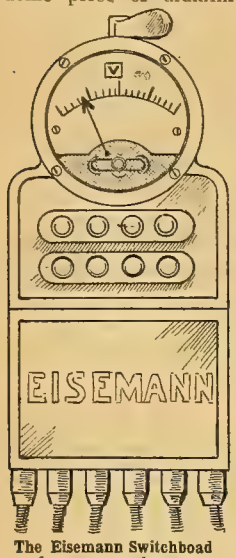
The latest pattern Klaxon motor cycle horn with new pattern fixings.

half rubber and half metal nickel-plated, the latter portion being an extension of the horn portion. In the Redhead spring fork the action depends upon the presence of two rubber balls on each side of the lower portion of the head. In taking up shock the two sets of balls rise over one another, falling into a separating space under the pressure of a central spring. Another useful accessory is the motor cycle Klaxon horn, which incorporates the same mechanism as is contained in the full-sized warning signal of this make, but the method of drive, instead of being electrical, is in this case mechanical. The horn is mounted on an aluminium bracket attached to the front forks, which allows the instrument so to be tilted that on the depressing of a Bowden lever on the handle-bar a friction disc is brought into contact with the rim of the front wheel. To the shaft of this

The Olympia Show.—

friction disc is attached a wheel, on which there are ten small cams, each of which in rotating gives a button a push, causing the vanadium steel diaphragm to buckle.

THE EISEMANN MAGNETO CO., Berners Street, W. (No. 180.)—The Eisemann magneto has several distinctive points. The magnets are lined with an inner dome piece of aluminium, and the end plates are fixed to the edges of this so that the magnets are intact. The edges of the dome piece are ground dead level, and, consequently, there is no trouble at all in making this magneto watertight. The system of lubricating the contact-breaker shows great ingenuity, for the excess of oil is caught by the shallow trough or trap in the rocker and conducted through a fine hair boring to the rocker on the spindle. A similar device providing for the insert eliminates the possibility of sticking, and so causing irregular firing. The Record sparking plug claims attention. The electrode is of pure nickel and non-incandescent. The aim in view was to make a sparking plug that was quite unaffected by oil. This firm is also showing a lightweight lighting set suitable for cycle cars. The total weight of the dynamo is only 34½ lbs., and the length, to end of shaft, is 10in., height 5½in., breadth 5¾in. The output is 12 volts and from 6 to 15 amps. There is an electro-magnetic cut-out which operates at 400 revs., and an automatic control of voltage which permits the lamps to be lighted directly from the dynamo in case of necessity, and at other times controls the pressure, so preventing trouble from grossly overloaded lamp filaments.

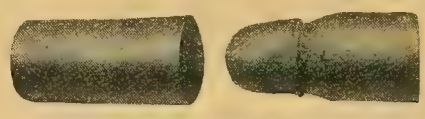


The Eisemann Switchboad for use on cycle cars.

THE MINIATURE MEA.

B. M. FAIR AND CO., Great Winchester Street, E.C. (No. 198).—Here are seen the Mea magnetos, in which the distinguishing feature is the bell-shaped magnets, the design of which is such as to secure that the rotating armature is at its maximum position at the moment of break, whether the sparking lever is advanced or retarded. The arrangement, of course, results in securing a good spark at low speeds as well as at high, thus tending towards easy starting and smooth running at slow speeds. A big model of the machine is shown, giving sparks across a gap of nearly ⅜in. The position of the sparking lever on this model can be varied over a big range, so that the quality of the spark under all conditions may be satisfactorily demonstrated.

GAULOIS TYRES, LTD., Bath Street, E.C. (No. 130).—The models shown on this stand consist of a corrugated tread, a two-ribbed pattern, and a tread consisting of lozenge shaped projections moulded diagonally on the cover and


The Gaulois butt-ended inner tube.

centrally ribbed. These three patterns have treads of special white rubber which is claimed to be self-sealing after it has been cut. Two ribbed and lozenge patterns are also shown with ordinary treads. Yet another model is a steel studded pattern, the studs being embedded in leather. Steel studded and white rubber treaded tyres are also shown for cycle cars.

GOODRICH TYRES.

B. F. GOODRICH, Golden Lane, E.C. (No. 14).—On this stand are shown various examples of Goodrich tyres, which are of the rubber-studded pattern. The very best quality and workmanship are put into these tyres, which have been used successfully on many different makes.

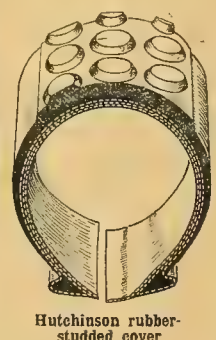
GOUGH AND CO., Hockley, Birmingham (No. 240).—A big variety of saddles is to be seen here. Special attention is to be directed to the pan seat motor cycle saddles, of which there are two varieties. There is also a good show of pannier bags, leather trunks designed to be attached to carriers for tourists, also cases for belts, tubes, sparking plugs, and tools.

H. AND W. GREER, Chiswell Street, E.C. (No. 97).—This firm, previously known as the Calmon Rubber and Asbestos Co., exhibit the Calmon extra special and ideal tubes, also cycle car tyres.

A. H. HADEN, Princip Street, Birmingham (No. 181).—Components, fittings, and parts of all kinds for motor cycles are here shown, from a single lug to a complete machine, also accessories and fittings of all kinds. The firm are manufacturers, selling to the trade only.

ERNEST H. HILL, LTD., Beater Works, Sheffield (No. 191).—Messrs. Hill always have an interesting exhibit. Special attention should be given to their petrol,

Hanover corrugated cover.


Hutchinson rubber-studded cover

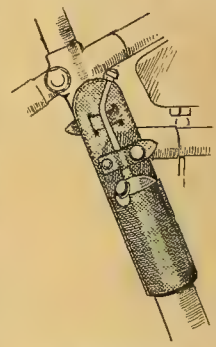
oil, and grease injectors. The E. H. Hill inflators are excellently made tyre pumps with brass cylinders. They can be had in brass finish or nickel plated. The observation mirrors for attaching to handle-bar or wind screen are another speciality of the same firm. These are made in polished brass, nickel plated, and black.

THE HANOVER RUBBER CO., LTD., Goswell Road, E.C. (No. 71).—Motor cycle tyres, including a combination pattern cover of excellent design, consisting of V-shape bars between which are steel studs. Also the Gloria belt which was used on winning machines in the T.T. races of 1908-9-10. Inner tubes and other rubber goods are shown.

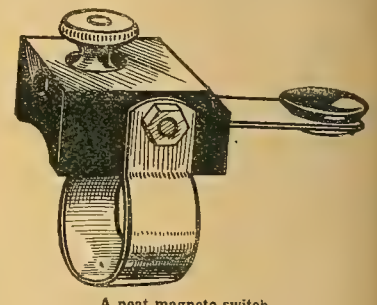
HOBDAY BROS., Great Eastern Street, E.C. (No. 168).—Wholesale trade only.

THE HOFFMANN MANUFACTURING CO., LTD., Chelmsford, Essex (No. 226).—This firm show their usual fine collection of ball bearings and roller bearings, suitable for every conceivable purpose for which such bearings can be applied in motor cycle or cycle car construction.

HUMPHRIES AND DAWES, LTD., Birmingham (No. 243).—Here is to be found a full range of Swan cycle and motor fitments and accessories. Special attention may be drawn to the Swan oilcan and carrier and the Swan valve remover.


The Swan oil can and carrier on the down tube.

A. H. HUNT, Cannon Street, E.C. (No. 175).—There is a fine variety of electric lighting sets for motor cycles and cycle cars, including a complete system with dynamo. A number of rear lights for motor cycles are shown. An interesting novelty is a new type of valve lifter, which has a cam action which lifts the very strongest loads, and automatically locks itself in position. The overall size


A neat magneto switch.

is about two inches. There is also, of course, a large variety of Hellesen dry cell batteries, in connection with which a special free offer is made to give users an opportunity of testing the merits of the system without expense to themselves in the first instance.

THE HUTCHINSON TYRE CO., Basinghall Street, E.C. (No. 129).—The Hutchinson

The Olympia Show.—

tyres have been successfully used in numerous competitions for years past. The principal pattern is the rubber-studded, of the excellence of which we can speak after personal experience. A speciality is made this season of the three-ribbed pattern, which is sold specially for heavy sidecar work, and another pattern manufactured on car lines specially constructed for use on cycle cars. This latter is made only in the 650 × 65 mm. size, and the finest quality canvas is used.

THE KEMPSHALL TYRE CO. (OF EUROPE), LTD., Long Acre, W.C. (No. 101).—The Kempshall tyre is conspicuous for its peculiar tread, consisting of circular depressions moulded at intervals around

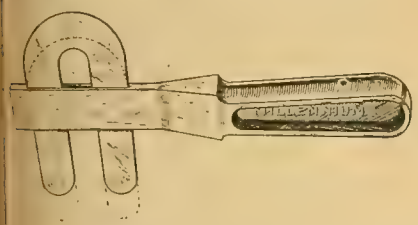
Kempshall heavy cycle car tyre.

Another form of Kempshall cover for cycle cars.

the cover. This enables the tyre to keep cool, and the pattern as a whole acts as an efficient non-skid, the Kempshall being the only tyre to have gained an R.A.C. certificate for non-skidding. The Kempshall tyre is fitted to P. and M., Rex-Jap, New Hudson, Brough, Blackburne, and other well-known machines. It is interesting to note that all covers are built up of the Kempshall interlocked fabric, which greatly improves the wearing quality of the tyre.

USEFUL TOOLS.

LAKE AND ELLIOT, LTD., Braintree, Essex (No. 194).—This firm, known all over the kingdom for the ingenuity of their motor tools, exhibit a small jack for cycle cars, a folding light jack for cycle cars, their well-known valve truer



The Millennium pedal pin spanner.

for scraping the faces of valve heads before grinding, a garage valve grinding tool which should be very useful where there is sufficient room between tank and combustion head to get the grinder into position without fouling the tank. A new item this year is a pedal pin remover. This is a spanner thin enough to go between the pedal and the crank and is prevented from spreading by a locking bar across the faces. Lake and Elliot still supply a two-speed and free engine hub, and also their two-speed Fit All gear for engine-shaft.

LEATHERIES, LTD., Sampson Road North, Birmingham (No. 228).—Empire de Luxe motor cycle saddles with leather and metal pan, padded felt and covered leather seats. Also the Pattison motor cycle saddles, which has metal pan seats padded and covered with leather. Empire de Luxe belt and tube cases, luggage carrier, sparking plug cases, etc.

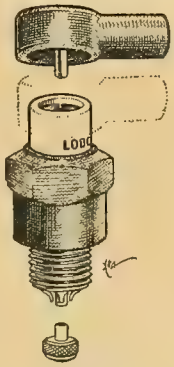
NON-SKID TREADS.

LEICESTER RUBBER CO., Granby Street, Leicester (No. 147).—Here are shown various examples of the well-known John Bull tyre. The pattern exhibited has a tread consisting of two ribs, between which are transverse grooves. Another in which the tread consists of lozenges moulded at intervals. These tyres are known for their excellent wearing qualities.

The tread of one of the Leicester Rubber Co.'s covers, composed of long rubber lozenges.

LODGE SPARKING PLUG CO., LTD., Wrentham Street, Birmingham (No. 230).—An introduction by the Lodge Company is a very neat lighting set. This is not shown this week, but it was on view at the Car Show. Particulars concerning it can be obtained at the stand. The Lodge plugs are made in various types, the standard model being put up in a red metal sealed box with gap gauge, washer, and guarantee slip. The weatherproof model has an insulated quickly detachable

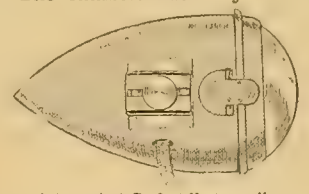
The Lodge self-cooling plug, which is provided with radiating ribs.



The Lodge plug and waterproof terminal. Observe the gauge for the points at foot

terminal, which, in addition to making the plug weatherproof, acts as a convenient method of testing the spark. The racing model has self-cooling fins in body and centre stem, and the miniature model is said to be the smallest plug made which will give perfectly reliable and lasting service.

C. LOHMANN, Great Eastern Street, E.C. (No. 245).—Acetylene head light outfit for motor cycles, brass and electro-plated electric lamps for motor cycles and for cycle cars, and similar lamps in black. A good range of motor cycle horns (plated and black), push bells, etc. The exhibits naturally include the



Lohman's "Perfect" streamline sidecar lamp.

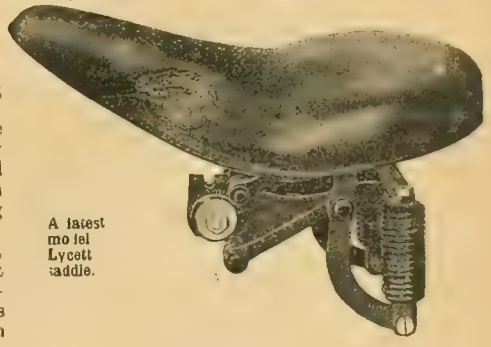
firm's well-known Superber saddles for motor cycles, and a variety of well selected tool kits for motor cycles and cycle cars, in leather and canvas cases.

LAMPS OF ALL KINDS.

JOSEPH LUCAS, LTD., Birmingham (No. 184).—A big range of lamps for motor vehicles of all types. Among new models is the King's Own, on a combination bracket for mounting upon the handlebars. This little device looks very well with special black finish. Another novelty is a very pretty sidecar lamp, showing a white light forward and a green or red light aft. The lamp is supplied complete with a small generator for supplying gas for a two-and-a-half miles run. The electric lamps include equipments suitable for cycle cars, embodying, if desired, the dynamo as well as an electric battery. A neat design of motor cycle rear light with separate generator is intended to be riveted to the identification plate, which it illuminates in addition to throwing a red light aft.

LUKIN, LTD., Newcomen Street, Borough, S.E. (No. 229).—This firm is exhibiting the Lukin automatic carburetter for motor cycles and cycle cars. This is a well designed gas making apparatus for motor cycle and similar engines. When properly tuned up it is quite automatic, and enables the engine to run both slow and fast without loss of power. It has been described and illustrated on more than one occasion in these pages. A clever device recently introduced by M. Lukin is an air leak detector; this consists of a simple wood plug screwed at one end to take a horn bulb, and at the other to fit the spigot pipe of a single-cylinder engine. When assembled, if the bulb be squeezed, any air leakage between the spigot and the cylinder is immediately detected.

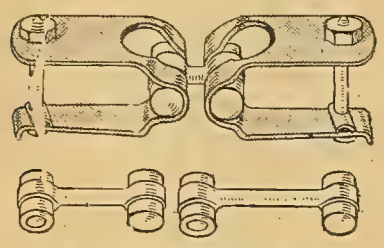
THE LYCETT SADDLE AND MOTOR ACCESSORIES CO., LTD., Bromley Street, Birmingham (No. 177).—All motor cyclists know the "La Grande" saddles, anatomical pan seats, and armour-plated motor



A latest model Lycett saddle.

The Olympia Show.—

cycle tool bags. A full range of these is exhibited; also the Lyso 1914 belt. It is a new belt for which great claims are made. The Reliable belt is a combination of rubber and leather, and has undergone severe tests with conspicuous success.

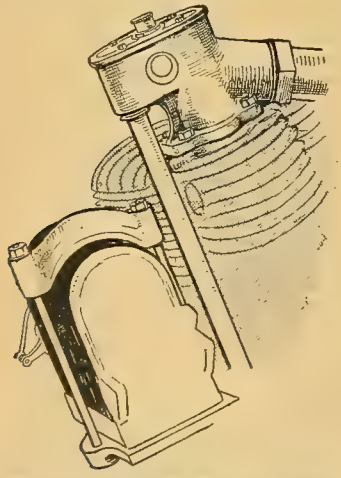


The Dall fastener with three links of various sizes.

Chas. Macintosh Co., Ltd., Manchester (No. 11).—Messrs. Macintosh were one of the earliest firms to enter into the rubber trade, and are manufacturers who have had long experience in tyre construction. Various designs of motor cycle tyres are to be seen on this stand, which are, of course, made in all standard sizes.

M.A.G. ENGINES.

The M.A.G. Engine Co., College Park, Willesden, N.W. (No. 169).—The exhibit of the M.A.G. Engine Co. is a particularly interesting one. The engines shown are the 1¼ h.p. 62×70 mm., which has a bronze combustion head screwed into the cylinder and contains the automatic inlet valve; the 1½ h.p., 62×75 mm.; the 2½ h.p., 64×90 mm., automatic inlet valve; the 2½ h.p., 64×90 mm., mechanically-operated valves; the 2¾ h.p., 54×75 mm.; the 3½ h.p. 64×77 mm.; and the

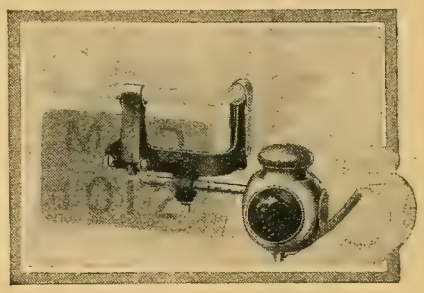


Overhead valve gear, and method of carrying the magneto on the Matchless sidecar machine.

6 h.p. 72 × 91 mm. The last two engines deserve special study, as they have been recently placed on the market, and except as regards engine size they are identical. The inlet valves are mechanically operated, the operating mechanism being entirely enclosed. The lubrication of the valve mechanism is effected by pressure in the crank case, allowing the oil to rise up the pipe in which the operating rod works and lubricate the rocker. The tappets are adjustable, and the engines are also noteworthy for the fine finish on the crank case and the fineness of the casting of the radiating fins. Engines of this type are fitted by Messrs. Collier and Sons and other well-known manufacturers.

Markt and Co., Ltd., Clerkenwell Road, E.C. (No. 171).—A novelty here is a new handle-bar Veeder, and there are also samples of the Goodlads speedometers. A very effective apparatus is a Long horn for motor cycles, which is a purely mechanical device. As for the rest, the exhibit is on the lines of previous years, a very important feature, of course, being the well-known Jones speedometer.

Mechanical Products Co., Armoury Close, Bordesley Green, Birmingham (No. 210).—The convertible acetylene electric head lights, suitable for motor cycles and cycle cars, which were described and illus-



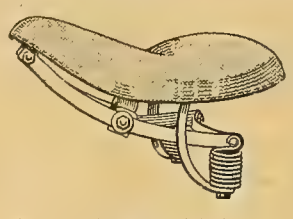
The M.P. rear lamp, showing method of attachment.

trated in our last issue (see page 1545), are exhibited on this stand. The idea is to use a small battery and electric bulb which is interchangeable with the gas burner, so that if the rider wishes to use the lamp only for a short time there is no necessity to decompose a container full of carbide. A range of cycle car mascots of suitable design for light cars and other fittings are also shown.

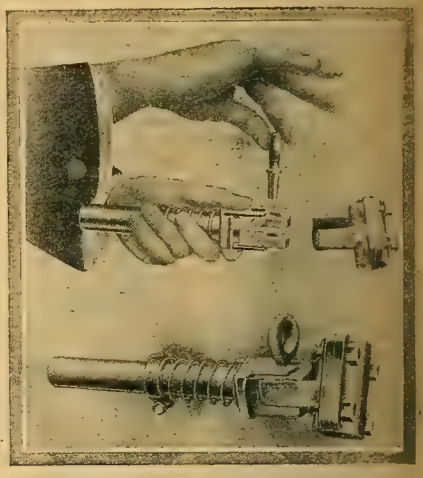
Michelin Tyre Co., Ltd., Fulham Road, S.W. (No. 48)—The chief types of tyres shown by the Michelin Co. are the Trident and the Semelle. These are made in all sizes, and, of course, their quality for excellence is known throughout the world. Particular attention is paid to cycle car tyres, and various sizes of these are made.

ANATOMICAL SADDLES.

Middlemore and Lamplugh, Ltd., Little Park Street, Coventry (No. 189).—One of the leading lines for 1914 is the new motor cycle saddle, which was recently described and illustrated in *The Motor Cycle*. This saddle is built up on a steel underframe on anatomical lines, and is not only provided with coil springs, but the cantle is attached to C springs of flat section steel. We have had personal experience of this saddle, and have found it to be comfortable as regards the seat and the actual springing thereof. Its price is moderate.



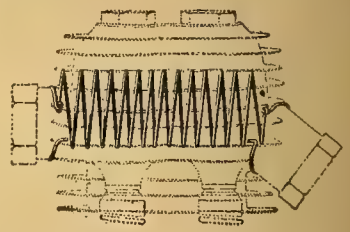
The latest pattern Middlemore saddle.



Neat and strong quickly detachable joints on the Supreme sidecar.

The Midland Gear Case Co., Bridge Street West, Birmingham (No. 232).—A selection of leather goods, including gear cases, tool bags and rolls, cases for tubes and belts, and kindred exhibits are here shown.

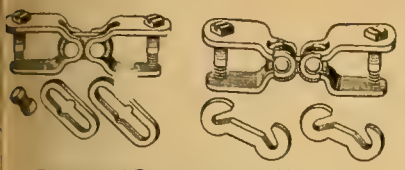
H. Miller and Co., Ltd., Miller Street, Birmingham (No. 188).—A big range of lamps generally is shown here, including sets for motor cycles and cycle cars, and some neat rear lamps for both classes of machine. All the lamps shown here burn acetylene. A special feature of the exhibit is Miller's "Rearlite," which is made in two patterns, being either supplied with gas from the generator of the head lamp, or self-contained. The "Rearlite" is a very neat little lamp carried from the after end of the carrier and showing a white light on the number and a red light aft. It is well-made and of very neat design. The girder brackets for motor cycle lamps have all been strengthened in the 1914 patterns.



The Dall trouser-guard.

Moebius and Son, 23, Howard Road, Stoke Newington, N. (No. 166).—Lubricating oils, burning oils, and tins of carbide of calcium. A comprehensive exhibit that does not lend itself to description.

The Olympia Show.—



Two types of Forward fastener which will be marketed for 1914.

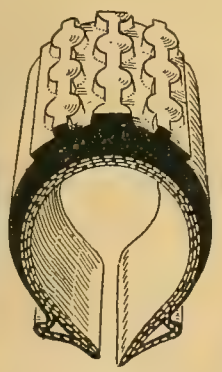
D. Moseley and Sons, Ltd., 51-52, Aldermanbury, E.C. (No. 45).—Here are exhibited the Moseley tyres, tubes, pedal rubbers, inflator tubing patches, repair bands, and repair canvas. The Moseley tyres, which are made by an old-established firm in Manchester, have a very good reputation, Moseleys being large manufacturers of other rubber goods their tyres can be relied upon as satisfactory.

WATFORD SPEEDOMETERS.

Nicole, Nielsen, and Co., Watford (No. 233).—A most interesting exhibit is on this stand, where there is to be seen a full range of Watford speedometers. There is a large size model with a dial upwards of a foot in diameter, having a glass front, so that the action of the centrifugal governor and other internal parts can clearly be seen when the machine is running. The detail improvements in these instruments were recorded in a recent issue.

The North British Rubber Co., Ltd., Great Portland Street, W. (No. 7).—As regards patterns of covers, this company specialise mostly in the rubber

Clincher extry heavy cover.



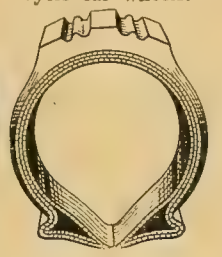
The Dreadnought tyre for motor cycles.

studded type. A new pattern Dreadnought, however, of the three-ribbed pattern, has been introduced. Two designs of tread, one studded and the other three-ribbed, are known as the Heavy de Luxe, and are designed to fit flat based rims.

A useful motor cycling Poncho produced by the Hutchinson Tyre Co.

Oylers, Ltd., Cavendish Street, W. (No. 127).—The Skew non-skid tyre consists of staggered indentations round the edge of the tread, and is a cover which is especially suitable for cycle car use. A number of tyres are shown fitted to wire cycle car wheels.

Section of the Skew non-skid tyre.

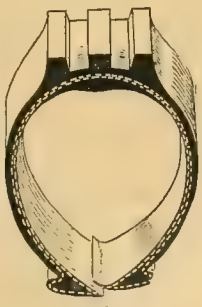


Section of the Palatine tyre.

The Palatine Tyre Co., Saul Street, Preston (No. 74).—The Palatine tyre first came into prominence in the early part of this year, when its manufacturers entered for a 3,000 miles A.C.U. trial, from which test the tyres emerged with the greatest possible success, only using four-elevenths of the tread of the driving wheel. The covers are made in 2⅜ for 2¼in. rims and 2⅝ for 2½in. rims, while there is a totally new type for cycle cars of substantial construction, the tread of which is no less than 13 mm. in thickness.

Palmer Tyre, Ltd., 119, Shaftesbury Avenue, W.C. (No. 150).—Palmer tyres are too well known to need a detailed description, but we may mention that a speciality is made for 1914 of cycle car tyres, 650×50 mm., to fit standard S.M.M.T. rims. A heavy motor cycle tyre, 26×2½in. fabric, and a heavy 26×3in. cycle car tyre, constructed on car lines, in which the cords are anchored to

Section of the Palmer Cord studded cover.



The Palmer Cord three-ribbed tyre.

the beads by steel pins. It will also be supplied with a steel-studded tread. The 700×80 mm. fabric cycle car tyre will fit a 2½in. rim. All the standard tyres made in standard sizes have been improved in construction and the quality of rubber used for the tread.

Messrs. J. Pedley and Son, Ltd., Oxford Works, Great Charles Street, Birmingham (Stand No. 145), show tyres, belts, and indiarubber goods of all descriptions. The Pedley tyres are made in four models—the heavy three-rib for 3½ h.p. and over, medium weight three-rib for 2¾in., and the Pedley lightweight three-rib for front and sidecar wheels. The new model is a combination cover, combining rubber bars with steel studs in a novel manner. We illustrate this cover. The same firm also make the Pedley cycle car cover in three-rib heavy and combination, 26in. × 2½in. and 3in., for motor cycle and cycle car rims.

The combination Pedley cover which has alternate rubber bars and steel studs.

Perry and Co., Ltd., Tyseley, Birmingham (No. 170).—Chains, hubs, freewheels, lubricators, etc. Wholesale only.

The Peter Union Tyre Co., Ltd., Great Portland Street, W. (No. 128).—Tyres of interest to motor cyclists shown by the Peter-Union Co. are a two-ribbed cover and a steel-studded cover, both of which have stood the test of time.

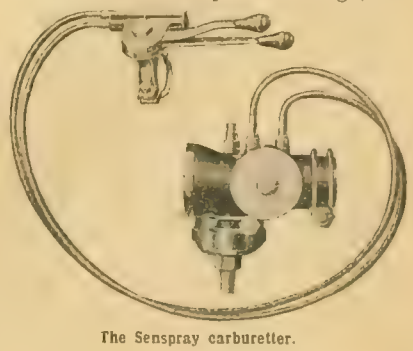
J. A. Phillips and Co., Ltd., Smethwick, Birmingham (No. 158).—Spring forks and pedals for motor cycles, wholesale only.

A VARIETY OF LAMPS.

Powell and Hanmer, Chester Street, Birmingham, and 167, Great Portland Street, W (No. 182).—Acetylene lamps are shown here in great variety. There is a new rear lamp for motor cycles and a complete system of electric lighting with dynamo, suitable for cycle cars. In the Powell and Hanmer dynamo the electric magnetic cut-out is mounted direct upon one of the poles of the field magnets, an arrangement which tends towards the simplification of the outfit.

Price's Co., Ltd., Belmont House, Battersea, S.W. (No. 162).—Here there is to be found the usual excellent selection of motor cycle lubricants, whether for engines or gears, together with oils for use in racing and touring engines. Price's Huile de Luxe is one of *the* finest oils on the market, and is often the means of securing a cool running engine when other expedients fail.

Chas. H. Pugh, Ltd., Birmingham (Nos. 204 and 205).—Here we find a selection of chains by the Alfred Appleby Chain Co., Ltd., also a quantity of components and specialities manufactured in flat sheet steel by C. H. Pugh, Ltd.



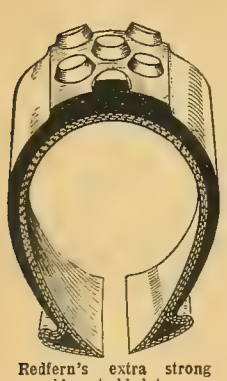
The Senspray carburetter.

The Olympia Show.—
The chief feature, however, is perhaps the Senspray carburetter, in which air is drawn by the piston through the small bore spraying nozzle at a very high rate. This air, passing over the top of the petrol jet, acts on the injector principle, drawing the petrol forcibly from the jet into the mixing chamber, in the form of a fine mist. In connection with this carburetter a carefully thought out system of handle-bar control is marketed.

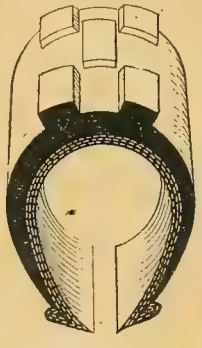
A FIRE EXTINGUISHER.

THE PYRENE CO., Charing Cross Road, London, W.C.—The Pyrene fire extinguisher is a pump filled with flame extinguishing liquid, which is forced under pressure against petrol flames or fire arising from any other cause in a garage, or on a motor cycle or car. The pump is made by the Pyrene Co. The pump is at present made in car sizes only, but the makers intend to place on the market a smaller one measuring 6in. × 2in. The larger size is one which motor cyclists might reasonably hang up in their sheds, and the smaller one, when ready, could be carried either on a motor bicycle or in a sidecar. Pyrene liquid is a chemical combination which as it touches a fire or the heated parts of a motor is converted into a dense white gas blanket, which surrounds the fire and smothers it instantly. It is non-damaging and non-corrosive, and extinguishes flaming petrol in one second.

THE REDFERN RUBBER WORKS, LTD., Hyde, Manchester, and 10, Gresham Street (No. 100).—The Redfern high-grade rubber-studded covers are sold in 26 × 2¼in. and 26 × 2½in. sizes. The



Redfern's extra strong rubber-studded tyre.

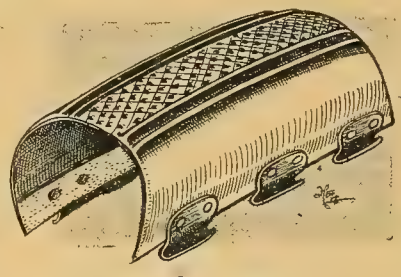


The latest R.O.M. tyre the tread of which is composed of squares of rubber.

covers are built up in three-ply casing with the finest Egyptian canvas. The sidecar cover is made in 26 × 2in., 2¼in., and 2½in. Other specialities of the same firm are the Redfern belting with the canvas core stretched by a special process in course of manufacture, horn bulbs, and wing plasters.

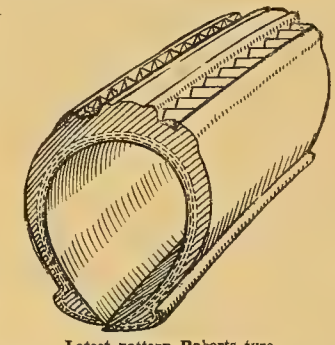
The Renold quickly detachable spare chain link.

HANS RENOLD, LTD., Progress Works, Manchester (No. 185).—The Hans Renold exhibit consists, as usual, of interesting show-boards showing the various processes through which the silent and roller chains pass before they are used for motor cycle transmission. Two motor cycle models are exhibited fitted with Renold roller chains running in oil bath cases. Also a new type of spring clip joint which is an improvement on the 1913 type, being more easily removed or adjusted.



The Roberts tyre band.

ALFRED ROBERTS AND SONS, LTD., St. Mary's Row, Birmingham (No. 7).—Various types of motor cycle covers, rubber studded and of the corrugated



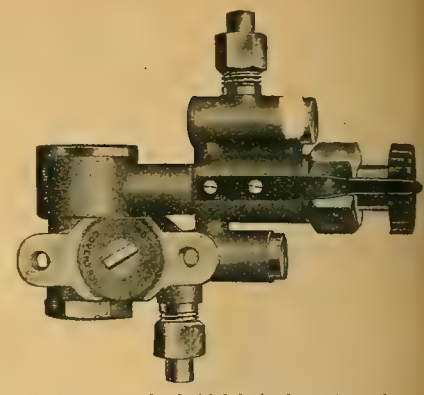
Latest pattern Roberts tyre.

pattern, detachable tubes, bands for re-treads, detachable non-skid bands, belts, gaiters, tyre repair outfits, and other rubber accessories are shown on this stand.

THE R.O.M. TYRE CO., LTD., Brook Street, Holborn, E.C. (No. 1).—The Rom Tyre Co. are showing the combination cover which has been so successful as a non-skid under all conditions, and a special range of tyres for cycle cars, inner tubes, and tyre accessories.

ROMAN RIMS, LTD., Upper Priory, Birmingham (No. 247).—2¼in. and 2½in. rustless rims for motor cycles without joint, seam, or rivet. Also the Roman motor cycle tyres.

ROTHERHAM AND SONS, LTD., Spon Street, Coventry (No. 178).—The principal novelty here is a lubricating system for motor cycles. Oil is contained in a tank, where it is under pressure by the action of a spring, which forces the oil through a drip-feed at a regulated speed to the engine. When the spring handle is turned, oil is drawn through into the 4 oz. tank from the main oil tank. A simple and useful device is a three-in-one petrol gauge, embodying gauge, strainer, and filler. A very neat form

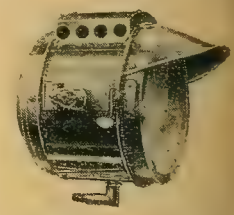


Rotherham mechanical lubricator for motor cycles.

of mechanical oil pump is intended to be driven from the two-speed gear. The driven shaft operates through a worm to the cam, which is thereby made to rotate slowly, operating the plunger of the pump. The stroke of the plunger is simply regulated by a spring device. A number of carburetters, as well as a great variety of other lubricating devices, are also shown.

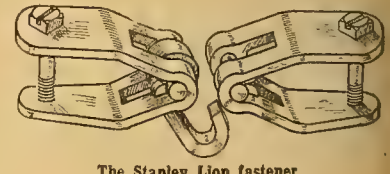
A POWERFUL LAMP.

RUSHMORE LAMPS, LTD., Brewer Street, Piccadilly Circus, W. (No. 213).—This firm's exhibit consists of the Rushmore cycle car acetylene lamps and generators. The Rushmore type of lamp has been extensively copied all over the world and was one of the first lamps of the circular type with adjustable focus and lens. The lamps are excellently constructed.



Rushmore motor cycle lamp.

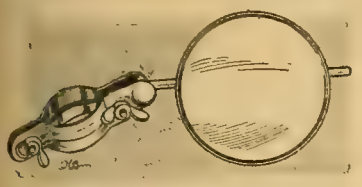
J. A RYLEY, Martineau Street, Birmingham (No. 215).—An extensive exhibit of lamps, components, fittings, and accessories of all kinds. A complete set of components for use in the construction of a cycle car is shown. These are exhibited on the complete chassis, which possesses many interesting features dealt with upon another page. An interesting little accessory is a rear red light for motor cycles. The electric light and small accumulator are fitted inside a little tool bag to be slung on the side of the carrier. A speciality of the firm is the Sthénos carburetter for cycle cars. This is a two-jet carburetter with no moving parts, designed to provide smooth running at slow speeds. Other interesting specialities are the K.E.W. magneto, in which the armature is enclosed in a solid casing, rendering the machine dust and waterproof, and the Vita sparking plug.



The Stanley Lion fastener

The Olympia Show.—

SEABROOK BROS., Great Eastern Street, E.C. (No. 190).—One of the principal novelties here is a neat form of tail



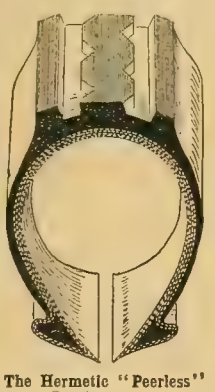
Seabrook Bros.' handle-bar mirror with ball joint. It is adjustable to any length on the armpiece.

acetylene lamp suited for fitting to the rear mudguard of a motor bicycle, and serving the double purpose of lighting the number-plate and showing a light aft. Similar types are also shown in electric lamps. The general range of motor cycle and cycle car lamps, horns, and bells includes a new type of electrically-operated horn.

SELF-SEALING TUBES.

THE SELF-SEALING RUBBER CO., Ryland Street, Birmingham (No. 149).—The pattern of tread employed on several of these covers is extremely interesting, one known as the Peerless consisting of two outer ribs between which a pronounced zig-zag pattern is moulded, which will be the leading line for 1914. Also another zig-zag pattern in which a steel stud is placed in each indentations of the zig-zag, a double zig-zag pattern in which there is a central rib, and a rubber-studded tyre. A speciality is also made

The Hermetic extra strong motor cycle tyre.



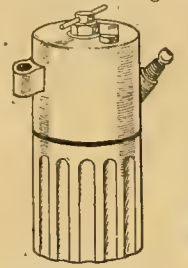
The Hermetic "Peerless" tyre.

of the Peerless cycle car tyre, made in the 650×65 mm. size as well as the 26×2½in. Self-sealing inner tubes and other tyre accessories are also shown.

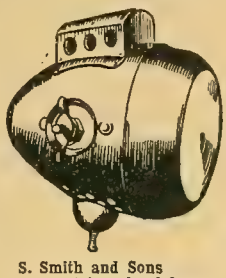
THE SEVERN RUBBER CO., LTD., Newhall Street, Birmingham (No. 71a).—Another large rubber firm hailing from the Midlands is the Severn Rubber Co. This concern has laid itself out specially to supply motor cycle and cycle car tyres of all descriptions, also brake blocks, footrest rubbers, repair outfits, and gas tubing. The last-named are sold in suitable lengths for connecting lamps and generators, and have the Severn moulded ends which prevents the tube from splitting. The cycle car tyres are made both grooved and studded.

ALFRED SMITH, George Street, Birmingham (No. 231).—"VVV" specialities for the motor cycle trade, which comprise among other articles luggage carriers, reflex rear lights, etc. Wholesale only.

S. SMITH AND SON, LTD., Great Portland Street, W. (No. 192).—The important feature here is, of course, the Smith speed indicator. A very interesting and novel exhibit is an aluminium generator, automatic in action, having drip feed and carrying no loose parts—thus facilitating cleaning. The generator is stated to be absolutely unbreakable under the roughest usage. The demand for electric lighting sets is met by a small dynamo giving 8 volts at 6 amps.



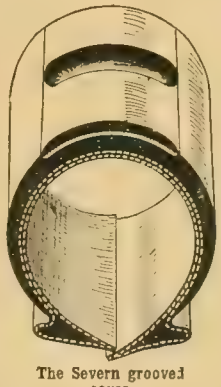
S. Smith & Sons' aluminium generator with corrugated lower portion to afford a better grip for dismantling.



S. Smith and Sons car acetylene head lamp.

This dynamo is built on the same lines as the car dynamos marketed by this firm, the system of regulation being identical, that is to say, there is nothing whatever experimental about the apparatus. The equipment includes egg-shaped lamps of clean design. The general exhibit of this firm is of a character already well known, and all the usual features are to be seen on the stand, including a working model of their well-known carburetter, which has lately shown up so well under R.A.C. tests.

THE SPENCER MOULTON TYRE CO., 75-77, Cannon Street, E.C. (No. 148).—These tyres are sold in three-ribbed pattern and in a combination pattern, which latter is well-designed and should be an efficient non-skid under all conditions. The company has lately paid special attention to the manufacture of motor cycle tyres, and these are becoming increasingly popular.

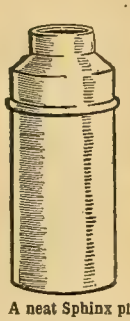


The Severn grooved cover.

The Spencer Moulton extra strong cover, the tread of which is a combination of steel studs and rubber lozenges.

Interior mechanism of Smith's speedometer

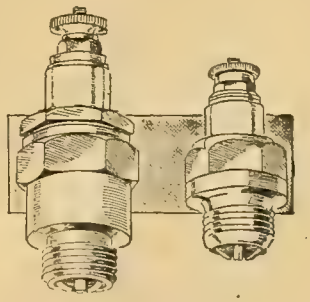
THE SPHINX MANUFACTURING CO., Bradford Street, Birmingham (No. 200).—In addition to a big exhibit of the Sphinx plugs, this firm shows spring handle-bars. A new fitting is a plug



A neat Sphinx plug cleaner.

Sphinx belt punch.

cover, which performs the functions of an umbrella, protecting the plug from inclement weather. There is also a new pattern belt punch of simple design fitted



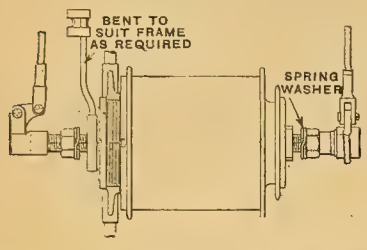
Two types of Sphinx plugs, showing comparative dimensions.

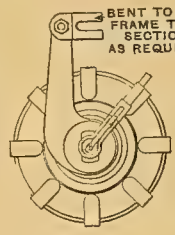
with an additional guide, ensuring that the punch will enter the belt centrally. A new model of plug specially made for racing work will be of interest to some.

THE SPLITDORF ELECTRICAL CO., City Road, Finsbury Square, E.C. (No. 174).—This American-made magneto is exhibited for the first time at a public exhibition. A detailed description of its construction was published in a recent issue of *The Motor Cycle*. The new type shows the latest American practice in magneto manufacture. The same firm exhibit Splitdorf induction coils for their dual ignition system, the Splitdorf plug

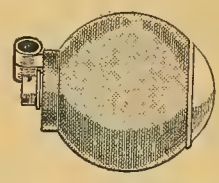
The Olympia Show.—

wire, and Common-sense sparking plugs and cables. Also the Excelsior carburetter, which is a ball-governed device with clock spring control, air valve, and index adjustments for air and gas. The A.P.L. Co. lighting system is an electric lighting equipment, which is said to be easy to install, and is very compact.





Details of the Sturmey-Archer hub.



C.A.V. spherical side-lamp

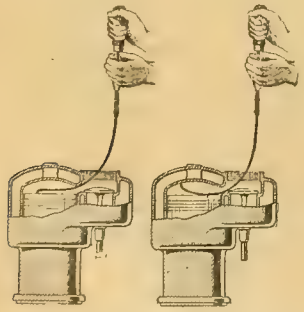
STANLEY FEAST AND CO., Waltham Road, S.E. (No. 217).—The principal novelty here consists of the "Musticon" tyre repair outfit, a feature of which is a rubber double repair stud designed to strengthen the tyre inside and out at the point needing repair. For the rest the exhibit includes a variety of articles to assist in the repair of pneumatic tyres.

A HARD WEARING TYRE.

STELASTIC TYRES, LTD., York Street, Westminster, S.W. (No. 131).—The Stelastic tyre is exhibited on this stand, which, as our readers are aware, possesses a practically indestructible tread which consists of a series of upstanding spirals of piano wire into which rubber is hydraulically pressed, the whole forming an armoured surface. These tyres were used by Mr. Little on the occasion of his ascent of Skiddaw.

STERLING METALS, LTD., Northey Road, Foleshill, Coventry (No. 164).—This exhibit comprises a good variety of air-cooled and water-cooled cylinder castings. Also a variety of aluminium, gun-metal, and brass castings connected with the production of motor cycles and cycle cars.

THE STERN-SONNEBORN OIL CO., Royal London House, Finsbury Square, E.C. (No. 239).—Sternol lubricants are much favoured among motor cyclists. This firm have a special method of testing all their lubricants, and will be pleased to demonstrate to motor cyclists at the above address the quality of their oils. Ambroleum is a gear box lubricant, which is demonstrated in a gear box with the gear wheels running. The box is open and the speed of the shaft is 600 r.p.m. This demonstration is to show the clinging tendency of the lubricant, and the cleanliness under working conditions.



The "Success" carbon removing tools marketed by Brown Bros. Ltd.

THE STONEHOUSE WORKS CO., Houghton Street, West Bromwich (No. 195).—Motor cycle pedals, belt rim brakes, and footrests, footboards, tyre inflators, and a 3½ h.p. motor cycle engine.

STURMEY-ARCHER GEARS, LTD., Lenton, Nottingham (No. 159).—No material change has been found necessary in the design of the well-known specialities of this firm. The enlarged hub of the 1914 model, which is to be seen on the stand, has already been in direct road service for some time past. A detail improvement is to be found in the foot control of the clutch for the 1914 model. The firm is supplying frame backs complete to form a part of almost any motor cycle.

HERBERT TERRY AND SONS, LTD., Redditch (No. 179).—In addition to the usual range of springs, clips, and small brass tools and the like, one of the most interesting exhibits here is a new shock-absorbing link in conjunction with the Druid spring forks to take horizontal road shocks. The result is to relieve the handle-bars practically complete from vibration. Another very important novelty is Terry's new belt fastener. This is made in hardened and tempered steel. The method of attachment to the two ends of the belt is simple, and the arrangement provides a double bearing surface, giving great strength, and quite free from any risk of spreading open.

BRAKE MATERIALS.

THE THAMES RUBBER AND METAL CO., Upper Thames Street, London, E.C. (No. 9).—The Thames motor cycle tyres. These are made in several different types, the principal being the heavy extra strong cover, the heavy-studded cover, and the Thames sidecar tyre. A speciality is also made of the Petrie Fibrax and Fibre brake blocks and the Doncaster's tyre stretcher, the last-named being an instrument used for stretching a cover before fitting it to the rim.

TIMSON BROS., Snow Hill, Birmingham (No. 172).—Wholesale only. Lamps, horns, and other accessories for motor cycles and cycle cars. This firm are export agents for the Levis, examples of which are on the stand.

THE TORMO MFG. CO., LTD., Bunhill Row, E.C. (No. 163).—2½ h.p. and 3½ h.p. single-cylinder engines are to be found on this stand, as well as 5 h.p. and 6 h.p. twins. Of these the 5 h.p. has a bore and stroke of 74 × 85 mm. and the 6 h.p. a bore and stroke of 85 × 85 mm. The valves are situated side by side, and are mechanically operated, while the cylinders are set at an angle of 60°. The finish of these engines and the beautiful casting of the radiator fins are worthy of special attention.

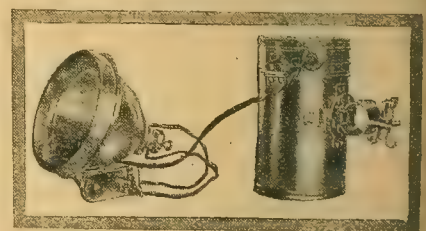
THE VACUUM OIL CO., LTD., Caxton House, Westminster, S.W. (No. 173)—This exhibit is, of course, a full range of lubricating oils, the high quality of which is already well-known to all our readers.

C. A. VANDERVELL AND CO., Acton, W. (No. 234)—A very striking illustration of the waterproof nature of the C.A.V. Ruthardt magneto can be seen here, the machines in operation being situated below water in a glass tank. A new spring advance mechanism for the magneto contact breaker is shown. There are a number of electric side and head lamps of very striking and neat design. There is also a new lighting outfit, consisting of a complete set of lamps and the necessary electrical battery for use on sidecar combinations. The C.A.V. system of electric lighting is, of course, perfectly applicable to cycle cars, and an outfit is shown, the price of which is extraordinarily moderate. The set embodies free-wheel mechanism, which does, in a simple form, the work of a cut-out.

C. C. WAKEFIELD AND CO., Wakefield House, Cheapside, E.C. (No. 154).—A complete range of oils and greases suitable for the gears and engines of motor cycles and cycle cars of various grades is shown. The many successes of Castrol in the past year on both road and track cannot fail to have attracted the reader's attention.

A COMPACT LIGHTING SET.

MESSRS. WESTON'S, LTD., 104, Wool Exchange, E.C. (No. 43), are exhibiting a particularly sound lighting set for motor cycles fitted to a Pope machine. It will be noted that the device is very similar in form to an acetylene lamp and generator, but we should imagine that, weight for weight, the electric outfit would easily prove the lighter. The working is as follows: A battery that can be recharged on the road by the user, by the simple removal of two



A neat electric head light and battery on the Pope stand.

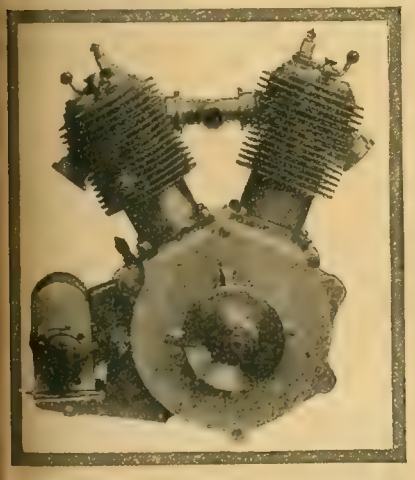
stoppers made airtight by thumb screws, is contained in a cylindrical metal case. When these stoppers are removed, the old or used charge can be emptied and a new charge substituted. A powder contained in a metal case, of size suitable for the pocket, can be carried and then mixed with water and, when stoppers are replaced, light will be given for approximately ten hours; thus the process is extraordinarily simple and compares very favourably with other methods of

The Olympia Show.—

lighting in regard to recharging; also, it is a particularly cheap form of lighting, since the tin of powder costs only about twopence and light is supplied for approximately ten hours. Moreover, vibration does not affect the generator in the least degree; in fact, we understand that the more vibration it is subjected to, the better are the results given, since the solution is well shaken up in the generator. A reversible clip is fitted to the generator, so that the rider can switch on the light by simply reversing the position of the powder. For example, to switch on the light, the generator is turned upside down and is fixed in that position. The light is now on, and to switch off, it is merely necessary to turn it upside down again and the light is swtiched off. This simple operation applies to both the motor cycle and cycle car outfits. The name of the battery is the "Aladdin."

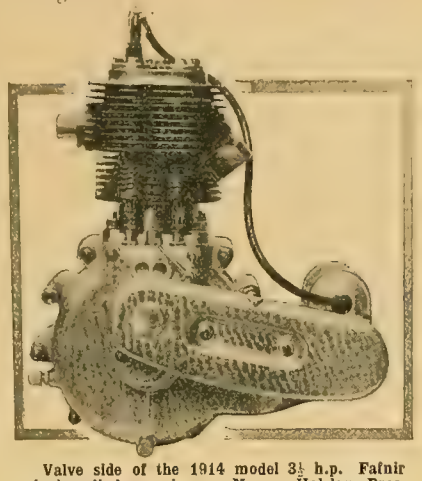
The standard Druid spring fork as fitted to a number of machines at Olympia.

S. WOLF AND CO., Southwark Bridge Road, S.E. (No. 214).—The principal feature of this exhibit is the display of magnetos. The new types of the U.H. introduce certain modifications in the adjustment of the contact breaker, and in the details of the general design. The new type of pole-piece has its extensions drilled out, leaving the tip of the pole-



Pulley side of the 6 h.p. Sarolea engine.

piece honeycombed. the effect being to equalise the strength of the spark for various positions of the sparking lever. New types of the Solex carburetter have been introduced to motor and cycle car requirements, fittings being provided for attachment to an induction pipe, or to a *monobloc* casting. The exhibit also includes steel pressings for cycle cars, sparking plugs, ball bearings, and other fittings and accessories.



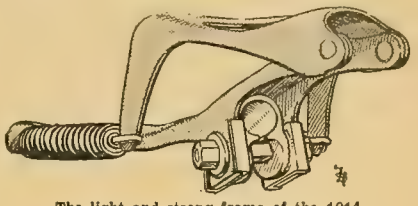
Valve side of the 1914 model 3½ h.p. Fafnir single-cylinder engine on Messrs. Hobday Bros. stand No. 188.

WOOD-MILNE, LTD., Ribblebank Mills, Preston (No. 13).—This year, instead of employing steel-rubber, Messrs. Wood-Milne, Ltd., are using ordinary rubber of the best possible quality in their tyres. The various patterns manufactured are long longitudinal indentations placed at staggered intervals round the tread, a rubber-studded pattern, a type in which there are semi-circular indentations on the tread, and a similar pattern in which the indentations are interspersed with steel studs. The tyres are, of course, manufactured in all the standard sizes.

WOODGATES BROS., Tiverton, Devonshire (No. 176).—Patchquick patent patches for use in conjunction with Patchquick fix, which dissolves the surface of the patch and ensures complete amalgamation between the patch and the air tube. The same firm also exhibit oils, grease, soft soap, cycle black, and calcium carbide packed in neat tins.

THE WULFRUNA ENGINEERING CO., LTD., Great Brickkiln Street, Wolverhampton (No. 221).—This exhibit of the Wulfruna Co. in the gallery is of more interest to manufacturers of motor cycles than to readers. It consists of Pickard's patent lining apparatus for lining the frames and tanks of motor cycles, and consists of a small stylographic pen provided with guides. The point is forced through the point of the stylo by a hand-operated piston, and the guide fixes the distance apart of the lines, also their breadth.

XL'ALL, LTD., Hall Green Works, Birmingham (No. 212).—An extensive selection of saddles with parallel motion adapted to fitting to all makes of motor cycles, the design in each case aiming at the low position without sacrifice of a



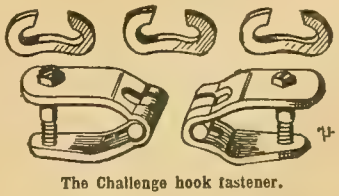
The light and strong frame of the 1914 pattern Xl'All saddle.

great range of springing. An interesting novelty is a combined saddle and spring carrier, the spring carrier of which can be used also as a pillion seat, the same spring mechanism also pro-

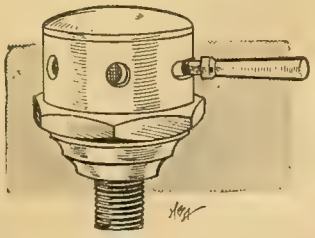
An addition to the Xl'All range of saddles enabling a low position.

viding spring footrests for both riders. A special new saddle for drop frame motor cycles is made with a stamped steel underwork, of which the top and bottom links are stamped out of one piece, the seat-pillar being combined with it and formed of another stamping. This allows room for springs without sacrificing the low position, these springs being readily adjustable at accessible points.

The latest pattern Beldam tyre.



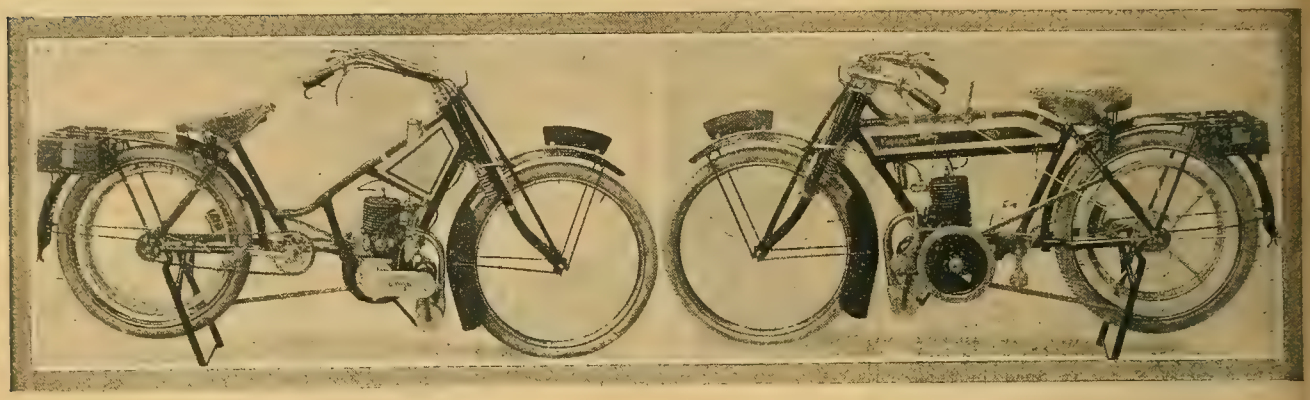
The Challenge hook fastener.



A neat form of extra air inlet supplied by A. W. Gamage, Ltd. It consists of a gauze covered sleeve moving inside an outer casing.

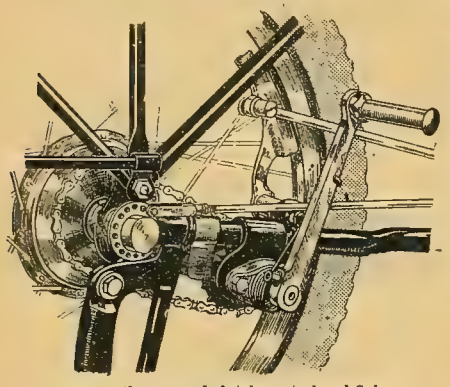
The Midland Rubber Co.'s tyre.

A Varied Assortment of Show Models.

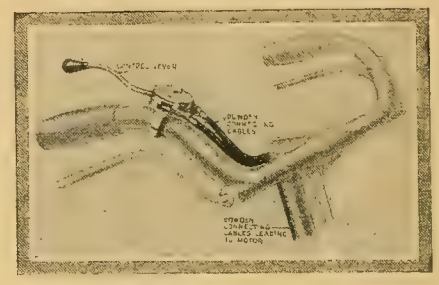


Ladies' model two-stroke Connaught.

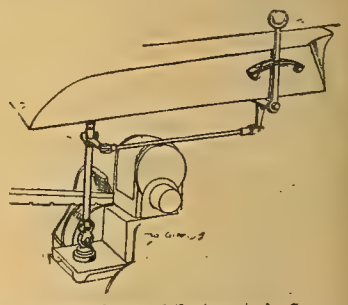
Two-stroke Connaught with three-speed hub gear.



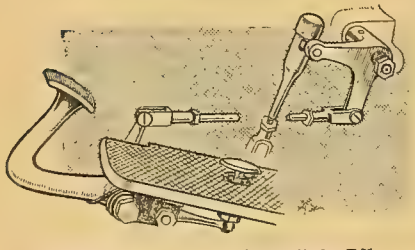
Kerry three-speed clutch control and fixing of rear stand.



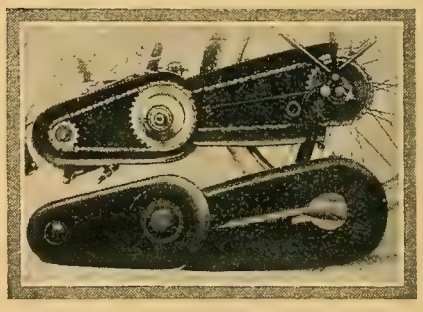
The control lever for the Autocycle wheel.



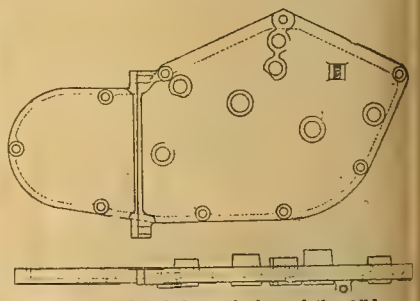
Neat gear change of the two-stroke C yno.



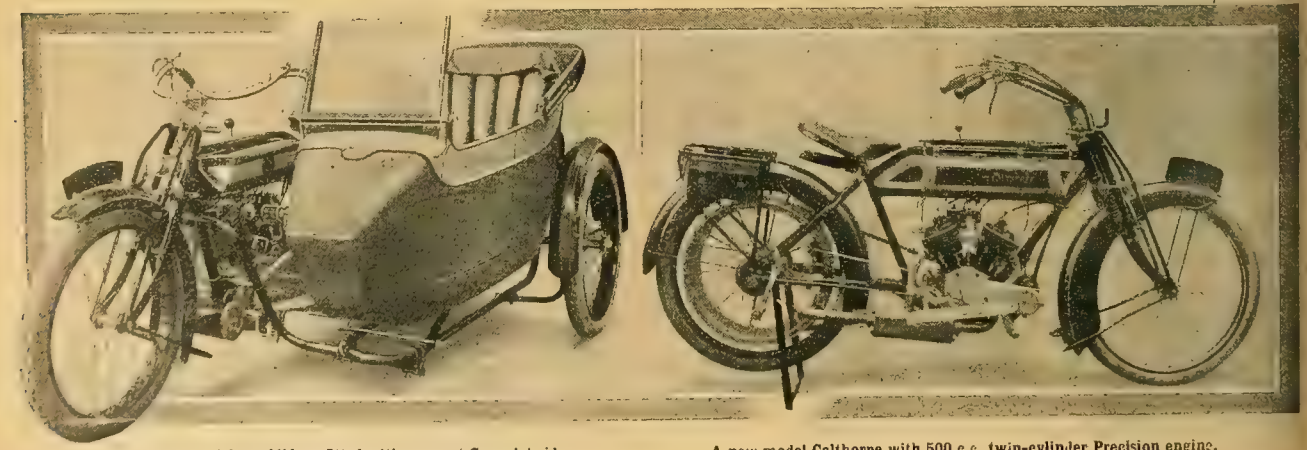
Foot clutch control of the four-cylinder F.N.



Chain cases on the 3½ h.p. James divided vertically, thus exposing the whole of the chains.



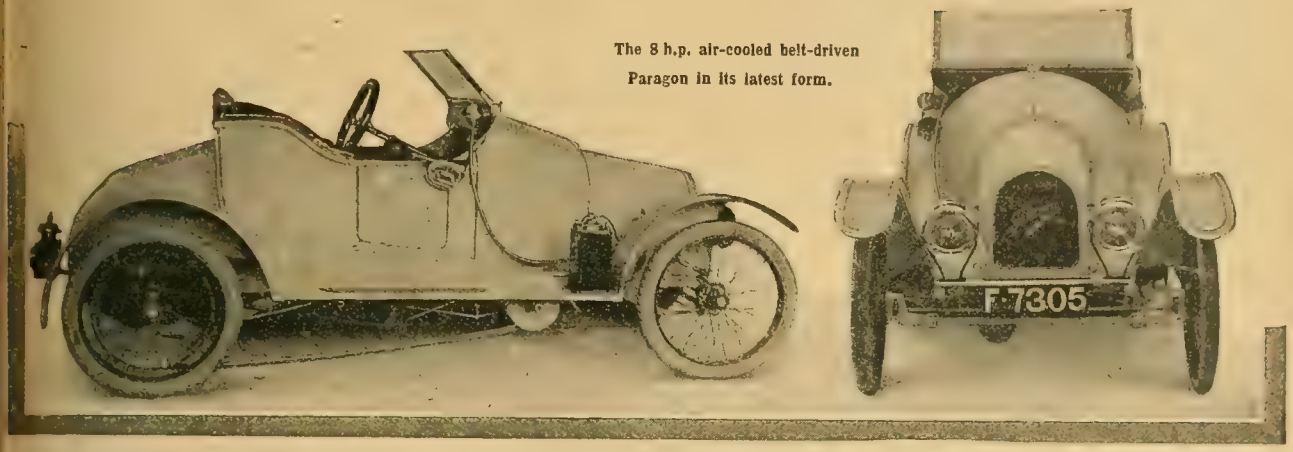
Showing the detachable end piece of the Alldays timing gear case.



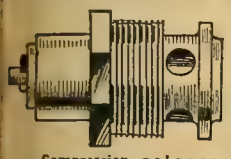
A twin-cylinder chain driven Alldays fitted with a smart Canoelet sidecar equipped with hood and screen.

A new model Calthorpe with 500 c.c. twin-cylinder Precision engine.

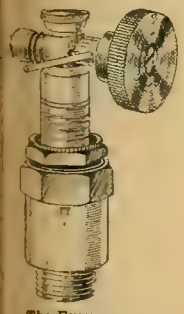
Interesting Machines outside Olympia.



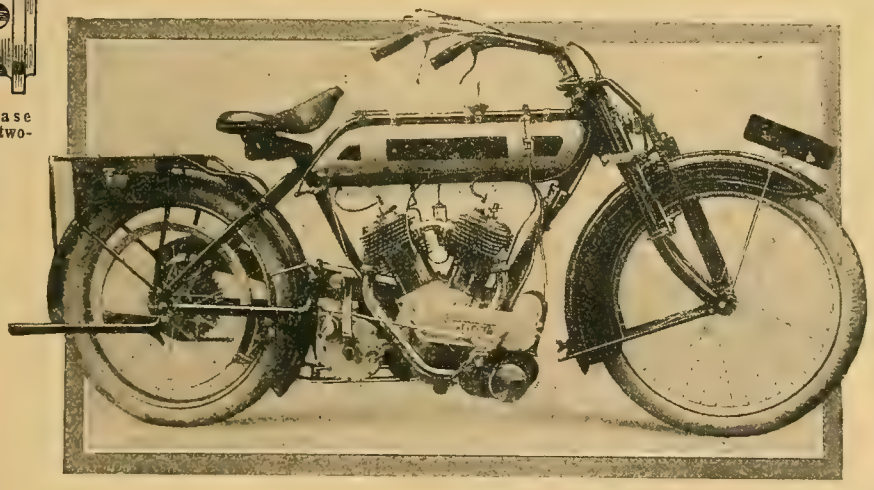
The 8 h.p. air-cooled belt-driven Paragon in its latest form.



Compression release valve on the 2¼ h.p. two-stroke Triumph.

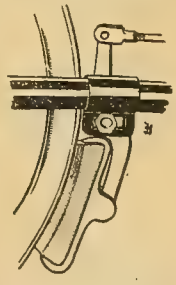


The Eyquem combined sparking plug and compression tap (S. Wolf and Co.)



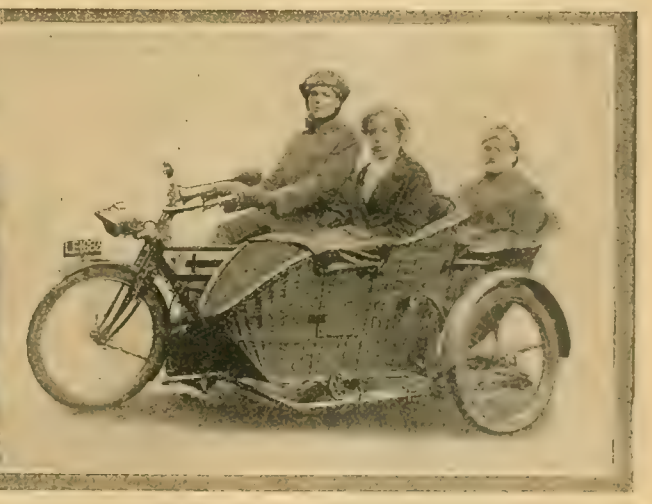
Valve side of the 8 h.p. three-speed chain-driven Dot.

The Enots tank filler cap, made by Benton and Stone.



Substantial rear brake and method of adjustment on the new Excelsior.

Spring portion at the rear of the 8 h.p. Craven. The frame is made up of Chater-Lea parts.



The two-seater Craven sidecar (cane pattern) attached to a 3½ h.p. Triumph

ZENITH AUTOMATIC CARBURETTER.

The Zenith Carburetter Co, 171, Great Portland Street., W., have introduced a small model of their instrument for cycle cars with water-cooled engines.

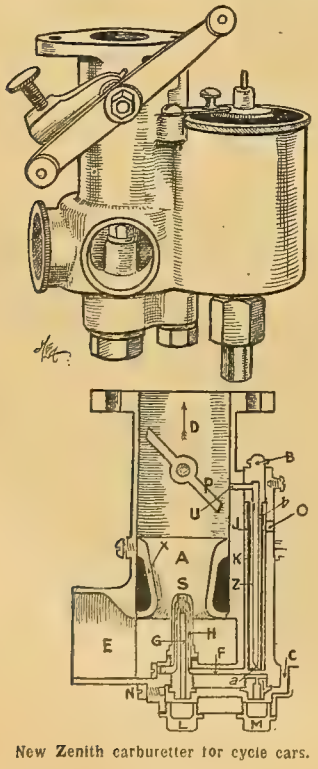
The vertical section shows that the two jets, main and compensating, are disposed concentrically, the compensating jet allowing for a constant flow for a given period of time, this being independent of the suction or depression. To a jet G, drawing petrol direct from the float chamber, is added a compensator H, which is connected to the base of pipe J, the top of J being open to the air. The petrol falls into this pipe J through a gauged orifice projecting from the base of the float chamber. The cross section of J being larger than H, pressure changes within the carburetting chamber can take place without affecting the flow through the gauged orifice beforementioned.

This is the broad principle of the device, and the two jets both have their opening at S, the main jet being in the centre, the space H being connected through F to the top of the gauged orifice or compensator.

Slow Running and Acceleration.

Tubes K and Z give perfect carburation when the engine is just turning over, and enable the engine to pick up without hesitating when the throttle is opened slowly under load. Z is connected to a by-pass U and is situate inside the tube K. This tube has two holes a and b, and, by varying the size of these holes, the quantity of petrol can be regulated. When the engine is pulling, the action in K and Z is *nil*, but for starting, slow running, and picking up they play important roles. For starting they obviate any need for flooding the jets; when running slowly the depression is weak and petrol will rise in K until it reaches Z, when it will be strongly sucked up and sprayed at U.

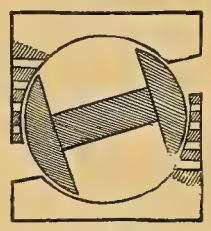
For picking up the sudden rush of air past the jets when throttle is opened is compensated by the petrol remaining in J. This petrol descends and is induced through F and up through S, which, having a large orifice, allows for a rapid flow of spirit. X is the choke tube, and L and M plugs allowing the jets to be readily removed. An inspection window in the side of the float chamber permits the spirit level to be accurately gauged.



New Zenith carburetter for cycle cars.

1914 U.H. MAGNETO.

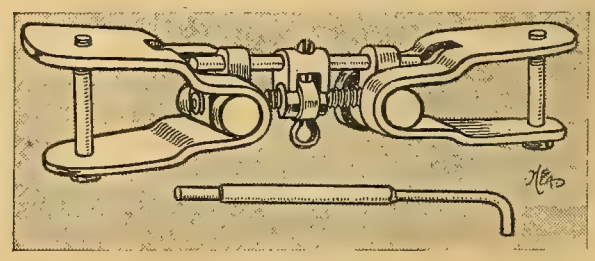
The alteration to the U.H. magneto for 1914 is an extension of the pole pieces over the armature. These are drilled longitudinally with rows of holes, and the range of maximum spark is thereby extended further along. The holes in the pole pieces enable the lines of force to be cut over a bigger range of the contact maker, with the result that the spark at slow speed is as "fat" as at high speed. The engine can be started with the spark fully retarded with great ease.



U.H. magneto for 1914 showing extra portion on pole pieces (shaded) with holes drilled from top to bottom.

AN ADJUSTABLE BELT FASTENER.

We have received a sample of the Hibrul belt fastener, made by the Hibrul Engineering Co., 19, Cannon Street, Manchester. This is an ingenious device, and works as follows: If the split pin be withdrawn and the lever is inserted in the hole through which it passes, by turning the central nut the ends of the belt fastener may be brought nearer together or farther away, according to the direction of rotation. It will be noticed that a guide bar is used to keep the ends of the belt fastened parallel, which is kept in position by a split pin.



The Hibrul belt fastener.

THE PEDERSEN-ALPASS THREE-SPEED HUB.

Mr. Pedersen, the inventor and manufacturer of the well-known Dursley-Pedersen cycle, has turned his attention to the production of a three-speed motor cycle hub gear, the point specially aimed at being to reduce friction on the lower gears as far as possible. We gave the first illustrations and descriptions of this gear in *The Motor Cycle* of 28th August, and now we learn that special machinery is being installed at the Dursley works with a view to turning out the gear in quantities.

The special feature of the hub is that there is only one gearing down for both the middle and low gear, the top speed being the direct or solid drive. All driven parts run on ball bearings, and a friction clutch is interposed between the gear and the belt rim to absorb any shock which might be transmitted to the gear when changing, which is effected by a lever on the tank, movement of which automatically locks the dog clutches and then the friction clutches in one movement. The clutches are easily adjusted externally. It is possible by the adoption of these clutches to employ a single direct chain drive from the engine to the back wheel. Of course, if preferred, a belt, or belt and chain may be used, but the inventor has a decided preference for a single chain as a power transmitter. A comparatively few number of parts are utilised in building up the gear, and a feature worth mentioning is that it is possible to dismantle and re-assemble the gear with no other tool than a screw driver.

The Pedersen-Alpass three-speed hub gear.

We are asked to state that a 3in. cover to fit a 2¼in. motor cycle rim has been manufactured by the Hutchinson Tyre Co for the past two years. This offers readers an opportunity of guarding against tyre troubles without recourse to changing the rim as is usual when fitting a tyre of larger section.

Since our description of the 1914 pattern Rex-Jap appeared last week, we understand from the Premier Motor Co. that it has been decided to fit Kempshall 650×65 mm. tyres as standard.

RECORDS AT BROOKLANDS.

Remarkable Long-distance Runs by Rudge and N.S.U. Riders.

THERE is always great activity at Brooklands about Show time, and strenuous efforts have lately been made to annex various records. On Thursday last the Rudge had quite a field day, for between them C. G. Pullin and T. E. Greene broke no less than nineteen records. The weather was fine, but very windy. Pullin had a long struggle before he got among the records, and it was not until he had covered 250 miles that he beat the previous best, his time being 4h. 11m. 2⅖s., which is a record for Classes C and D. Going on for six hours, the following were his records :

C. G. Pullin, surrounded by a group of admirers who saw him break records at Brooklands last Friday.

5 hours	... 298 miles 1,020 yards	= 59.71 m.p.h.
6 hours	... 358 miles 1,106 yards	= 59.77 ,,
250 miles	... ... 4h. 11m. 2⅖s.	= 59.75 m.p.h.
300 miles	... ... 5h. 1m. 22⅖s.	= 59.72 ,,
350 miles	... ... 5h. 51m. 36⅖s.	= 59.72 ,,

Pullin thus averaged close on sixty miles an hour for six hours—a feat all the more remarkable on account of the high wind prevailing.

When Pullin had finished his 6 hours attempt, T. E. Greene continued the ride on to 7 hours. Greene had made an attempt on the 9 hours record earlier in the morning, starting at 7.30 a.m., but was dogged with valve trouble right up to six hours, when he gave up, as the repeated stops to change valves put him outside the record average. The following records stood to the credit of T. E. Greene and C. G. Pullin at the end of seven hours :

7 hours	... 419 miles 823 yards	= 59.92 m.p.h.
400 miles	... ... 6h. 41m. 21⅘s.	= 59.79 ,,

It is interesting to note that the 7 hours record beats the previous best in Class E for 7, 8, 9, and 10 hours, and establishes a new record for Classes C and D for 7 hours; while the 400 miles record beats the previous best in Class E of 9h. 6m. 25⅘s., made by H. Collier in his twenty four hour ride at Canning Town track (May 5th and 6th, 1909), and also establishes new records in Classes C and D.

On the same day, Lieut. R. N. Stewart, riding a two-cylinder N.S.U. (54½×75 mm.=349 c.c.), established new records in Class B for the following distances and times :

350 miles	... ... 8h. 32m. 4⅘s.	= 41.01 m.p.h.
8 hours	... 328 miles 184 yards	= 41.00 ,,
9 hours	... 369 miles 1,454 yards	= 41.09 ,,

This ride was noteworthy, as it was a genuine amateur attempt, to verify Stewart's ability to ride nine hours at Brooklands to settle a sporting bet made by Stewart with his fellow officers in his regiment. He had no trade assistance whatever, and had his own orderly and servant to assist him. He ran most consistently from start to finish, and would doubtless have done much better but for the very high wind which prevailed all through the ride.

CLUB NEWS.

Ripon and District M.C.C.

The annual dinner took place on the 14th inst.

Islington and District M.C.C.

The annual dinner, followed by a concert and prize distribution, will take place on December 11th at headquarters, Camden Head Hotel, Islington Green.

Dewsbury M.C.

The result of the 100 miles reliability trial, held on the 6th inst., was as follows : 1, C. Sydney (3½ Bradbury) ; 2, F. Rispin (3½ Triumph) ; 3, C. Hart (5-6 Rudge Multi sc.)

Cambridge University M.C.

The results of the hill-climb held at Gazeley Hill on the 8th inst. are as follow :

CLASS V. (any machine up to 1,000 c.c.)—E. I. Gibbons (8 Martin-Jap).

CLASS VI. (unlimited).—E. I. Gibbons (8 Martin-Jap).

CLASS VIII. (cycle car class).—1, C. O. Hayward (10 Singer) ; 2, L. Hansard (8 G.N.)

Burton-on-Trent and District M.C.C.

On Monday, December 1st, a lantern lecture will be given at headquarters (Station Hotel) at 7-30 p.m., by Mr. F. Hunt of Nottingham. The subject will be "Motor Cycle Variable Gears." All local motor cyclists are cordially invited to attend and contribute to the discussion.

The first dinner will take place on Monday, December 8th, and the chair will be occupied by Mr. E. E. Baguley ; vice-chairman, Mr. T. H. Baldock.

A lecture on "Magneto Ignition" will be given by Mr. Bennett (of the Bosch Magneto Co.) on January 6th. Non-members will be welcomed to this lecture also.

Streatham and District M.C.C.

The annual dinner will take place at the Holborn Restaurant on 20th December. Mr. Stenson Cooke will occupy the chair. Medals and prizes to the value of over £150 will be awarded.

Public Schools M.C.

Members who are visiting Olympia are requested to meet at Stand No. 133 at 1.30 p.m. on Saturday, the 29th inst. The address of the hon. sec. is now 21, St. Nicholas Street, Coventry.

Tyldesley and District M.C.C.

The whist drive and dance held at Tyldesley on the 12th inst. proved very enjoyable, there being 103 members and friends present. The first annual dinner, prize distribution, and smoker takes place at Leigh headquarters on December 3rd.

Liverpool A.C.C.

The annual dinner, followed by the presentation of prizes, will take place on the 17th of next month at the Hotel St. George, Liverpool, at 6.45 p.m. On Jan. 3rd the open winter reliability trial will be held from Liverpool to Carlisle and back.

Kidderminster M.C.C.

The results of the speed-judging competition, held on Oct. 18th, are as follow : 1, C. A. Nicholls (2¾ Douglas) ; 2, T. Jenks (6 A.J.S.) ; 3, H. Walker (6 A.J.S.). No watches or speedometers were allowed, but one competitor, on being searched, was found to have an alarum clock and six watches concealed on various parts of his person and machine. The members were afterwards entertained to tea by Mr. and Mrs. H. E. Pritchard at the George Hotel, Bewdley.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Do Sidecars Skid?

Sir,—I notice your contributor "Ixion" states that he has never known a sidecar skid. I have. I ride a 7-9 h.p. Rex and sidecar, and recently drove from Llanfair Talhaiarn to Manchester (after heavy rain), *viâ* Abergele, Flint, and Chester. The machine skidded from side to side quite frequently, the tail evincing a desire to get broadside to the road. My friends on Matchless and Triumph outfits experienced the same thing. All three outfits are properly aligned and steer "hands off" on crown of a dry road.

REGD. LOCKE.

Excessive Garage Charges.

Sir,—"Lightweight" complains of ill-treatment at a garage near Victoria Station.

I also recently left my machine, a Douglas, at a car garage near Victoria Station. I was obliged to do this, as the oil tank having become empty I was in danger of damaging the engine.

When I called for the machine some hours after, I was allowed the use of appliances, supplied with a tank full of oil, and given some slight assistance.

For this a charge of 6d. was proposed by the garage people; indeed I had some difficulty in compromising at 1s.

I hope you will find space for this communication in justice to garage proprietors who are not all mercenary to the degree one might be led to suppose.

J. SYDNEY CABLE.

Engine-shaft Gears.

Sir,—Noticing much controversy lately in *The Motor Cycle* as to the relative merits of hub and counter-shaft gears, I have been rather surprised to see no mention made of engine-shaft gears. One sees very few of these about considering what serviceable gears they are. I have now had one of the Millennium Fit-All two-speed gears running for three years on a 5 h.p. sidecar combination, and a few days ago I dismantled it for examination. All the gear wheels and working parts were absolutely without any sign of wear, and although I have not oiled or greased its internals for two years, it was still in quite a greasy state. The only thing necessary to be done was to true up the groove in the belt pulley in the lathe.

As regards its control, it is absolutely foolproof, one lever does the lot, high, low, and F.E. from the side of the tank; the changes can be made as quickly as one likes without lifting the exhaust valves as the gears are epicyclic and always in mesh. Should the clutch ever show signs of slipping it can be easily adjusted in a minute on the roadside. The clutch requires no oiling of any kind and cannot possibly seize up.

No doubt some of your readers will say, "What about the extra wear on the engine-shaft bearing, due to overhang and weight of gear?" I can only reply from experience—the phosphor bronze bush I fitted two years ago is practically without a shake to-day; in fact, it is as good as the day it was put in and will, no doubt, run another two or three years. I think that the gear also makes the engine run more smoothly, acting as an outside flywheel.

The chief disadvantage is the inability to start without jacking up the back wheel on the stand. I am surprised the makers have not overcome this difficulty long ago (perhaps they have ere now), as, with a little thought, suitable mechanism for a kick-starter could easily be fitted. Personally, nine times out of ten I make a push start in top gear and try to arrange my stoppages as much as possible on the level or downhill, but in any case it is an easy matter to start the other way on the stand and glide off even on a steep hill.

Its chief advantages are cheapness as compared with other types of gears, reliability (it has never let me down yet), wearing qualities, foolproofness, and simple manipulation. If it should happen that the gear should become deranged from any cause, it can be taken off in a very few minutes and an ordinary pulley slipped on and used temporarily—the machine is at least not totally disabled as it otherwise would be, perhaps for weeks, should the back wheel have to be sent away.

One advantage of having hand control (as against foot levers), and one that I have not seen mentioned before, is: Sometimes one meets with a lot of newly laid metal, say, in a country by-road, or one gets "lost" and finds an almost impossible tortuous hill facing one, fit only for a goat; the passengers can dismount and the driver work the clutch by hand whilst walking alongside the machine as slowly as he likes. The tyres and machine are thus saved a great deal of unnecessary wear and tear and more than once I have been glad of having hand control to my clutch.

It would be rather interesting to hear other of your readers' experiences with engine-shaft gears.

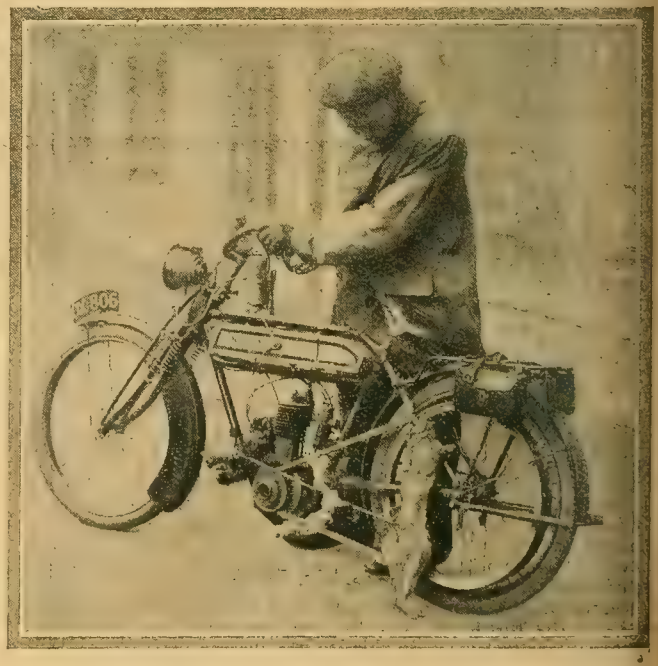
AF 274.

Rabbit Catching.

Sir,—Isn't this rather a novel way of catching a rabbit?

I was travelling between Colchester and Ipswich on Sunday evening, the 16th inst., and this rabbit was struck by the front wheel of my machine and apparently flung backwards on to the belt. Dismounting, I looked for bunny, but could not find him, but on looking for traces on the machine I was surprised to see him hanging up as you see in the photograph. His crushed appearance is worthy of notice. I wonder if any of *The Motor Cycle* readers have seen one caught by a machine like this before. It would be interesting to know.

E. FELGATE.



A rabbit caught by a motor cycle (see letter from E. Felgate).

Shippers' Delays.

Sir,—Abroad one is constantly hearing of cases of neglect and indifference on the part of manufacturers and shippers, but I think my particular case is worth mentioning. On July 15th I cabled to a friend to purchase spare forks from the makers of my machine. He called on them within three days explaining what I required and paid their bill. The makers proceeded to hand the package over to a shipping firm for despatch, and they advised me on the 24th July of what they had done.

I waited nearly a month, but failed to hear from the firm of shippers, so I wrote again to the makers and have just received their reply, merely repeating their first advice and adding that they are communicating with the shipper. To-day, although exactly three months since my cable, I have not got the forks. Wanting them badly I cabled again to my friend on the 3rd September, and learned the name of the ship they were despatched by, which ship did not leave England till September 8th. The ship is now in Karachi, but as I have had no advice from the shippers as to who are their clearing agents here I am helpless.

It so happens that I was able to effect a temporary repair whereby I could still use the machine, but had I not been able to do so you can imagine what a great deal of trouble I should have been put to. EXILED.

Karachi, India, October 14th.

A Gradient of 1 in 1.

Sir,—"Ixion" appears to have been catching it hot lately from some of his ultra-critical readers, but he is not the only sinner.

I note with interest in your issue of the 13th inst., p. 1459, a photograph of a Clyno-ite on a gradient of 1 in 1, and on the advertisement, p. 81 of same issue, a photograph of the Excelsior climbing 1 in 2.44.

Should any Midland club want a new hill-climb I can recommend Woollas, up the Worcestershire side of Predon Hill. C. W. HELLIER.

Sir,—*Re* the photograph of the driver of the Clyno on a gradient of 1 in 1 which you published in the issue of November 13th. Surely this is a mistake, for a gradient of 1 in 1 gives a base angle of 45°, and in the photograph it appears to me to be nearer 90°. Assuming the mountain side is perpendicular, then the gradient is ∞ in 0 and $\frac{\infty}{0} = \infty = \tan 90°$. VULCAN.

[Our correspondent is in error, the inscription is quite correct. In *The Autocar* of June 22nd, 1912, page 1117, we read: "A gradient of 1 in 10 means that if a vehicle starts from a certain point and is driven over ten units of distance (whether the distance be in feet, yards, or kilometres), in traversing this distance the vehicle rises up one foot, one yard, or one kilometre, as the case may be." Also in *The Engineer* of November 15th, 1912, page 509, in an article by Mr. H. E. Wimperis, M.A., it is stated that to climb a gradient of 1 in 10 a tractive effort of 224 lbs. per ton is required. Following this line of argument, we find that to climb a 1 in 1 gradient 2,240 lbs. per ton will be necessary; in other words, the whole weight is lifted vertically. We believe that in mining engineering the tangent is taken to represent the gradient, but in road work it is customary to take the sine. The difference, however, is very slight even on the steepest hills met with on the roads, *e.g.*, an angle of 14° measured by the sine method is 1 in 4.13, by the tangent 1 in 4.01. On the Continent gradients are expressed in percentages, and they can also be expressed in the angle made with the horizontal. It is simply a matter of custom, but it is interesting to note that the sender of the photograph in question called the gradient 1 in 0.—ED.]

Reflex Mirrors.

Sir,—Your contributor "Ixion" evidently does not understand what he describes as "the fierce hatred of many cyclists towards the red reflex mirror," although he partly explains the attitude by his own declaration that "there would be much more to say in favour of compelling all pedestrians to wear phosphorescent hats after sunset." The real reason for the so-called "fierce hatred of many cyclists" is not an objection to reflex devices *per se*, for they are as harmless and as useless as a gollywog mascot, but many cyclists can fortunately see beyond the end of their noses, and motorists have themselves given the show away, so that it is clearly understood that the reflex device agitation is only intended as the thin end of the wedge for the ultimate object of bringing about a compulsory second lamp, and it is this ultimate object which explains the "fierce hatred" "Ixion" cannot understand. If motor cyclists had displayed the same "fierce hatred," they would have received the sympathy of all cyclists in their present state of consternation over the recent divisional court judgment, for the difficulties, danger, and general unnecessary nuisance of a second lamp on a motor bicycle are even more so in the case of an ordinary bicycle. Further, an ordinary cycle cannot be left standing by itself as an obstruction in the road, and the cyclist on the road is not nearly such a danger as a pedestrian, a flock of sheep, cattle, etc., so that before the rapidly moving cyclist requires to be illuminated, the pedestrian and all other road users would have to be compelled to carry tail lights, which statement has only to be made to show the absurdity of the present demands taken to their logical conclusion. Under the conditions of atmosphere mentioned by "Ixion," it is well to bear in mind that if the cyclist is "practically invisible till the motorist or motor cyclist is within a "yard or two of him," it is equally certain that the motorist's or motor cyclist's lamps are not powerful enough to illuminate any reflex device, and if the cyclist is in danger, the pedestrian must be in danger four times as much. W. F. COOK.

[We cannot agree with our correspondent. Motor cyclists have no wish to saddle cyclists with rear lights, for motor cycles would naturally be included in any order of the kind. It is not true that a good reflex light is useless; the red buttons and cheap imitations certainly are, but a good reflex light properly attached in a horizontal position is visible at least twice as far off as the cycle is without one. It is, as a rule, harder to see a cyclist than a pedestrian.—ED.]

Luminous Paint on Speedometers.

Sir,—I have just purchased a watch with so-called radium painted figures. They show clearly in the dark. Could not our speedometer figures be painted in the same way? or even if only the ten-mile figure and pointer were painted, it would be a great boon to motor cyclists.

A. CUNNINGHAM (REV.).

AT OLYMPIA. Three-quarter front view of the 2¼ h.p. two-stroke Triumph, showing outside flywheel, large silencer, and belt drive

Two-stroke Lubrication.

Sir,—With reference to the principle of mixing the oil with the petrol, neither the Bordesley Engineering Co., nor the Americans mentioned in your footnote are entitled to the credit of originating this, unless the period you describe as "some" goes back ten or twelve years.

So far back as this Mr. Charles Garrard originated this system, and I have some of the special oil he used now by me. "*Palmam, qui meruit, ferat.*"

For the guidance of some of the future "inventors" who will make and claim a great discovery, I may recall the fact that he used it on a *four-stroke engine*. A. C. DAVISON.

Carbon on Sparking Plugs.

Sir,—Having recently experienced some trouble with regard to sooting up of sparking plugs, I was much interested in Mr. J. F. B. Carslake's letter on the subject, and found that an external gap certainly cleared the plug points.

I was intending to try the effect of a small capacity as suggested, but have been rather deterred (having no rubber trousers) by the experiences of Mr. Jabez Hyde-Thomson. I am not quite clear what part of the circuit Mr. Thomson obtained resonance with, and it would be interesting if he would state whether his engine developed more power, as from the first mentioned letter it appears that it should do so, owing to the intensified heat of the spark.

A SEEKER AFTER KNOWLEDGE.

A Long Climb.

Sir,—A short time ago I climbed to Tosari on my 2¾ h.p. Sunbeam. That is a rise of 5,825 feet in fourteen miles, *i.e.*, 1,419 feet higher than Ben Nevis. I should think this is a record climb for a 2¾ h.p. motor cycle at least.

I did the climb in just under one and a half hours and entirely on the saddle. I was only off the machine three times, once to read a notice board, once to admire the view, and once I skidded in deep sand on a hairpin corner.

There was a difference of 30° in the temperature between the foot and the top, *i.e.*, 92 to 62, both in the shade. At the foot, sugar cane, bananas, and other tropical vegetation were growing; at the top, fir trees, roses, etc. The machine is absolutely standard, with gears 5.3 and 10.4, and has done over 5,000 miles. By the by, it still has both its original chains, and neither has broken in spite of what Mr. Bowden said. There was no sign whatever of overheating, though the climb was quite close to the equator and done at midday. LEWIS PECK.

Soerabaya, Java.

Why More Air with Benzole?

Sir,—After my protest against the loose statements made by "experts" concerning carburation, I rather expected some brickbats, and was considerably heartened, Mr. Editor, by your cautious approval; I did not expect, however, such ill-aimed boomerangs as have been discharged by "Chemist" and Mr. Preston.

The sentence in "Chemist's" letter to which I took exception was, "the higher proportion of carbon to hydrogen in benzole shows us why we must give more air than with petrol." I pointed out that, weight for weight, carbon requires about one-third as much air for combustion as hydrogen does. Now "Chemist" (and Mr. Preston with him) corrects me, saying that I should have considered gaseous volumes, that one volume of "*gaseous carbon*" requires four times as much air for burning as an equal volume of hydrogen; the correction that is called for is, in my opinion, of "Chemist's" intelligence—I had not dreamed that he would be guilty of thinking of such an absurdity as "gaseous carbon" existing within miles of a motor cycle. I should *not* have considered gaseous volumes, but suppose we do, and do it correctly, take equal volumes of petrol gas and benzole gas, then a chemical formula representative of them must be assumed: let us say C_6H_6 (benzene) for benzole, and C_7H_{16} (heptane) for petrol, though I am quite prepared to accept anything better. Then $2C_6H_6 + 15O_2 = 12CO_2 + 6H_2O$, or 2 vols. benzole gas and 15 vols. oxygen will combust completely, and $C_7H_{16} + 11O_2 = 7CO_2 + 8H_2O$, or 1 vol. petrol gas and 11 vols. oxygen will combust completely. The method of Mr. Preston and "Chemist" has brought us to the interesting conclusion that, taking equal volumes of petrol gas and benzole gas, the *former* requires almost 1½ times as much air as the latter for combustion; surely, then, it stands to reason that, if, as is the case, on substituting benzole for petrol in our carburetters, combustion is incomplete unless we give more air or narrow the jet, there must be much more benzole drawn from the original jet than there had been petrol under like conditions, and in my last letter I ventured to suggest the explanation of this. CAMERON GIBSON.

Power for Sidecar Work.

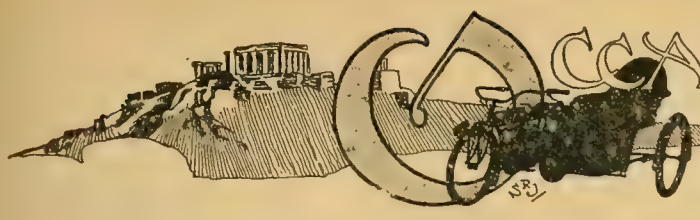
Sir,—Being a constant reader of your valuable journal, and having read the correspondence recently appearing in your columns relative to sidecar work, perhaps the following brief account of my experience may prove of interest to your many readers. I bought a 3½ h.p. Bradbury, two-speed gear and sidecar early last May, and up to the present I have covered well over 5,000 miles. I use my machine daily in all kinds of weather for business purposes, and have had absolutely no trouble with the exception of tyre trouble and defective belts.

The latter fault, I may say, has been remedied since I used a Whittle belt, which I think has no equal. My Bradbury has brought me over most of Ireland, including the worst roads and hills with which we are "blessed." I have done several day trips of over 100 miles, and on one occasion I covered 227 miles in the day with a 12 st. 9 lb. passenger and numerous spares through Wicklow and Wexford counties, which boast of unlimited stiff gradients and mountain roads, and my only trouble was punctures. I have been for four days over the worst part of the West of Ireland, some of the roads being mere sheep tracks full of ruts and stones, and, as my passenger can testify, we completed about 350 miles with no trouble except one puncture, which we got in the town of Ballinasloe. Furthermore, while in Galway city we met motor cyclists from various parts, who congregate for the Galway Races, and they, one and all, had tales of woe to tell, including sidecarists with 6-8 h.p. outfits. During the strikes in Dublin (which are as yet unsettled) I have on dozens of occasions carried four and five passengers to and from the city, and on one occasion I brought three passengers to Drogheda, a distance of 35 miles from my home, without the slightest difficulty.

So far in my travels, I have not come across any hill which has proved too much for my Bradbury and sidecar, and for economy and freedom from trouble I think the 3½ h.p. single cylinder machine will be very hard to beat.

I can assure you that the owner of a sidecar combination has been much sought after in Dublin of late, and especially when we had no tram service after dusk. I only joined the motoring "fraternity" in May, and I have no interest of any kind in any firm. H. A. MULLETT.

H. A. Mullett with his 3½ h.p. Bradbury sidecar and complement of four passengers



OCCASIONAL COMMENTS

BY 'IXION'

The Cost of the Sidecar Outfit de Luxe.

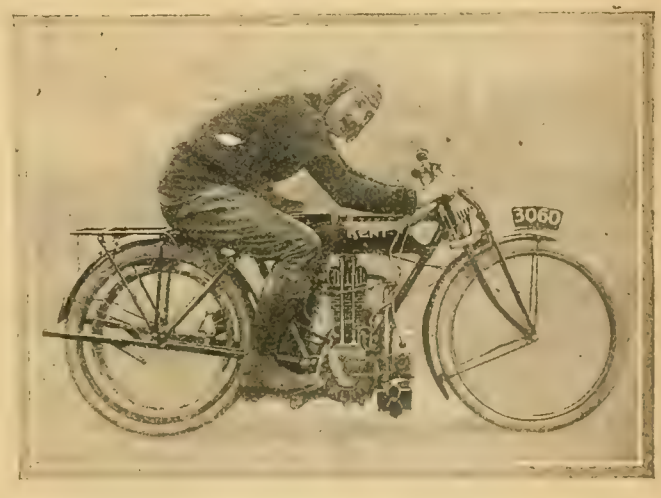
Last week I was inspecting an up-to-date sidecar outfit, newly purchased by a fellow-enthusiast, and, in reply to my query, he confessed that the bill left him no change out of £100. My year's riding has afforded ample evidence that such outfits are as common as blackberries in the more popular touring districts. *Ergo*, there is an enormous potential demand for the high-class £100 cycle car. It is ridiculous to assert that the first-class £100 cycle car is either a mechanical or a commercial impossibility. The fact is that the firms with most experience and capital have treated the cycle car with marked lukewarmness. But we need good cycle cars. Factories can be run up in a few months nowadays The firms of real standing could get ample capital subscribed in a week for a cycle car offshoot if they gave the least evidence that they had a first-class design. It is ridiculous to imagine that the entire inventive talent of a big concern is employed from January 1st till December 31st in planning the adoption of a new lubricator and the transfer of a gear from the hub to the counter-shaft.

Two-stroke Lightweights.

The new miniature two-strokes give more promise of a final solution of the ancient town runabout problem than any of their predecessors. Judging by the latest examples, the worry of "four-stroking" at low speeds is being rigidly eliminated, and they lend themselves admirably to no-trouble transmissions—a point that has spelt shipwreck to many a clever effort in the past, whilst they also surmount the difficulty of constructing wee valve parts that can stand up under heavy spanner-tightening, for the valve caps, etc., of a 1 h.p. engine should be, if anything, tighter than those of an 8 h.p., and they have often crumpled up when a big wrench was forcibly applied. Many tiny engines of the last decade have leaked air in and oil out at every pore, but the two-stroke design dodges all this. I am a little disappointed in the weights which seem likely to rule in this class. Equipped with a two-speed gear, they often outweigh the original single-geared Douglas, which has turned the scale at 110 lbs., or even less, and not a few weakly, elderly, or timid gentry of my acquaintance found that too much. I admit that the specification is an improvement on any single-geared four-stroker, but we want reductions in both weight and cost ere we can genuinely tap the lower financial strata of the movement in *posse*. Lower prices should come along with bigger outputs, but weight is a matter for designers. It will be a mistake if these feather-weights are developed up towards the luxurious specification of a £50 roadster. They should be developed down to a weight and down to a price if they are to afford entry into the sport for the waiting millions. As rivals to the medium and heavy-weights, they cannot hope for more than a restricted future.

What is an Emergency Gear?

The sales of one or two ingenious variable gears, limited by their design to a bottom gear ratio of 7½ to 1, or thereabouts, have probably suffered a little during the last two seasons by the excessively low ratios employed by the cracks in big competitions and by the atmosphere thus created, which suggests that nothing under double figures is of real use to the go-anywhere man. It should be clearly understood that in the Six Days Trials the astute expert knows he may have to tackle an almost perpendicular precipice, when its surface is sloughed up by rain, when the previous ascents have ploughed deep ruts in all directions, and with singles and sidecars either baulked or crawling immediately ahead of him. Consequently he is wise to fit as low a ratio as the design of his machine will permit; and if the design of the machine limits him to a 7½ gear, he will naturally feel more comfortable with a 750 c.c. or 1,000 c.c. engine than with one of 500 c.c. But the ordinary tourist is in rather a different position; he seldom tackles a freak hill; when he does, he has the road practically to himself; he need not—and probably will not—attempt such climbs in frightful weather, and under urgent pressure to avoid a first-time failure. For him a much higher emergency ratio may suffice. I personally have climbed practically every notorious freak hill in England, Wales, and Scotland on a 7½ gear with a 500 c.c. engine; and there are men who have been up most of them on a 6½ gear. No private rider need therefore disdain a solo machine because its emergency gear ratio is no lower than 7 or 8 to 1, though it is true that a 9 or 12 ratio will give him more confidence and a greater mastery.



C. W. A. Korner on his 3½ h.p. Rova-Kent motor cycle, which was built and designed by Messrs. Eglington and Clarke, of Adelaide. He made fastest time of the day in a hill-climb organised by the South Australian M.C.C. Note the engine, which has two inlet valves and two exhaust valves of the overhead type, and a ported cylinder. The crank case is of gunmetal; a Bosch magneto and B. and B. carburetter are also fitted

An Overall Legging Tip.

Many riders dislike a pair of full-seated waterproof overalls because of their lack of ventilation, and the type which terminates at the thigh is easily the most popular. The supporting straps usually button on to the trouser brace buttons, and are a shade tiresome to adjust or remove. Last week I saw an improved pattern with long, thin, flat steel hooks designed to slip over the waistband of the trousers. I commend the idea to the notice of motoring outfitters.

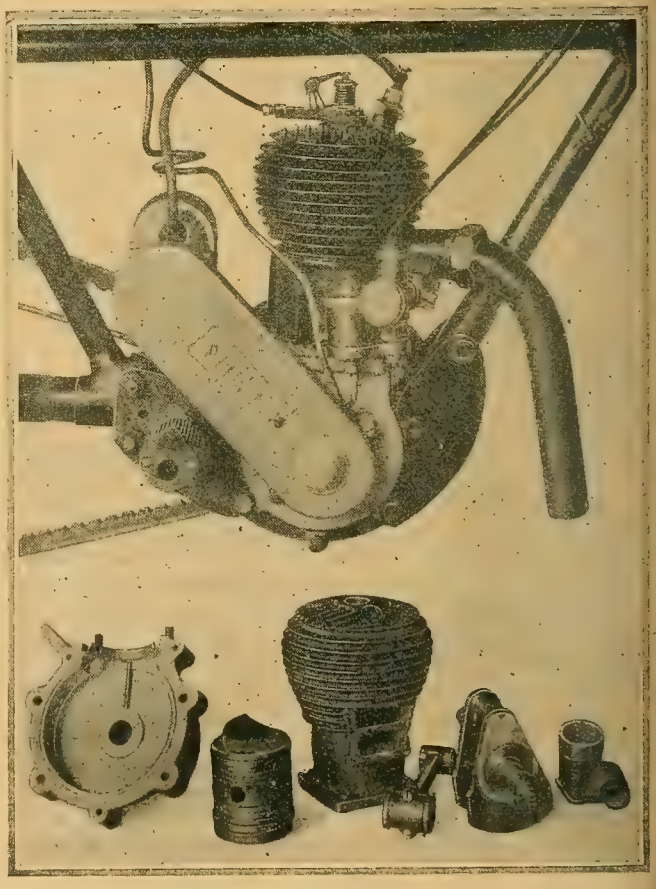
The 600 c.c. Class.

Of course, the growing popularity of the 600 c.c. class is solely ascribable to the sidecar boom. The 500 c.c. has power enough and to spare for all rational solo work, but it is a trifle too small to afford complete satisfaction with a sidecar. Such an outfit clamours for second gear too soon and too often, besides occasionally giving best to a bad hill. The manufacturer does not wish to be bothered by the production of two models of 500 c.c. and 600 c.c. respectively, identical in everything except engine measurements, and so the 500 c.c. enthusiast is to be saddled with an extra 100 c.c. which he never asked for, in order to suit the convenience of the makers and their sidecar customers. However, I don't suppose anybody will complain, for there will be no perceptible increase of price or of running expenses, and the situation is that we are being given a little extra power for nothing—not at all an objectionable position to be in. At the same time I wish that an alternative solution had been adopted, and there is still time for recourse to be made to it before the markets crystallise into a fresh set of stereotypes. Surely the 600 c.c. twin-cylinder is a better proposition from the sidecarist's point of view. These high efficiency 500 c.c. engines are already very near the limit size for a sweet-running single-cylinder, and indeed they have only survived in solo use because they are throttled right down during 75% of their annual mileage, and are only given their heads for an occasional scrap or a bad hill. In sidecar use such engines are opened well out for quite 50% of the mileage, and the merits of a twin-cylinder design are then borne right home to the fastidious owner. Moreover, the sidecar machines of the near future will all have two-step drives, and as transmissions increase in rigidity, the difficulty of getting the sweetest running from a big single-cylinder will become more acute, and the development of 600 c.c. twins should be imminent. The A.C.U. may exert a great influence on this dilemma. If they foster the over-size single by catering for it in the 1914 competitions, the 500 c.c. single may get squeezed off the road. If the A.C.U. ignore the over-size single for no more than twelve months, I would wager that the 600 c.c. twin takes its place in the sidecar world, and the 500 c.c. single is left untouched for its present devotees. I am not at all sure that this solution is not eminently desirable. What I feel is that I should never dream of asking for the power of my present 3½ h.p. single to be increased—it can do all I want and more; but if the trade and the A.C.U. act in haphazard fashion, a bigger engine may be forced on me, *nolens volens;* and I cannot think that the bigger single will run quite so sweetly as my present 500 c.c. I have tried several over-size singles, and granting that they were all a little young and raw, I greatly preferred my refined 3½ h.p.

THE F.B. TWO-STROKE ENGINE.

THE F.B. engine, which is the result of much study and experience on the part of the makers, will shortly be placed on the market by Messrs. Fowler and Bingham, 32, Coventry Road, Hay Mills, Birmingham. The engine is built on car lines, with anti-friction metal-lined bearings throughout and a 1in. mainshaft. Great care has been taken in the spacing of the ports, a great factor in efficiency. The bore and stroke are 78 × 86 mm., giving a cubic capacity of 411 c.c., and an outside flywheel is fitted. The lubrication system is forced automatic, but we cannot give details until the patents are completed An Amac carburetter and Bosch magneto complete the power unit. The engine is said to be capable of a speed of 50 m.p.h. for half an hour at a time, and accelerates well. A consumption of 80 m.p.g. has been attained, but it is hoped to improve on this after the engine has been well run in. The compression release valve is in the head of the cylinder.

Last week we had an opportunity of observing the behaviour of the machine on the road, and it certainly has a very crisp exhaust. As regards its efficiency we can only say that we observed it taking a sidecar and a third passenger on the carrier with ease, though it had but one gear of a ratio of 5⅛ to 1. Last week it was being run on a mixture of petrol and oil with satisfactory results.



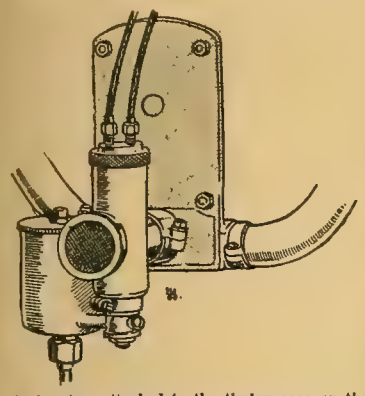
THE 3½ H.P. TWO-STROKE F.B.

(1) Engine showing general arrangement.
(2) The component parts.

THE THREE-CYLINDER HUMBER.

A Clever Machine which is not being Exhibited at Olympia.

ONE of the most interesting machines which was to have been exhibited at the Olympia Show is, we regret to state, not on view. The motor cycle we refer to is the three-cylinder horizontal Humber, which was described in a recent issue of *The Motor Cycle*.



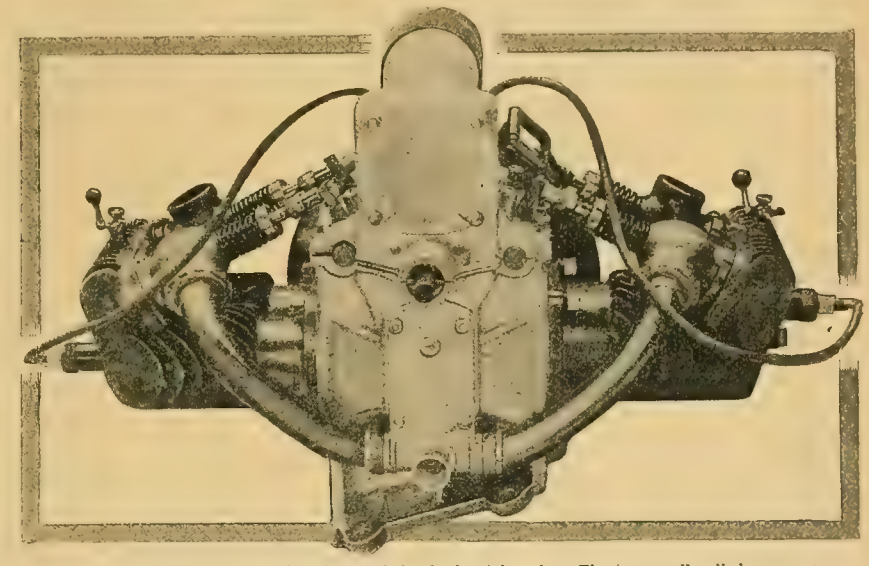
Carburetter attached to the timing case on the three-cylinder Humber.

Messrs. Humber, Ltd., had every intention of showing this model, but as a result of the car show their works are running at such high pressure that they do not feel justified in standardising a new type. It is to be hoped that this most interesting design is not going to be permanently dropped, but merely kept till the firm have a more favourable opportunity for introducing it to the public. Our readers will remember that the engine has a large cylinder forward of the crank case and two smaller cylinders of equivalent capacity opposed to it. The rear cylinders have a common combustion chamber, the inlet valve being placed over one and the exhaust over the other cylinder. The arrangement of radiating fins is unusual, and they are set to catch the maximum amount of air. The curious setting of the cylinders is due to an attempt to get perfect balance, as besides the fact that reciprocating parts balance each other in this design, the arrangement of the two small pistons acting on cranks on either side of the main crank removes the couple which is set up in twin horizontal engines having only two cranks.

Unconventional Design.

A curious feature of the engine is the use of detachable valve seatings, which in this instance are screwed into the cylinders and locked by a special ring. The valves are slightly inclined, and good provision is made for adjustments. A single camshaft operates all valves through the medium of rockers.

The Humber engine is rated at 6 h.p., and has a three-speed counter-shaft gear box placed behind the crank case and below the rear cylinder, the drive being by chain throughout.



A new view of the 6 h.p. Humber three-cylinder horizontal engine. The two small cylinders are seen on the left, the larger one on the right.

THE TOURIST TROPHY RACES.

Regulations for Next Year's Event.

The outlines of the 1914 T.T. races have been decided, and at a recent committee meeting of the A.C.U. the following resolutions were passed:

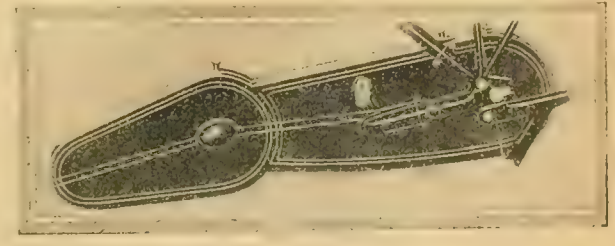
"That the Junior Race be held under the International Rules on May 19th, 1914, for a distance of five laps of the same course as was used this year, and be restricted to motor bicycles not exceeding 350 c.c."

"That the Senior Race be held under the International Rules on May 21st, 1914, for a distance of six laps of the same course as was used this year, and be restricted to motor bicycles not exceeding 500 c.c."

"That, for both races, competitors must practise for a minimum number of laps at a minimum speed, and must wear helmets of an approved type, both when practising and racing."

"That at least three security bolts—one of which may be a bolt valve—be fitted to each tyre of the competing motor bicycles."

It is gratifying to note that many of the ideas suggested by various prominent officials of the Union in our interview with them at the conclusion of the 1913 races, and by *The Motor Cycle*, have been adopted.



The chain cases of the new 3½ h.p. B.S.A.

A TRIP IN THE NILGHERIS.

Mountaineering on a 3½ h.p. Single-geared Sidecar Combination.

BEING stationed near the foot of the Nilgheri Hills in Southern India, amongst which rises Ootacamund (7,300 feet), the best known hill station in South India, and learning that there was a road up the hills, my enthusiasm, as an old motor cyclist, was aroused, and it became a point of honour that at the first opportunity this climb should be carried through.

Now a mem-sahib and sidecar had lately been added to the total load to be carried, so the 1910 single-speed Triumph was tuned up early one morning in the hot season, and we got on board, accompanied by a tiffin basket, a Kodak, and a spare outer cover, and started out at six o'clock in the pleasant cool of an Indian morning.

(1) On the way up to Ootacamund.

(2) A Triumph and sidecar and a Humberette 3,000 feet above sea level.

(3) One of the twelve hairpins.

(4) Another acute hairpin bend taken at 5,000 feet above sea level.

(5) A view of the fine road at the foot of the Ghauts.

Motorists in Great Britain have very little idea as to the sort of going that has to be faced across the plains of India. There are no steep hills, but the road surface, as soon as the European settlements are left behind, is atrocious. Many river courses have to be crossed, and bridges are not at all numerous. A sharp plunge down the bank, a heavy pull through the deep sand, and a sliding, skidding scramble up the opposite bank is a frequent occurrence during a ride. I have ridden round the Scottish Trials route, but there were no roads so bad as many that have to be traversed here. Leaving the good roads of the settlement, we plunge into the twenty miles of obstacles that lie between us and Mettapuliyam, a small town lying at the foot of the hills, whence starts the Ghaut Road which leads up to Ootacamund. We make a short stop at Mettapuliyam to examine the Rack Railway which runs through the hills, and to lower the gear of the Triumph to 5 to 1. A free engine pulley on the engine-shaft, controlled from the handlebar, proved a useful fitment at the corners. As we neared the foot of the hills, and ran into the forests which clothe practically the whole of this country, we found to our delight that the road was in splendid condition. This blessed state of affairs is to be accounted for by its being in the charge of the Government Public Works Department.

For three miles we kept along the bottom of a lovely valley, steadily working our way into the hills, when at last the front wheel tilted upwards and never came down again for sixteen miles. For the first five miles

A Trip in the Nilgheris.—

the road climbs up in snaky curves through the trees, and glimpses begin to be seen of the plains below, sweltering in the blazing sun of an Indian hot season. Corners, corners, nothing but corners: splendid waist-bending exercise to help the sidecar round them.

All the time the road rises with a steady gradient of about 1 in 15. Splendidly engineered, there are no abrupt changes in the gradient. A toll gate stops us and while I cash out, a Humberette which we had seen in Mettapuliyam comes up and stops in a cloud of smoke, and as it starts off with a rush and disappears up the hill I mentally note that we shall meet again. Off again, and the road seems imperceptibly to get steeper. It suddenly disappears in the near distance. It is only one of the twelve hairpins that lie before us, and with an outward sweep and a scrape past the corner stones we just get round and pick up speed slowly on the gradually increasing gradient. We pass the altitude board which says 3,500 feet, and then almost every turn and twist in the road brings fresh panoramas before us.

The view is magnificent, and my camera fails entirely to do justice to it. In the distance, through the entrance to the valley we have climbed, the plains show up in the glaring sunlight like a draughtboard produced to infinity. Here we pass the Humberette cooling after the climb. Down the valley can be seen the road peeping out of the trees in terraces.

Monkeys, Bulls and Motor Cycles.

We are now in the coffee growing district, and many plantations are to be seen on the steep hill sides, showing the hand of man in the regularity of planting. Here and there a rough bungalow shows up in the trees, and we pass a family of monkeys sitting in the trees by the roadside and intently watching us, which brings us to a halt, while the mem-sahib addresses them in coaxing language, but they seem quite satisfied to examine us from a height of thirty feet, and just pass a few remarks amongst themselves as to our appearance. A bullock cart with its two yoked bulls is a little experience on this road, as there are places where meeting anything on the road would be rather awkward. And as a bullock cart was never known to be anywhere but in the centre or the wrong side of the road, and as it takes the man a certain time after he has seen you (he never hears you) to get his wits to work and to grab the bulls' tails in the correct manner for working them over into the ditch, it can be understood that such an encounter can be quite exciting on a mountain road.

In several places as we ascend we have caught glimpses of the Rack Railway high above us, but we now catch it up, and finally triumphantly roll over the top of it on a little bridge in our corkscrew career upwards. The 5,000 feet mark being passed, and a few more hairpins negotiated, we climb a long last stretch of road, which by a rise in steepness seems to take us over the tops of a ridge of hills into another valley, and after a few more miles of steady hard pulling amidst magnificent views along this new valley, we come into Cornoor, a large and flourishing town, nestling amongst the hills at a height of 6,000 feet above mean sea level.

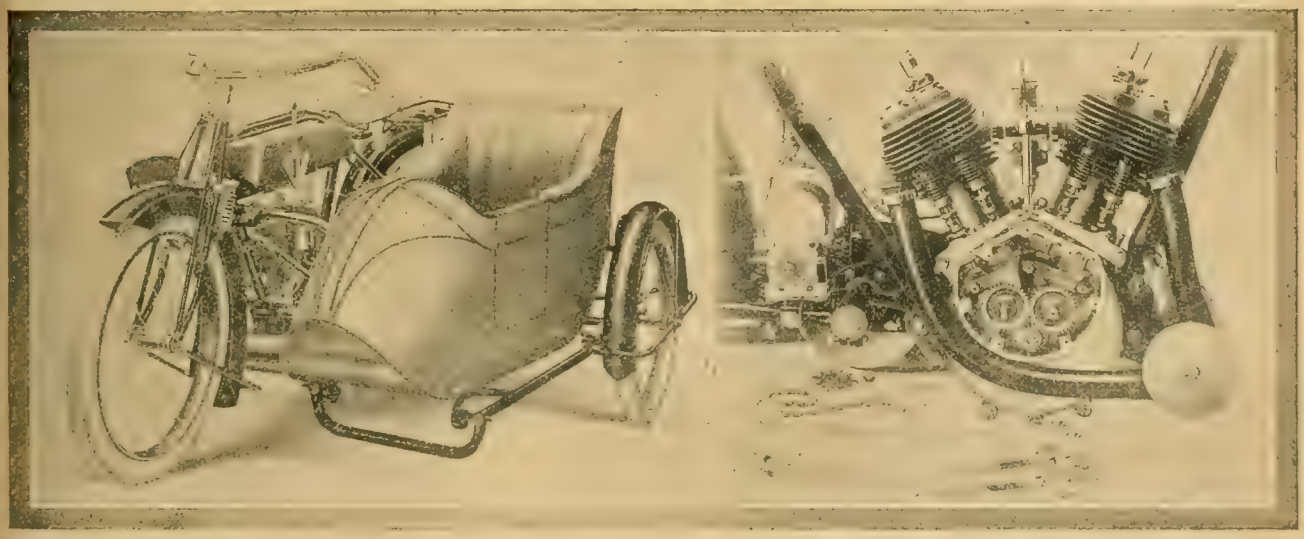
Coasting for Sixteen Miles.

Here, after a short rest, we turn, and putting in the free engine, run the sixteen miles to the foot of the Ghauts without a single turn of the engine being required, and a fast run home over the plains in the cool of the evening finishes a glorious day's ride.

The whole of the road is an object lesson in road grading. The surface is in splendid condition. To give an idea as to the number of bends in the sixteen miles, it takes about an hour and a half to come down, if reasonable care is taken. The turns include either twelve or thirteen of the most acute hairpin bends, and these require a good deal of jockeying to take either going up or coming down.

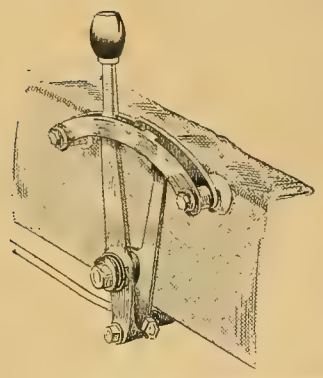
Being chased by bulls is quite common on Indian roads, and it is not till you have had several frights, and many "rides for life," that you discover that if you stop they will stop too, and always wait till you have passed them before joining in the game, and seem to consider that you have played them a mean trick if you do not at once speed up and flee.

F. LUCAS.

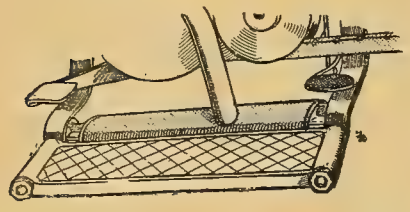


AT OLYMPIA. (1) The 6 h.p. New Hudson sidecar outfit. (2) The power unit, showing timing gear case removed to show cams and tappets.

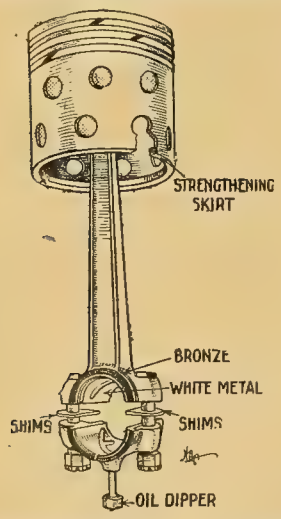
Single-cylinder Machines with Enclosed Chain Transmission.



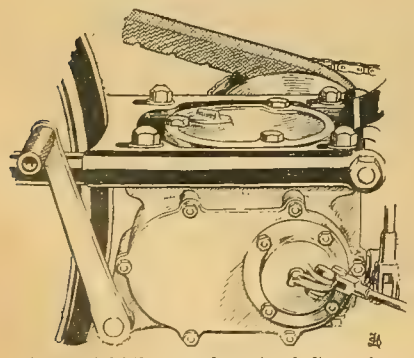
Gate change speed lever on the No. 7 model Chater-Lea.



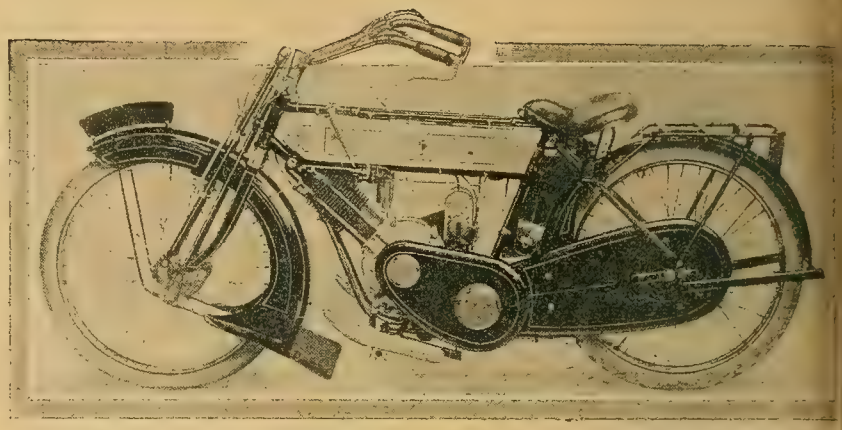
Arrangement of footboards, silencer, and control pedals on the Calthorpe Junior.



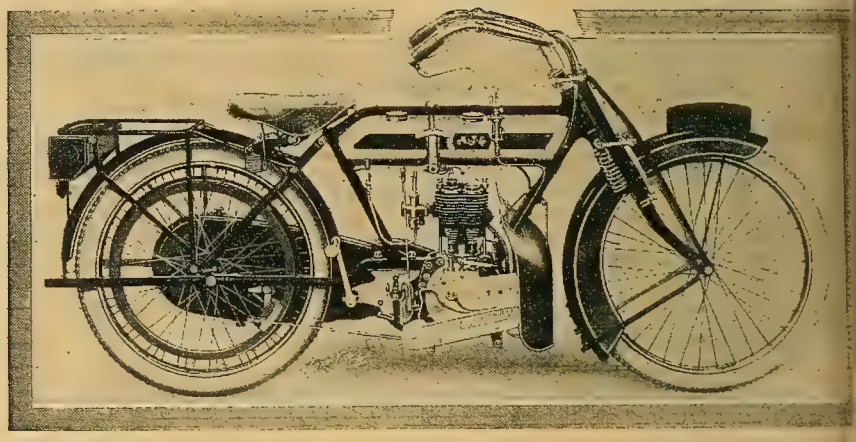
Piston and connecting rod of the four-cylinder Henderson, showing split big end, and strengthened skirt at the base of the piston.



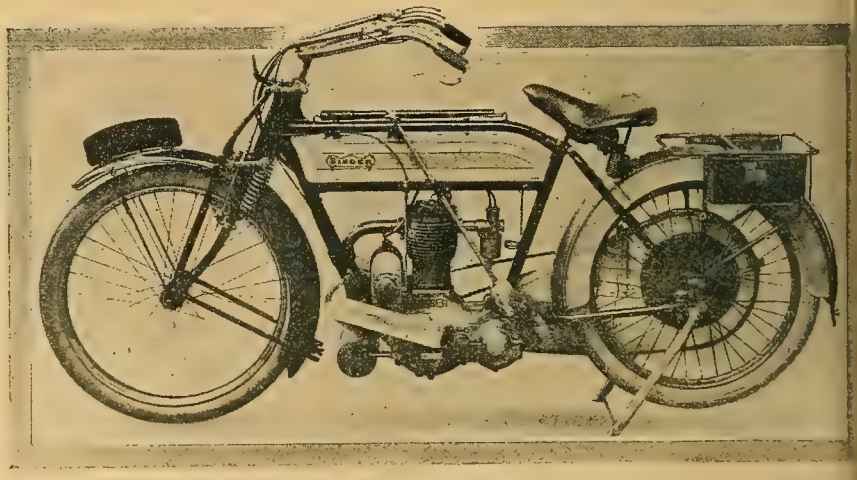
The new Ariel three-speed counter-shaft gear box.



Valve side of the 3½ h.p. P. and M. with counter-shaft two-speed gear. Notice the efficient chain cases and front mudguarding.

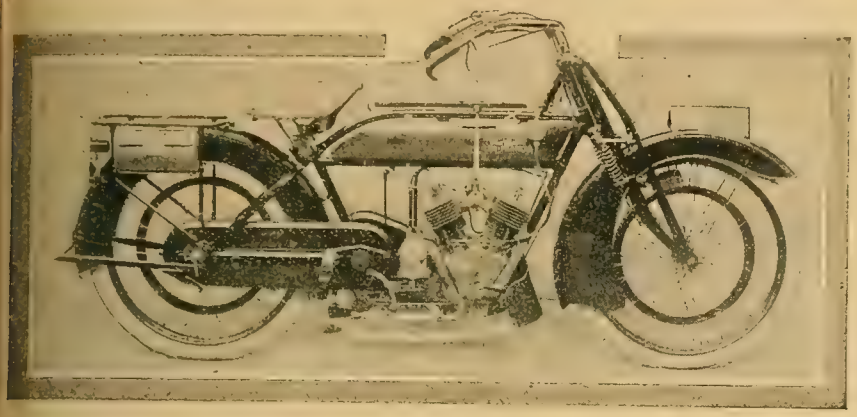


Valve side of the 2¾ h.p. three-speed counter-shaft geared A.J.S. with chain drive, kick starter and large footboards. Observe the front mud and wind shield.

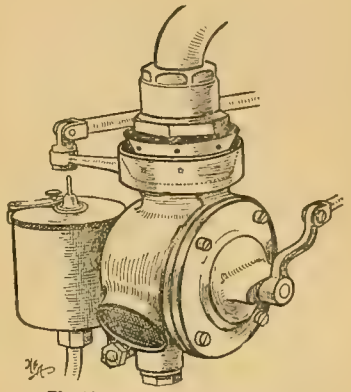


The 4½ h.p. two-speed Singer for 1914 has enclosed chain drive.

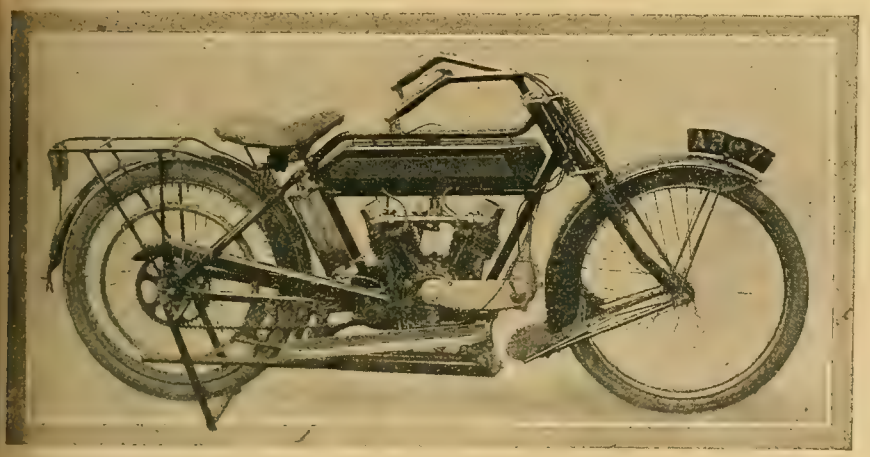
A Trio of Medium-powered Twin Solo Mounts, all Chain-driven.



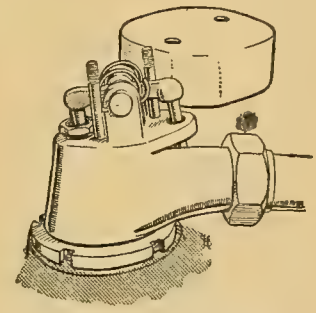
Valve side of the 3½ h.p. two-speed Lea-Francis for 1914.



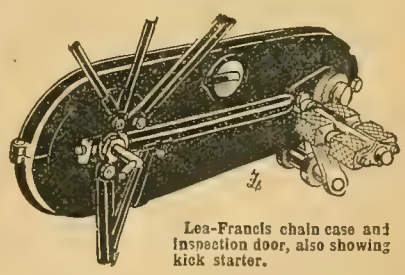
The 1914 2½ h.p. F.N. carburetter, showing the air valve.



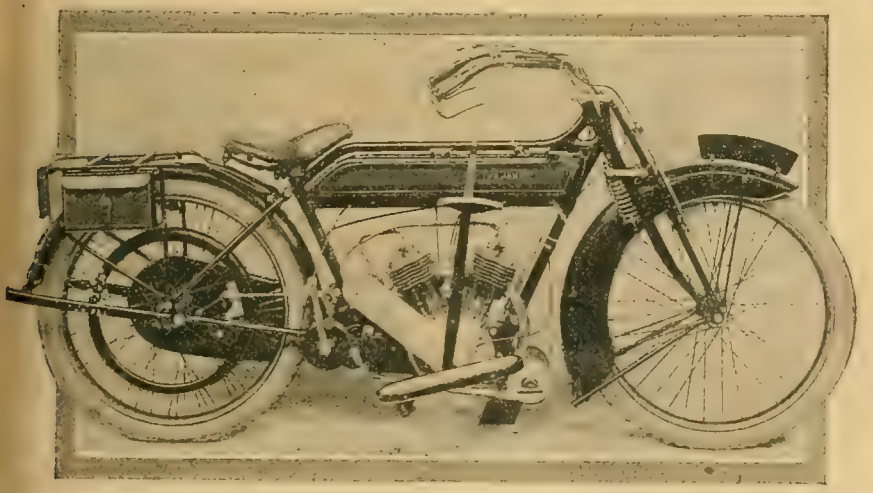
The 1914 improvements to the 3 h.p. twin Enfield include chain drive to the magneto, instead of by gears, larger silencer, etc.



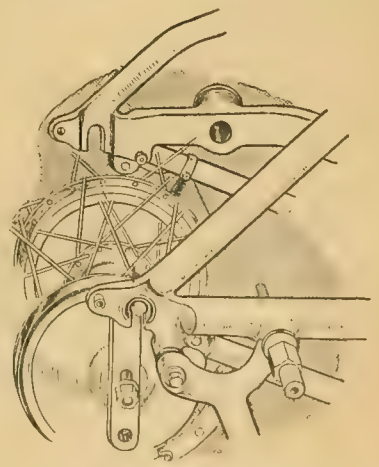
Enclosed overhead inlet valve gear on the 3 h.p. Enfield.



Lea-Francis chain case and inspection door, also showing kick starter.



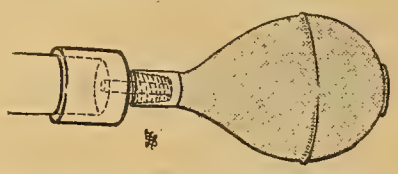
Valve side of the 3½ h.p. three-speed twin James showing kick-starter, gear operating lever, footboards and staggered radiating fins.



Rear forks on the 1914 Bat, showing how the rear wheel drops out of slot on both sides.

AIR LEAKS IN INDUCTION PIPES.

MR. LEONARD DOWSON, of Lukin, Ltd., The Ryde, Newcomen Street, Borough S.E., called at our office recently and showed us a very clever little fitment for ascertaining whether there are any air leaks in the induction pipe of a motor cycle engine. Practically, everyone knows the absolute necessity of perfectly air-tight joints, particularly when using an automatic carburetter like the Lukin. Most car carburetters are attached to the cylinder by double flanges, which can be drawn together by means of bolts in such a way that a washer which is placed between them is firmly and evenly compressed. This is seldom the case with motor cycles, and the result is that there are many air leaks which the manufacturers and riders seldom detect. Many think that the pipe is airtight because it has been fixed up and some sort of washer put between it and the engine spigot. They forget, however, that when the engine is much throttled down the pressure in the induction pipe may fall as much as 10 lbs. per square inch, and it is very difficult to exclude air from entering under such a suction. It is next door to impossible to fix the induction pipe so that air can be excluded by a metal to metal joint; also washers are practically useless unless some method is found of using them so that they are compressed. Our illustration depicts a small wooden apparatus, which is pushed over the spigot end of the induction pipe and screwed so that an ordinary horn bulb or a motor horn can be attached to it. If the bulb be squeezed it is immediately apparent whether there is a leak in the pipe or not. In the case of any air leak whatsoever the bulb can be squeezed; if there be no leak it will refuse to be compressed, in the same manner as it refuses to compress if the finger be held over the end which attaches to the reed. This little apparatus will be demonstrated on Messrs. Lukin's stand (No. 29) at the Show, and we commend it to our readers as being a very smart method of detecting air leaks.

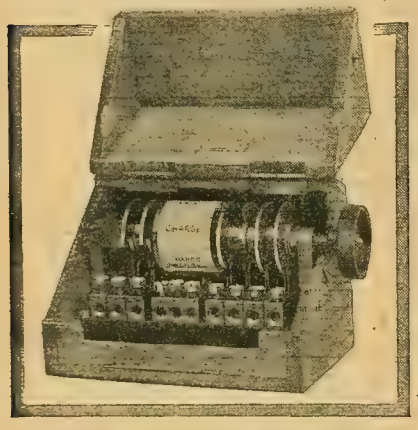


A simple device for testing air leaks in an inlet pipe devised by Lukin Ltd. The central portion is a wooden block which is pushed over the inlet pipe, when a horn bulb can be affixed to the other end.

With regard to the ordinary 191 Lukin carburetter, it has proved so successful this year that practically no alterations will be made for 1914. It is capable of giving the same flexibility in slow running that one is accustomed to find on the modern car.

THE BROLT LIGHTING DYNAMO.

The Brolt electric lighting set, made by Messrs. Brolt, Ltd., Princip Street, Birmingham, is already well known to motor car users as a most efficient and well-made article. Recognising the possibilities of a cycle car set, this firm has introduced a similar type to its motor car equipment, including one head light, two side lights and a tail light, generator, battery, and switchboard, the price being £19 2s. Messrs. Brown Bros., Ltd., Great Eastern Street, E.C., are the sole London agents for the complete lighting sets, and we illustrate the new switchboard, which is practically the smallest model made, both open and closed. It will be noticed that the posts for the cables are provided with holes through which the wires are threaded, screws passing through the posts to hold the cables in position. The rotary switch is fitted with cams or wheels at intervals along its shaft. These engage with spring tongues on the terminal posts, and are cut away at various points in their circumference, so that as the switch shaft is rotated connection is made or broken. In the centre of the shaft is a circular lettered indicator, the inscriptions on which pass a glass window in the lower portion of the switch, and are legible without moving the lid. The upper half of the switchboard case has let into it an ampèremeter showing the pressure in the battery. The neatness of this switchboard makes it peculiarly adaptable to cycle cars.

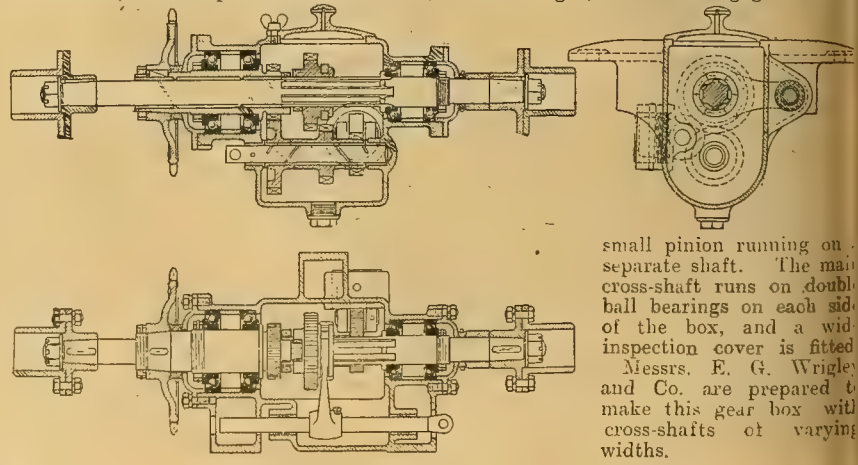


Interior of the Brolt switchboard.

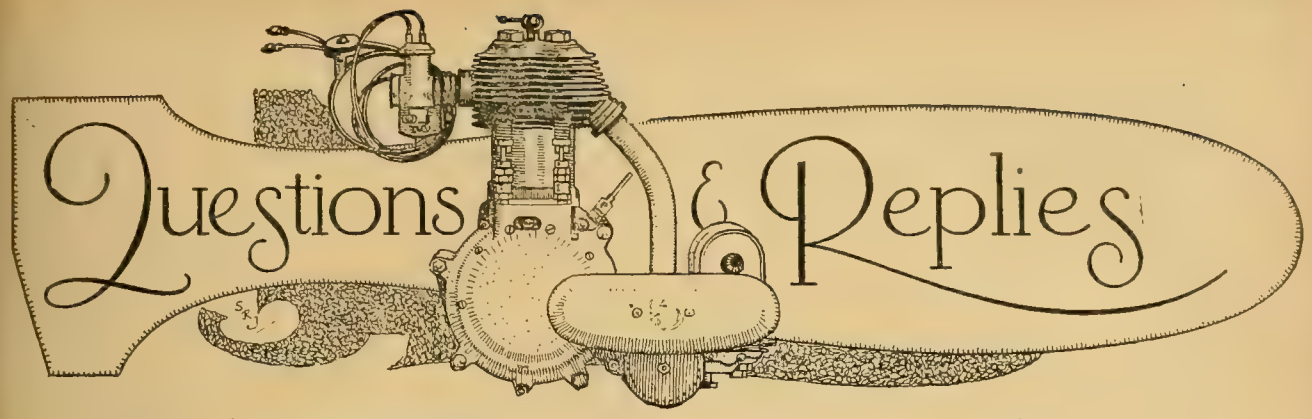
Brolt switchboard for cycle cars.

WRIGLEY'S CYCLE CAR GEAR BOX.

The firm of E. G. Wrigley and Co., Foundry Lane, Smethwick, near Birmingham, is marketing for 1914 a cycle car gear box with two forward speeds and reverse. This box is made with brackets for attaching to an angle iron or wood sub-frame, and does not incorporate a differential, as the shafts on each side are intended for the attachment of either chain sprockets, or belt pulleys, the latter being usual. The attachment of the pulley shafts can be made by means of screw-driver joints, or the shaft can be direct-coupled. As will be seen on reference to the illustrations, the gear box is a substantially constructed piece of mechanism with the gearshafts one above the other. The top shaft is castellated, and carries on the near side a sprocket which is connected to the engine-shaft by chain. The illustrations show the gear in free engine position. The low speed is obtained by moving the sliding pinion to the right, when it engages with a fixed pinion on the lay shaft. The top speed is in gear when the sliding pinion is moved to the left, this locks the chain sprocket direct to the cross-shaft by means of dog teeth. The reverse is obtained by sliding the wheel to the right, when it engages with a small pinion running on a separate shaft. The main cross-shaft runs on double ball bearings on each side of the box, and a wide inspection cover is fitted.



Messrs. E. G. Wrigley and Co. are prepared to make this gear box with cross-shafts of varying widths.



Questions & Replies

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

A Sidecar Machine for Solo Work.

Will you kindly answer me the following question? I have a 1913 6 h.p. Royal Enfield which I want to ride solo; the present gear (about 4½ to 1) is too low. Can I obtain another sprocket from the Enfield Co.; also which is the best place to change the sprocket?—C.O.H.

If you wish to ride your machine solo, we think you would have no trouble in obtaining a sprocket for it from the makers. The sprocket which you change is the small one that carries the main driving chain on the opposite side of the counter-shaft to the two-speed gear chains. This will result in both the high and low gears being raised. If you only wish to raise the high gear, you must fit a new high speed sprocket to the gear.

A Curious Complaint.

I have a 5-6 h.p. twin Rex (1911) two-speed which is very erratic. As a sidecar machine it runs very well for perhaps a mile, then it seems to slow down quickly and finally stops. After waiting about half a minute, it runs very well again for perhaps another mile, when the same trouble occurs again. When reaching a stiff hill, it stops almost as soon as it begins the climb, and after a wait of a minute, it will climb up at perhaps 30 m.p.h. on top gear, which is 5½ to 1. I have had the engine down and cleaned it well, cleaned out all carbon, had magneto overhauled, cleaned carburetter and pipes, etc., but still the same trouble occurs.—E.M.

The only solution of your problem that we can suggest is that an air lock occurs in the petrol tank, and this prevents the petrol from passing through the petrol pipe to the carburetter. It is always necessary to have a small air-vent in the petrol tank. It is possible that there is an accumulation of grit in the channel between your float chamber and jet chamber. This would be sucked up towards the jet when the engine was running, but when the engine stopped the obstruction would fall back into the channel.

Removing Old Enamel.

Would you kindly tell me the best way of removing the old enamel from my machine? I am thinking of re-enamelling machine myself. Do you think an amateur could make a satisfactory job of this sort of thing?—M.E.P.

One of the best ways of removing the old enamel is by scraping it off with an implement such as the back of an old hack-saw blade. No doubt an amateur can remove the old enamel, but care must be taken in thoroughly smoothing and cleaning the tubing if you wish to put on fresh enamel. It is not an expensive job to have done by a professional, and we advise this course to be adopted.

By-pass or Decompressor.

I should like to know how the decompressor and the by-pass compare as regards economy?—T.D.

The decompressor proper only allows half the gas admitted into the cylinder to be used, the other half passing out unburnt, whereas the by-pass allows the engine to run on an infinitesimal amount of gas. The difference in economy can therefore be easily distinguished. Between a by-pass and a variable compression device, however, there is very little to choose. Even then probably the by-pass would be the more economical, though we should imagine the difference was negligible.

Removing Valve Caps.

Will you let me know the best way to remove the valve caps on my machine? It is a 1911 Singer 3½ h.p., and, as you are perhaps aware, the compression tap is let in the exhaust valve cap. I can remove the compression tap easily, but I want to grind in the valves and fit a decompressor. I have made a spanner that just fits the nut with a handle about ten inches long.—F.A.

Your best plan is to soak the caps in paraffin the evening before. The next morning apply spanner, giving it smart blows with a hammer. The spanner should fit tightly, otherwise the corners of the valve caps will disappear; also hammer the caps all round, giving them sharp light taps with a heavy hammer. If the corners of the valve caps become badly knocked about, the only chance of removing the caps is with a hammer and chisel.

A NEW USE FOR MOTOR CYCLES—RIDING ON PEOPLE'S TOES.

The above illustration shows the method adopted by the authorities for keeping back the crowd on the occasion of the arrival of the new Governor-General of the Philippine Islands at Manila, the police force being inadequate for the purpose. It will be noticed that the rider is using an Indian.

Storing a Motor Cycle

Please tell me the best way to store a motor cycle for two or three years, as I expect to be leaving the country shortly. Do you think if it is well smeared with grease and kept in a dry place it would be all right when I returned?—W.T.

If all bright parts of the machine were smeared with vaseline, the tyres taken off, and the whole machine thoroughly cleaned, it would probably be all right. The machine should be stored in a dry place and the tyres in a dry, warm, and dark place. Your best plan, however, is to sell the machine and buy another when you return; for, if you wish to sell the machine when you return after two or three years, you will find that it has depreciated to a great extent, and will perhaps be worth only a quarter or a little more of what you originally paid for it. Depreciation is a point worthy of consideration at all times.

Starting by means of Clutch.

I have a lightweight fitted with three-speed and free engine hub. My trouble is I cannot start properly with the clutch. It starts on the stand, but when ready to start, no matter how gently I let in the clutch, I stop my engine at once. I have tried it on all three gears with the same result. My only way of starting this way is by pedalling for a few yards and then let in the clutch, when the drive is taken up with no difficulty. As far as I can see all the adjustments are correct. Can you let me know the cause of this and a remedy?—T.G.

The best method is to let in a clutch very gradually on bottom gear. Possibly the clutch is rather fierce in action, or it may need lubricating. A special thin oil may be obtained from the makers of your hub gear suitable for the clutch. A little oil at a time at frequent intervals is the proper way to lubricate the clutch.

Routes and Ferries in Kent.

(1.) I should be obliged if you would let me know the best route from Goudhurst, Kent, to Colchester, avoiding Maidstone (2.) Does the ferry at Gravesend cross at certain times? If so, can you tell me the times on Sundays and the price for carrying over a motor cycle and two passengers? (3.) I have broken up a little car and sold the various pieces. Can I have the number transferred to a new cycle car?—J.B.

(1.) Your best route would be as follows: Goudhurst, Brenchley, East Peckham, Trottersciffe, Gravesend, by ferry to Tilbury, then through Billericay, Chelmsford, and Witham to Colchester. (2.) Full particulars regarding the Tilbury ferry are to be found in the Auto Cycle Union Handbook. The ferry runs from 6 a.m. to 6 p.m., Sundays included. Motor cycles cost 4d.; passengers 2d. (3.) You have to ask the authorities to cancel the registration, and if you wish to transfer the number to the new cycle car, you will have to pay full registration fees. You must also acquaint the authorities that you have broken up the car.

Loss of Power on Hills.

My machine is a 1911 model 3½ h.p. Bradbury which I use for sidecar work only. It is fitted with N.S.U. two-speed gear and runs very well; in fact, on the level and up slight inclines it seems almost impossible to overload it. Yet when driving up a steep hill which is of any length, say, over half a mile, the machine suddenly loses power and comes to a standstill. The compression is good, the engine does not knock, or very slightly, even when stopping, and certainly is not overheating, though, of course, it certainly gets warmer when hill-climbing. The piston and cylinder are clear of carbon, and I use a good oil. Can you suggest any cause for this trouble? Further, can you give me any information regarding the respective merits of the flat or ordinary valve caps and the raised hollow or dome-shaped valve cap? I have one of the latter shaped caps on my cylinder over the exhaust valve, and though it perhaps increases the capacity of the cylinder somewhat, my theory is that it weakens the mixture, for the reason that there is a larger volume of burnt gas left in the cylinder.—F.S.C.

Your gear is probably rather too high to enable the machine to climb the hill with a sidecar. The purpose of domed valve caps is to make the compression of an engine lower; conversely concave valve caps help to raise the compression of an engine. We should also recommend you to see that the platinum points of your magneto are clean. Possibly the float chamber is situated behind the jet, if so, in going uphill the level of petrol in the jet would be materially altered. It is advisable to place the float chamber in front of the jet, or, at any rate, to have them level for hill-climbing.

READER'S REPLY.

I venture to suggest for your correspondent "W.O.S.," who asks for the best route between Taunton and Ludlow, one which is shorter, quicker, and much quieter than that recommended in your issue of Nov. 13th. It is Taunton, Bridgwater, Axbridge, turn off main road left to Congresbury, then along Bristol Road as far as Flax Bourton; here turn sharp left and cross railway near station, straight on up winding hill, over Clifton suspension bridge, turn sharp left and on *via* promenade, Belgrave Road, Westbury Road, and turn right to join main Gloucester Road at Filton; through Gloucester to Newent, Dymock, and straight on by Little Marcle to Leominster (look out for right turn at cross roads about seven and a half miles from Leominster); on to Ludlow by either of the two roads. This route is good practically the whole way, and avoids Bristol altogether, the only large town passed through being Gloucester.—R. DE F. STAWELL.

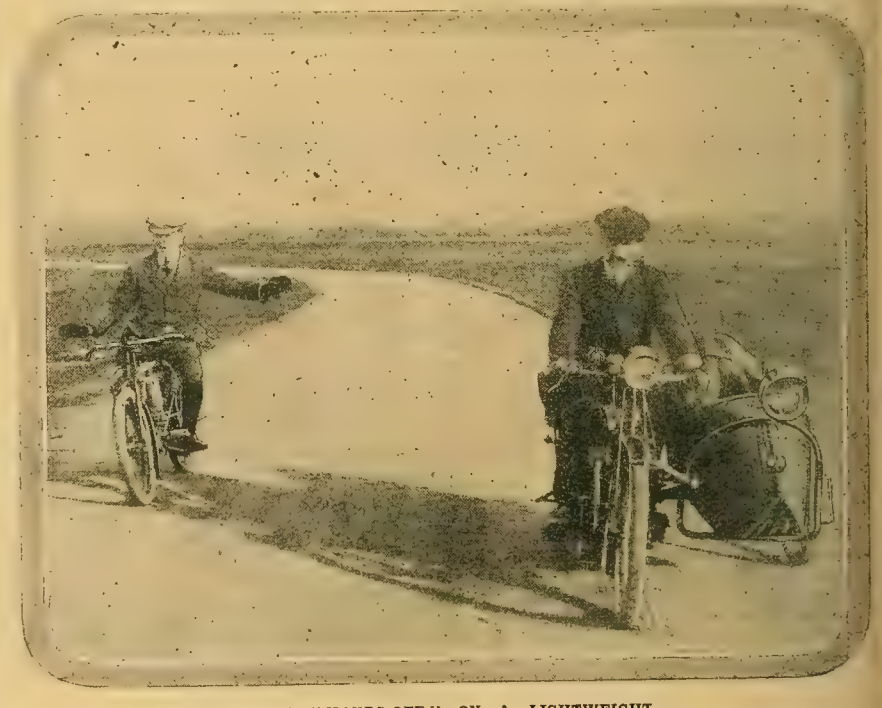
[Axbridge is not on the main road from Bridgwater. We have frequently published the Bristol avoiding route, but prefer to go through Long Ashton and over the new bridge and Clifton Downs.—ED.]

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"H.A.M." (London).—Brampton gear; wear of belts, etc., on 3½ h.p. Rudge. Paragon or other folding sidecar.

"A.H.B." (Plymouth).—New Hudson 3½ h.p. three-speed model VIIA. 1913, with sidecar. Power, hill-climbing, and general durability.

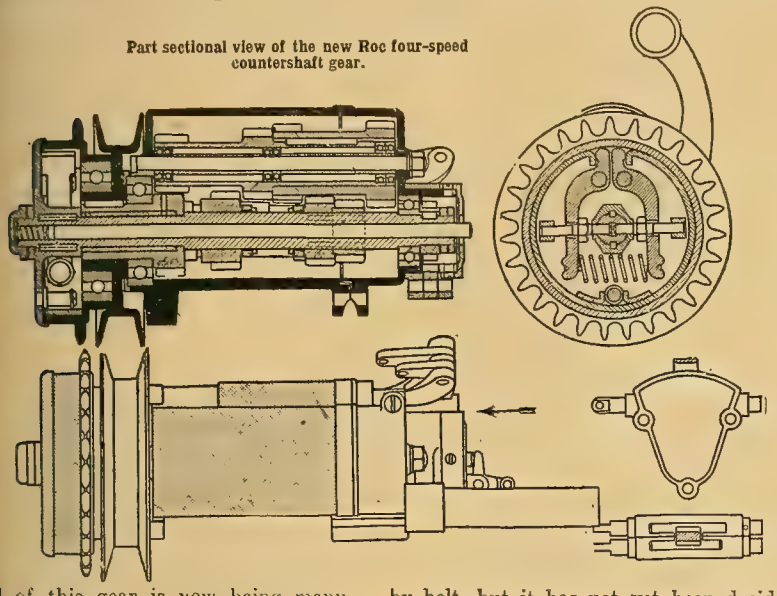


RIDING "HANDS-OFF" ON A LIGHTWEIGHT.
The modern machine is so splendidly balanced that it is possible to ride long distances without touching the handle-bars, although we do not recommend such a practice. The above photograph was taken during a five miles run on a 2½ h.p. Premier, when the rider covered the whole distance without touching the handle-bars.

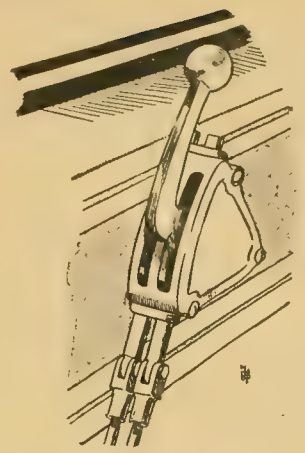
New Roc Four-speed Gear.

A RECENT visit to the works of A. W. Wall, Ltd., Birmingham, proved of great interest, for several new features, which will appear at Olympia, were shown to us. The Roc two-speed gear has been improved and is fitted with larger brake and clutch surface, double fulcrum high gear adjustment, and combined hand or kick starter. The rear fork ends have been considerably improved and now carry dustproof Hoffmann bearings. A smaller model of this gear is now being manufactured which is a miniature replica of the big model. Both these gears will be on view at Olympia, the one fitted to a 4½ single and the other to a 2¾ single-cylinder machine built by the firm. A third exhibit will be a 4¼ h.p. model fitted with a four-speed countershaft gear. This is quite a new departure for A. W. Wall, Ltd.; but we are informed that it is not to replace the hub type, which is doing better than ever, but will be marketed as an alternative model. As will be seen from the line drawing, the gear is of the sliding type, there being two sliding members controlled by a gate change speed, the selecting gear being enclosed in the gate. An enclosed kick starter is combined with the gear box, and an expanding clutch is fitted on the main shaft. The gear we examined was fitted with a final drive by belt, but it has not yet been decided whether belt or chain drive is to be adopted as standard.

Part sectional view of the new Roc four-speed countershaft gear.

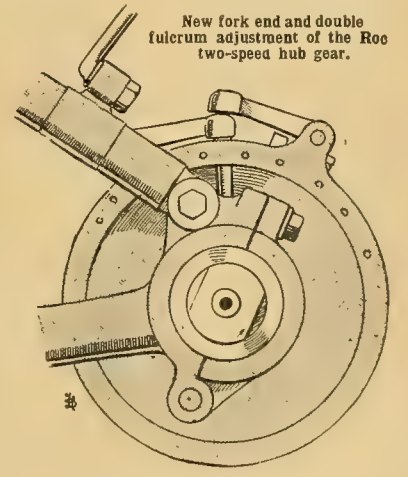


An interesting feature of the Roc hub gear is the employment of mild steel castings for the hub shells. These shells are hardened where necessary, and under a test which we supervised the metal proved very tough, and where hardened glass hard; also the castings were singularly free from blow holes. A simple form of ratchet hand or kick starter is being marketed by the firm, the body of which is also a mild steel casting.



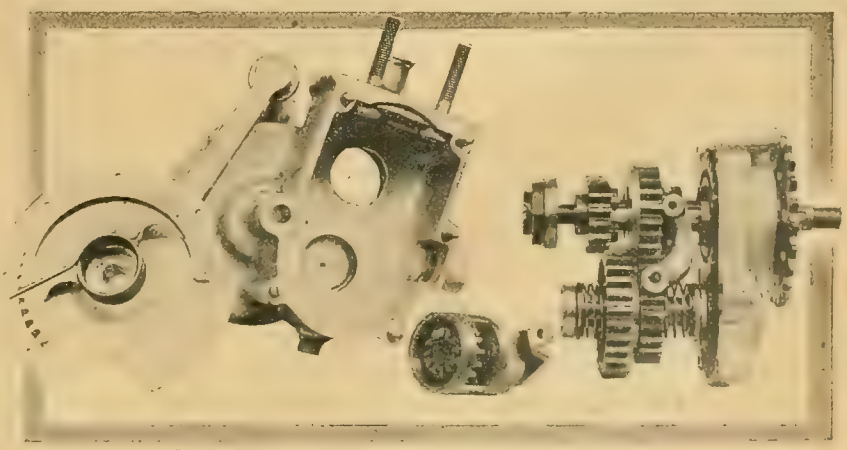
Gate change speed adopted for the four-speed bottom bracket Roc gear.

New fork end and double fulcrum adjustment of the Roc two-speed hub gear.



The Three-speed Jardine Gear.

THE latest type of Jardine G.H. gear takes the form of a solidly constructed box which possesses the unusual feature of constantly meshed wheels in every position. A slipping clutch device is fitted to the engine-shaft as is the usual Jardine practice, and this part has undergone no change except that four key-ways are fitted to the clutch plates, instead of two as before. On the primary shaft of the gear box is mounted a double plate cork insert clutch. The standard gear ratios will be 4½, 7¼, 13-1, though, of course, a higher or lower combination can be obtained by changing sprockets. The changes of ratio are obtained in a somewhat unusual manner, for, as has already been mentioned, the gear wheels are always in mesh. The changes are made by dogs in the usual way, but the middle gear wheels are both capable of being slid laterally on their shafts, and thus their teeth are kept engaged throughout all the movements of the striking lever. Buffer springs are mounted on either side of the middle gear wheel, and ball bearings are used wherever possible, though the spigot bearing is, of course, of the plain type. The kick-starter is entirely enclosed and revolves the engine 4¼ times to the half turn. The gear is very sound



The latest G.H. three-speed counter-shaft gear shown dissected.

Sidecarriers for New Zealand Mails.

The Clyno Engineering Co., Wolverhampton, have just despatched twelve Clyno express delivery outfits to New Zealand. These have been made to the order of the New Zealand Government Postal Department.

Dunlop Rubber Co., Ltd., Issue.

The Dunlop Rubber Co., Ltd., intimate that the first batch of letters of acceptance and letters of regret were posted on Friday to applicants for the recent issue of £295,000 cumulative 6% Preference Shares.

£5 for a Catch-phrase.

The British Monogram Oil Co., Ltd., of Acton Vale, W., are offering a prize of £5 to any motorist who sends in the most suitable catch-phrase bearing on Monogram oil. For full particulars, apply to the British Monogram Oil Co., Ltd.

Service Show Week Display.

The Service Co., Ltd., 292-3, High Holborn, W.C., do not feel that an adequate display of their goods can be made in the crush of the Olympia Show, and have therefore decided to make a special display during Show week at their showrooms in High Holborn, where a large range of goods of interest to all classes of motorists will be on view.

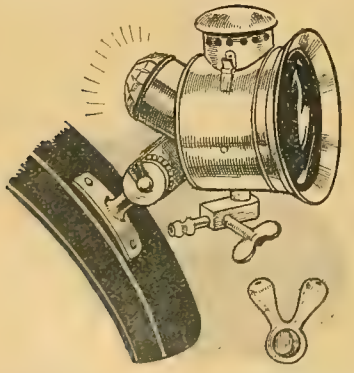
Racing Equipment.

The record-breaking Rudge, ridden by Greene and Pullin at Brooklands last Thursday, was equipped with Continental tyres, John Bull belt, Pratt's spirit, and Wakefield oil.

Lieutenant Stewart, who on the same day annexed records on an N.S.U. in Class B, also used Continental tyres, Gloria belt, Pratt's spirit, and Vacuum oil.

A Change of Address.

A motor cycle which is gaining rapid popularity on account of the extremely smooth running of the motor, particularly at low speeds and in traffic, is the Blackburne, which is chiefly noticeable for the large outside flywheel fitted and the employment of a solid crankshaft running in car type bearings. We are now informed that it has been necessary for the makers, Messrs. Burney and Blackburne, to remove into larger works, and their address is now Blackburne Works, Tongham, Surrey.



The Seabrook red rear light and number plate illuminator which fits on the back mudguard and is sold complete with two way connection as shown.

Big Orders before the Show.

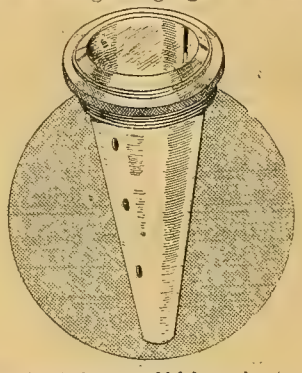
The Auto Carriers (1911), Ltd., Thames Ditton, inform us that they received, before the Show opened, orders for A.C. cars exceeding in value the entire output of last year. This is a very healthy sign for next year's business in cycle cars.

An Efficient Transmission.

There is one point in connection with R. O. Clark's six hour record on a lightweight F.N. which is worth special notice, *i.e.*, the fact that he used a two-speed model, which proves that the frictional losses in the F.N. type of transmission are infinitesimal, and that it has been brought to a state of perfection undreamt of, even by those who favour this system.

Combined Filler Cap and Gauge.

A clever little fitment is sold by Messrs. W. Brandon and Co., Ltd., Oliver Street, Birmingham, to take the place of side glass gauges and at the same time act as a cap to the tank. It is in the shape of a cone, and is attached to the underside of a filler cap, thus projecting down into the tank. Holes one inch apart are bored in the cone to let through the petrol when poured into the tank, and by means of which holes the rider can tell with a little practice the exact amount of petrol in his tank by looking down through the glass top of the filler cap. It can be fitted to any machine with a threaded filler cap.



Brandon's petrol gauge, which has a glass top and cone-shaped lower portion.

A Fine Display of Bodywork.

Messrs. Hollick and Pratt, the well-known Coventry coachbuilders, have long ago earned an enviable reputation for their car bodywork, and they have now laid themselves out to cater for sidecar and cycle car manufacturers. A visit to their works showed a great number of sidecar bodies in the course of construction, many of which we recognised as being built for well-known firms, and we were also shown a pile of bodies in various stages, built to the order of some of the biggest light car and cycle car manufacturers.

South African Trial.

Mr. Percy Flook, who rode in th Senior T.T. Race this year as representa tive of South Africa, won first prize, o Continental tyres, in the recent Johannes burg to Rustenburg Trial (about 18 miles).

A Show Absentee.

We regret to announce the illness Mr. James Hazlewood, senior, whic has prevented his attendance at th Hazlewood exhibit at Olympia this yea This is the first Show connected wit the cycle trade which Mr. Hazlewo has missed since the far off days whe the first Show was held in Hyde Par before the era of the Stanley Show Friends of Mr. Hazlewood will be glad t hear, however, that he is progressin well towards recovery.

Sydney to Melbourne Trial.

The Continental Motor Cycle Reliabilit Contest from Sydney to Melbourne (56 miles) has been arranged for Decembe 29th, 30th, 31st, and January 1st. motor cycle, value £65, will be presente by the Continental Tyre and Rubber C to the competitor who loses the lea number of marks, and gold medals wi be awarded the next ten competitors i order of merit.

New Appointments.

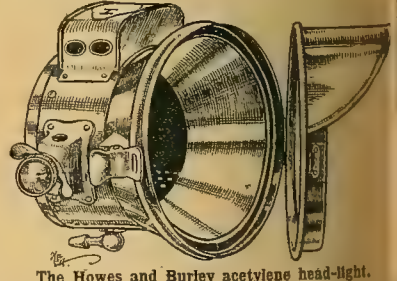
G. W. A. Brown, who designed th Clement Talbot car, which, driven by th late Percy Lambert, was the first car t cover over 100 miles in one hour, ha joined the Premier Cycle Co., Ltd., a works manager of the motor departmen

We understand that Mr. H. C. Picke ing, who for a number of years ha been associated with the sale of A.J.S motor cycles and P.D.A. cycle cars i the Midlands, has joined the staff o Messrs. P. J. Evans, John Bright Stree Birmingham.

Clifford Wilson is now sales manage of the Quadrant Co., Birmingham, an W. Pratt, late of the firm of Phelon an Moore, has joined the sales departmen of Messrs. F.N. (England), Ltd.

New Make Lamp and Generator.

The firm of Howes and Burley, lam manufacturers, Holloway Head, Birmin ham, re-established in 1850, for some tim past have supplied lamps for motor car and have now decided to enter the moto cycle lamp trade Their Projector moto cycle lamp is a splendidly made articl at a moderate price, and with hood an generator costs 37s. 6d. The Shakeon generator, which is supplied with th lamp, is well constructed and, as its nam implies, is provided with a shaking gri which sifts the waste calcium carbid to the base of the holder.



The Howes and Burley acetylene head-light.

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND FIFTY-EIGHTH CONSECUTIVE ISSUE.

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The Show in Retrospect.

WITH the fourth Olympia Exhibition of motor cycles a thing of the past, it is pleasing to be able to record its complete success. The large number of visitors continued throughout the week, and the enthusiasm displayed shows unmistakably the sustained and rapidly growing interest in the motor cycle, sidecar, and cycle car. Naturally business was exceedingly brisk, many firms having disposed of the whole of their next year's output, and only in very rare instances did we hear of any dearth of orders. Considering the diversity of the types of machines exhibited all this goes to prove one thing, and that is no one type of machine possesses outstanding superiority. Oftentimes inexperienced writers, in their enthusiasm for a new type of machine, have been led away to "boom" that particular type in the assumption that it is the one of the future, and would ultimately squeeze all others out of existence. There never was a greater fallacy, and we who have watched the many ups and downs of the motor cycle during the last decade have always appreciated that fact. A single type of motor cycle would eventually spell stagnation, and no one wishes to arrive at that undesirable era. It has often been stated that one man's meat is another man's poison, and it is due to individual tastes that makers of so many different types find their order books full. Practically all standard types of motor cycles nowadays are a proved success, and it is no longer necessary to narrow one's choice to half a dozen different makes in the fear that outside that pale the owner is courting disaster. Such, then, is the general advance in design and workmanship of the 1914 pattern motor cycle.

A Problem of the Future.

ONE may ask has not finality been reached, and, if not, in what direction may improvements be expected at future Shows? Anyone who could correctly foreshadow the designs of even two years ahead would, indeed, be a genius, but from our conversations and general observations during last week's Show, we are confident that it is the lack of weatherproofness that deters many from taking up the pastime. True, a number of the 1914 machines can claim to be protected from the elements at every vital point, but it is the need for better protection for the rider that is outstanding. At present makers prefer to leave the important matter of weatherproofing the rider to the accessory maker. Years ago motor cycling was looked upon as a fair weather pastime, but that taunt cannot be truly urged nowadays (thanks to low-built machines and successful non-skid tyres), for hundreds of business men use their machines throughout the year, hail, rain, snow, and sunshine, and still more would do so were better protection afforded them. The cycle car boasts its hood and screen—very attractive points. The sidecarist can now provide equal accommodation for his passenger, besides possessing a skid-proof vehicle, but, so far, little has been done to protect the motor bicyclist. Surely some form of folding dash for the knees and lower part of the body, and maybe a transparent non-flammable insertion at the top to protect the rider's face, need not prove unsightly or a hindrance. Leg protection is provided in many instances by footboards with upturned extensions in front, and now we would like to see manufacturers go a step further and produce the true "all-weather" mount. When that object has been achieved, the possibilities of the motor cycle will appeal to many thousands of potential users, who, at present, fear the discomforts attendant upon a long ride on a winter's day, and look with disfavour upon the garb it is necessary to don. The motor bicycle wind screen favours somewhat of a faddist's idea for every day work, but in the autumn and winter months the case is different, and there are times when a screen of this kind would be a perfect boon.

We sincerely hope that our remarks will provide food for thought among designers in particular, and opinions of readers on the subject would be interesting.

SOLO MACHINES AT OLYMPIA.

By B. H. DAVIES.

LIGHTNESS, cheapness, and smooth running are three fine ideals, and they inspired most of what was new at Olympia. The two-speeded two-strokes are probably the first decent machines ever made at their weight; true, a Douglas model was once catalogued at 110 lbs., but it had direct belt drive and a single gear, whereas the new bantams mostly possess two-step transmission and an emergency ratio. Moreover, there is a lot of weight to come off them yet. I overhauled the details of several, including the Triumph and the Clyno, and I came to the conclusion that a good 20 lbs. could easily be pared off either. Here, as in the oversize big singles, we see the disturbing trail of the sidecar. Frank Smith said to me, "Too heavy? Yes, it is, but the first thing nine buyers out of ten do will be to sling a sidecar on it; in fact, we're the original offenders; the experimental model has pulled a sidecar and four men before now!" I do not see how manufacturers can protect themselves against the kind of idiot who will tie a sidecar to a 1¼ h.p. Motosacoche; but it is a thousand pities. Corpulent retired majors and other prospective buyers of the two-stroke bantams could be saved from 20 lbs. to 40 lbs. of dead weight if it were not for the sidecar fiend—why the tiny Clyno engine is actually mounted in a double-rail frame, and not without reason.

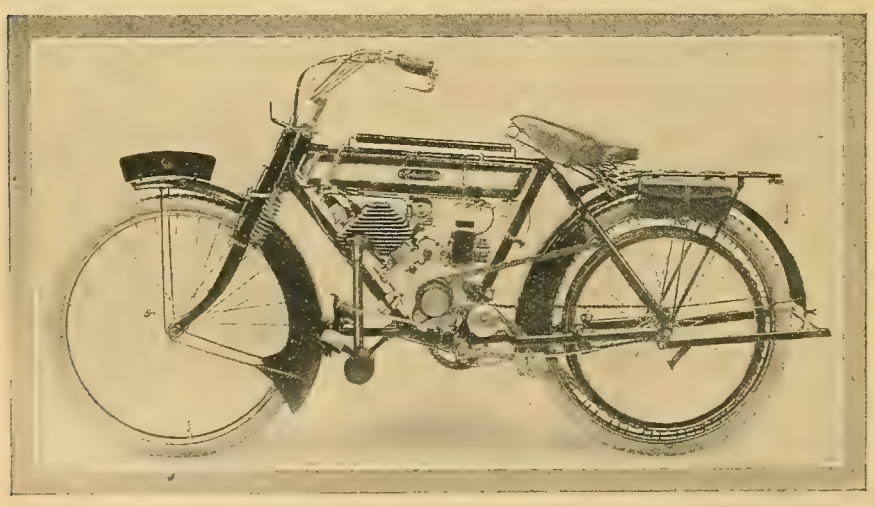
Some of the ultra-cheap featherweights will not prove too satisfactory; a toy four-stroke engine has to be jolly well made if it is to maintain its power, or even 50% of its power, for 1,500 miles; and we all know what a dollar-diameter pulley and the direct belt drive are like in sloppy weather.

The Price Question.

Cheapness, unfortunately, is limited to the bijou machines. I suppose the prices of the standard 500 c.c. machines will not come down till a motor cycling Ford flashes across from the western horizon. But it is something to know that a decent machine can be had for less than £50, even if it does not boast a gigantic engine. Smooth running is being catered for by a deliberate attack on the 500 c.c. single, for many firms list 500 c.c. twins, and some have dropped 3½ h.p. singles altogether. This move will almost eliminate "knocking" from our experience, and should spell better maintenance of tune. A 3½ h.p. twin, so far as my riding is any index, will keep on "revving" madly when its valves are pitted, its rings worn down flush with the piston, and its ignition adjustment all anyhow; but the average 3½ h.p. single seems very sensitive to its internal condition—there are exceptions, of course; did I not once get 52 m.p.h. out of a Rudge engine which had neither big end bearings, valve faces, nor timing teeth remaining, as near as no matter; but give me the twin for continued power without tinkering, and pleasant pick-up round a bad bend or on a grade, and there is the undoubted advantage in a twin that it is lighter on belts and tyres, as well as more comfy to ride.

New Transmission Details.

In gears there is little that is new to chronicle. I was very pleased to see in some quarters that the "gate" has replaced the "quadrant," for I find I often overshoot the desired notch with a straight-through change, and my 1913 three-speeder was rather fond of checking its lever at neutral when I wanted top, and the finish of such changes was unco' bad for the teeth. The Blackburne has an idea which deserves to be copied, viz., interchangeable T.T. and three-speeder back wheels. In the counter-shaft gears there are several first-rate three-ratio boxes on show; some of them had bigger gear wheels than the worst kind of cycle car. The most interesting detail in this connection had reference to the ingenuity with which the chain drive had been carried out, on which I shall have more to say another time. For the present it may suffice to say that some machines of the type indicated had rattleless quick-detachable gear cases, and perfectly accessible, and substantial adjustments for



Belt side of the 2½ h.p. Motosacoche showing jockey pulley for the variable gear.

Solo Machines at Olympia.—

all their chains. Others, on the contrary, had sardine-tin pattern casings, secured by a couple of grub screws and obstructed by almost immovable foot-plates and similar cumbrous attachments; in some cases a set of three special tools appeared to be necessary for adjusting the primary chain, while the drawbolts for tightening the rear chain were of the type familiar on a featherweight push bicycle. Buyers should scrutinise these details carefully. To mention one example of the good kind, the James 3½ h.p. twin appeared to me as a very refined application of the latest ideals. The chain cases were really substantial without being unduly weighty, and the tail segment of the back case is hinged at the lower end of the chord, permitting the wheel to come out, leaving the chain case *in situ*. The floating sprocket on the back hub was sprung both against the drive and away from it, so as to act within limited range as a road insulator as well. I wonder if an internally sprung hub could be made to solve the rear-springing problem, for it is obvious that rear frame springing with huge laminated quarter elliptics won't bite on for the 3½ h.p. just yet.

Weight still going up.

What a pity that no makers show a sample machine slung on a spring balance. I fancy weight will have a lot to do with the settlement of the hub v. counter-shaft gear problem. So far as I could ascertain, the two-chain machines with counter-shaft gears weighed from 20 to 60 lbs. more than a first class sample of the belt-driven three-speed hubber, and were distinctly heavier than those types which utilised combined drive in conjunction with a three-speed hub. Weight seldom bothers us, but when we advance towards the sere and yellow, we loathe lifting a 250 lbs. machine on to its stand. Just at present weight is being piled on to the standard 500 c.c. roadsters with magnificent abandon. My own 1913 three-speeder was a good deal heavier than I like, but it was thistle-down to some of the *recherché* specifications thoughtless spectators enthused over at Olympia. The 3½ h.p. Motosacoche is a most honourable exception; it can give 40 lbs. to some of the belt-driven three-speeders, and still underweigh them.

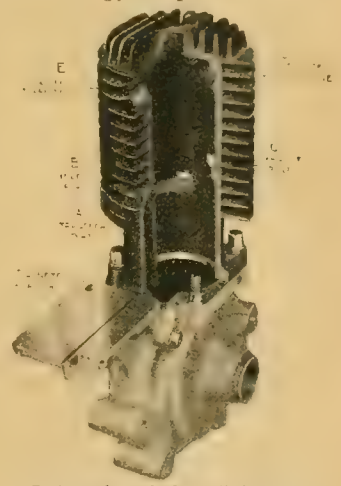
The Lea-Francis staged an interesting but unostentatious innovation. Its front hub bearings (immense in size) were non-adjustable, dirt and water being kept out by a gigantic felt washer. If this construction is sound what a boon it would be on all front hubs and steering heads, not to mention some of the complex little gear boxes, which are so like a watch when you spread their entrails sadly out on your handkerchief by the roadside.

Weatherproof finishes, one may trust, were designed with one eye on Olympia. I saw many machines with black forks, black hubs, black rims, black spokes, black handle-bars, and plated lubricators on the fork links, plated rings and packers for the Bowden control, etc., etc. In other words, all the big clean surfaces that can be mopped in a twinkling were black; and all the little niggly twiddly bits were plated. The absurdity of it! By the way, what is the use of blacking a rim destined to be scarred by a front brake? If a rim is blacked, the Lea-Francis type of front brake, or some similar arrangement, is alone applicable to it.

Some Cute Ideas.

Forks remain as they were, except on the Rover and the Blackburne which improve on Mr. Terry's idea. As most cute riders know, Mr. Terry increased the efficiency of the Druid type fork by substituting coiled springs for the original pair of rigid top links, thus combining the Triumph notion with Mr. Drew's. The one weakness of the idea is that these small coiled springs may snap unless the tempering is perfectly done. So the Rover and Blackburne forks have telescopic rigid links beneath the coiled springs—excellent; I know, because I have tried them.

The Zenith has rescued the infinitely variable gear from its threatened demise by re-designing it with a bottom ratio adequate for the freakiest A.C.U. Six Days; the Rudge people have taken the alternative exit from the dilemma by supplying a bigger engine, if required, and by listing three-speed hubs as optional alternatives to the multi. The 3½ h.p. twin Zenith with counter-shaft Gradua is as charming a belt driver as I ever saw in my life.

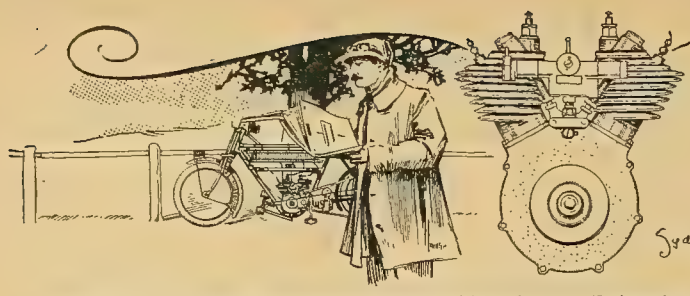


Part section of the cylinder of the two-stroke Triumph showing position of magneto platform and transfer ports.

The Indian? I suppose we shall all come to the electric lighting in time, and it will eternally possess the credit of being the pioneer. I should have liked the machine better if the magneto ignition had been retained. I am an imaginative sort of idiot, and I could not help picturing myself on the top of Dartmoor at midnight late in January with some subtle fault in my dynamoter—no light, no spark, no hooter! I shouldn't mind a bit being minus any one of these three, but if the entire trinity deserted me simultaneously, strong man as I am, I should most certainly weep. Still, the many occasions on which I had started up by twitching a lever, and flooded roads with artificial sunshine what time others delved in carbide sludge, would doubtless compensate for the most heartrending *contretemps*.

Horizontal versus V Twins.

Horizontal engines? The most obvious feature was that some men who *can* design engines *can't* design frames. I can see some of those horizontal twins' frames crumpling like tinfoil under quite minor collisions. When I take my trials of one or two of them, I must conquer a bad habit of clearing cows off the road by tickling their rumps with the front mudguard—not every frame would stand so much. Of course, it is a thorny problem. If you fork your down tubes, you get an ugly machine; if you bend them, you must use very heavy stuff and pile the weight on; but eventually the diamond-framed 3½ h.p. single will bow its head to these novel outfits, or I am a false prophet. They are nicer than the V twins, believe me: but at present some of them are extremely young.



List of Important Fixtures in 1914.

A meeting of club secretaries was held at Olympia on Wednesday last week, when the following events were arranged for next year. All the events are open except M.C.C. competitions and the B.M.C.R.C. meetings.

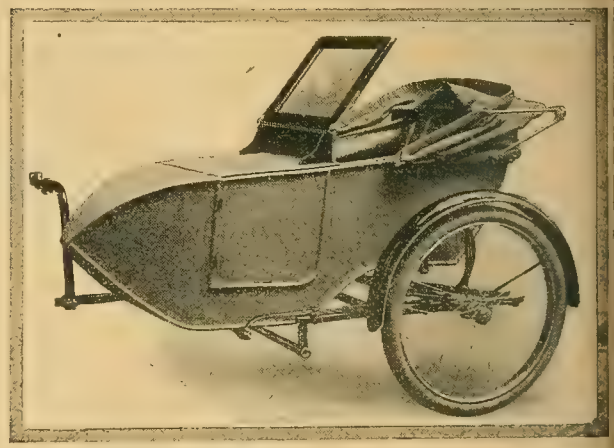
Jan. 3.—Liverpool A.C.C. One Day Trial.
,, 7.—Bournemouth M.C.C. One Day Trial.
,, 17.—Essex M.C.C. One Day Trial.
,, 31.—Birmingham M.C.C. One Day Trial.
Feb. 14.—Sutton Coldfield A.C. Colmore Cup Trial.
,, 20-21.—Oxford M.C.C. 24-Hour Trial.
Mar. 14.—Essex M.C. Hill-climb.
,, 21.—Birmingham M.C.C. Passenger Machine Trial.
,, 18-25.—Paris-Nice Trial.
,, 28.—B.M.C.R.C. First Brooklands Meeting.
Apr. 4.—A.C.U. East Midland Centre One Day Trial.
,, 11.—M.C.C. Jarrott Cup Contest.
,, 11.—Stockport and District M.C.C. Hill-climb.
,, 13.—Westmorland M.C.C. Hill-climb
,, 18.—B.M.C.R.C. Meeting.
,, 18.—Bristol M.C.C. Open Trial.
,, 25.—Essex M.C. Open Trial.
,, 25.—Bristol B. and M.C. Trial.
,, 25.—Streatham and District M.C.C. "Old Crock" Trial.
May 2.—Coventry and Warwickshire Reliability Trial.
,, 2.—B.M.C.R.C. Meeting.
,, 9.—Sutton Coldfield Amateur Hill-climb.
,, 9.—Essex M.C. Brooklands Meeting.
,, 16.—West Hants M.C.C. Trial.
,, 16.—Liverpool A.C.C. Trial.
,, 19.—JUNIOR T.T. RACE in Isle of Man.
,, 21.—SENIOR T.T. RACE in Isle of Man.
,, 29.—Mersey M.C. Trial.
,, 30-31.—London-Edinburgh Trial.
June 6.—Doncaster and District M.C.C. Speed Trials.
,, 6.—A.C.U. (East Midland Centre) Speed Trials.
,, 13.—M.C.C. INTER-TEAM TRIAL FOR "THE MOTOR CYCLE" CUP.
,, 20.—Birmingham M.C.C. Speed Trials.
,, 20.—B.M.C.R.C. Speed Trials.
,, 25.—South Wales and Cardiff M.C. Hill-climb.
,, 27.—South Wales and Cardiff M.C. Speed Trials.
June 26-27.—Dublin and District M.C.C. Twenty-four Hours Trial.
,, 27.—Mersey M.C. Speed Trial.
July 5-11.—A.C.U. SIX DAYS' TRIAL.
,, 13-14.—M.C.U.I. Irish End-to-end Trial.
,, 17-18.—R.A.C. Automobile Rally at Nottingham.
,, 18.—Streatham and District M.C.C. Hill-climb.
,, 25.—Coventry and Warwickshire M.C. Light Car Trial.
,, 25.—B.M.C.R.C. Race Meeting.
Aug. 1-3.—Dublin and District M.C.C. Two Days' Trial.
,, 5-9.—F.I.C.M. INTERNATIONAL CUP TRIAL IN FRANCE.
,, 15.—Liverpool A.C.C. Open Trial.
,, 15.—Streatham and District M.C.C. Hill-climb.
,, 22.—A.C.U. (East Midland Centre) Trial.
,, 22.—B.M.C.R.C. Meeting.
,, 29.—Coventry and Warwickshire Hill-climb.
,, 28-29.—Essex M.C. London-York Ride.
Sept. 3.—Bournemouth and District M.C.C. Speed Trials.
,, 5.—Birmingham M.C.C. Trial.
,, 12.—B.M.C.R.C. Meeting.
,, 19.—Mersey (Liverpool) M.C. Hill-climb.
,, 19.—Streatham and D.M.C.C. Speed Trials.
,, 24.—A.C.U. CYCLE CAR T.T. RACE.
Oct. 3.—Sutton Coldfield A.C. Levis Cup Trial.
,, 10.—A.C.U. and B.M.C.R.C. Race Meeting.
,, 17.—Mersey M.C. Hill-climb.
,, 24.—Streatham and D.M.C.C. Speed Trial.
,, 28.—A.C.U. One Day Trial.
,, 31.—Liverpool A.C.C. Open Trial.
Dec. 28.—Birmingham M.C. York Run.
,, 28-29.—M.C.C. Winter Run.

In addition to the above events there must be added the Scottish Six Days' Trial, the date of which has not been definitely fixed, and the Anglo-Dutch Trial in Holland, which it is expected, will be held on the same date as the two previous contests, viz., August 3rd (Bank Holiday in England).

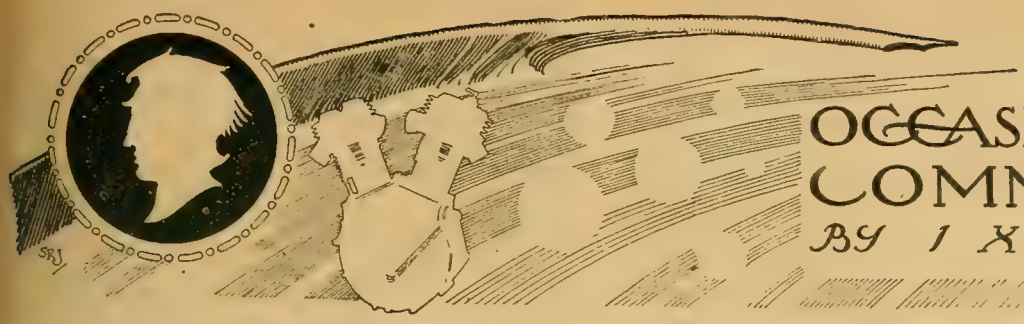
REAR LIGHTING OF MOTOR CYCLES.

We understand that the Local Government Board have issued to the R.A.C., A.C.U., and A.A. and M.U., draft regulations in connection with the rear lighting of motor cycles and sidecars. This draft regulation is provisional and is merely intended to deal with the present situation. A future order will be issued in due course, which will deal with the matter more fully. At present we understand that the draft regulation provides that all motor cycles with attachments, such as sidecars, must carry a rear red lamp and not a reflex lamp, but there is no reason for this to be placed on the "off side" of the machine, this provision having been made so that motor cyclists who wish to attach a sidecar in the unusual position of the "off side" need not be restricted in any way as to the position of the light. Naturally, anyone who wishes to be absolutely safe with regard to being run into from the rear will so fix the light that will be in the most "off side" position possible; overtaking traffic will then face the light with its "near" side nearest to the warning signal.

At present no regulations have been issued regarding the use of any form of rear light by motor bicyclists, *i.e.*, riders of solo machines. Riders of these machines need not even carry a reflex red rear light unless they wish to do so, but our advice to all motor cyclists is to show a good example and carry a really good reflex light as already embodied in the specification of some standard machines.



A neat sidecar manufactured by Stokes and Holt, Ltd., Belgrave Road Leicester. The suspension, screen-fitting and hood will be noted.



OCCASIONAL COMMENTS

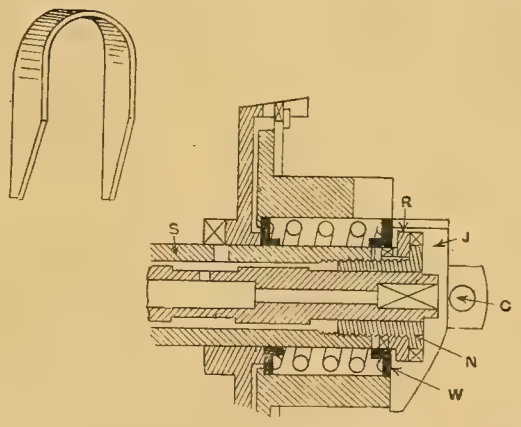
BY IXION

A Satisfied Cycle Car Owner.

I spent an interesting hour last week with a doctor who ran a genuine cycle car for twelve months terminating this autumn and has now transferred his patronage to a light car, *i.e.*, a miniature four-cylinder vehicle, which exceeds the cycle car weight and engine capacity limits by a few cwt. and a few hundred c.c. respectively. The medico in question was a complete novice when he purchased his cycle car, and, being a middle aged man, he is naturally more sensitive to vibration than the average youthful motor cyclist, whilst his profession requires clean and steady hands and a smart appearance; so that altogether his requirements constitute an exacting test of the merits of a cycle car. He expressed himself completely satisfied with the economy and the running of his cheap twin-cylinder cycle car. Detail troubles had been conspicuous by their complete absence, despite a hard season's work on inferior roads. Economy was excellent so far as fuel and oil were concerned, the consumption working out at better than forty miles per gallon on a mixture composed of two parts of petrol to one of benzole; but the machine was undertyred, and the expense of new covers was unduly heavy. The original back axle was replaced gratis by the makers. His sole reason for preferring the more expensive light car lay in the fact that the 7 cwt. vehicle was too light for rough roads, and bounced about too much. I was taken to inspect the discarded cycle car, which I found to be in magnificent condition. Its grey paint and brass work looked like new, and the chassis was devoid of rattles; the bearings all seemed perfectly tight, alike in the steering, engine, and transmission, while the engine ticked over dead slow with perfect smoothness, and accelerated furiously on demand. If this particular type of cycle car were equipped with larger tyres and its springing were rendered a little more efficient, I think it might be termed a perfect cycle car. It certainly shows that great achievements are practicable under the existing cycle car definition.

Dismantling N.S.U. Gears.

The sole defect latent in the N.S.U. gear consists in the difficulty of reassembling its internals if through curiosity or necessity one is rash enough to take it apart. *Experto crede*, for did I not once seize its planet pinions through using it unoiled on an engine which eschewed modern practice and blew no lubricant out through its pulley centre, thereby missing an opportunity of posing as a huge benefactor to the boot trade? A correspondent in Darmstadt sends details of a simple little fake which eliminates all this trouble, and his tip may be of service to some English manufacturers who use the gear, for I know several of them use very complex special tools for the same purpose. The sketch shows a little hairpin made of bent iron, ⅛in. thick with bevelled tips. This must be pushed (by standing on it) between the crossbar C and the washer W, thus compressing the spring, when the nut N can be unscrewed quite easily. It is better to unscrew N a turn or two before inserting the bit of bent iron, as the unscrewing can then be completed by hand. Clearly the bent iron must fit easily over



washer R, but must not be bigger than W. In reassembling the gear, do not pull the bent iron J out before washer R has engaged S. Readers, private and professional, will be very grateful for this simple little device.

The Future of the "Oversize" Single.

At the moment I am not too enthusiastic about the introduction of "oversize" single-cylinder engines with a capacity ranging from 500 c.c. to 750 c.c. I suppose there is no vestige of doubt that they are a compromise introduced to meet the needs of the man who does a lot of solo riding, but likes to attach a sidecar on occasions.

I fear the immediate results of the innovation will not be purely beneficial. They will involve motor cycle politics in some confusion, for we can neither set 500 c.c., 600 c.c., 650 c.c., and 750 c.c. engines to compete together in competitions, nor introduce a complete range of intermediate classes, nor view with equanimity the policy of a 550 c.c. or 600 c.c. specialist annually turning out a dozen 500 c.c. engines to compete in the principal speed trials of the year. Moreover, I have tried all the oversize singles on the 1913 market, and—writing before I have had time to try out all the 1914 oversizes—I confess to real doubts whether the oversize singles can be made to run quite so sweetly as the 500 c.c. type. My fear is that the solo enthusiast may be compelled to put

Occasional Comments.—

up with an extra 50 c.c. or 100 c.c. which he does not want for the sake of the double-purpose buyer, who, occasionally, wants the extra capacity to tug his sidecar up a bad hill, or to enable him to use a higher gear series. We should not complain of the extra power, other things being equal; but if it is a fact that the oversize engine is less sweet at low speeds and has several vibratory periods, well, we solo enthusiasts are being unnecessarily penalised in the interests of others. However, there is no need to worry; if the 1914 oversize engines do not come closer to the best 500 c.c. standard, the makers will soon feel the pinch and retrace their steps.

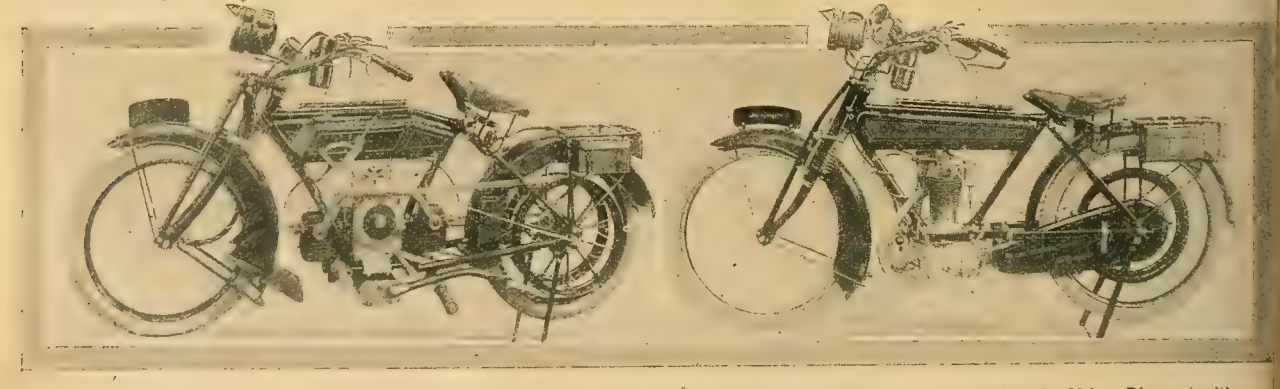
Looking further ahead, I should be inclined to speak more confidently. The oversize single-cylinder engine may conceivably be brought up to existing 500 c.c. standards; but whether it is or not, it cannot represent finality as a sidecar hauler, for a well-designed twin-cylinder can knock its head off, and I have no doubt whatever that the twin is going very largely to squeeze the single out of the field, and especially so in passenger work. Take any engine capacity you like to name, from 350 c.c. to 750 c.c.; other things being equal, the twin will oust the single from public favour; it will show better flexibility, it will be less inclined to knock, its running will be sweeter, and, to my mind, it will maintain its power better. So the oversize single appeals to me as no better than a transient compromise at the very best.

The Bantamweight Class.

The bantamweight class of motor bicycles present an innovation which one can survey without the faintest tinge of misgiving. They at any rate have come to stay, and very jolly little mounts most of them will make. My one surprise in surveying them is that the designers are not more unanimous about the merits of the two-stroke engine, and it would be very interesting if two able technicians would publicly state the reasons for their diverging enthusiasms. We may term these bantlings as being by "Levis out of Douglas," for the combined drive has given these bantlings genuine road efficiency by eliminating the belt troubles which wrecked so many premature introductions, and the two-stroke engine has given them a high power maintenance value. No man in England has sampled the light-weights of the last twelve years with more interest or diligence than myself, and many years have elapsed since I saw the impracticability of a direct belt drive disfigured by small engine dimensions with an inevitably microscopical engine pulley. I thought too that the miniature four-stroke engine of 1½ h.p. to 2½ h.p. was equally impracticable, for my experiences uniformly suggested that, though the original power output might be satisfactory, it could not be maintained over a satisfactory mileage. There was no reserve of power in these minute cylinders, and as soon as a little piston ring wear, valve pitting, lost spring temper, and carbonisation made their presence felt, the engine lost all its vivacity and stamina, and became a useless caricature of a power unit. In other words, I am sure the tiny two-strokes will survive, but I feel bound to reserve my judgment on the 2½ h.p. four-stroke single-cylinders.

Cycle Car Transmissions and Cheap Repairs.

The encomiums lavished on the miniature light cars which just overflowed the cycle car definition, and provided the car Olympia with its one real novelty, must have blinded many people to one outstanding advantage of the genuine cycle car. After twelve months of hard work the transmission of the best motor vehicle must require a certain amount of attention. In ninety-nine cases out of a hundred the light car will demand the services of a skilled mechanic, supposing its owner is thrifty enough to supply a stitch in time instead of boldly chancing his luck. A full automobile transmission may imply a worn clutch spigot bearing, worn universal joint bushes, worn ball races or brasses in the gear box, and a bevel or worm gear that needs adjustment, not to mention the possibilities of some attention to a differential rear axle. The ideal cycle car transmission is capable of being put in perfect order by an amateur; there may at the moment be few cycle car transmissions which absolutely attain this ideal, but we are well on the way to it. An amateur can fit a new leather disc to the simplest type of universal joint; he can replace belts or chains, or friction discs for himself; he can renew the balls and cones on which a counter-shaft revolves; and if his transmission includes one such complex item as a variable pulley or an epicyclic two-speed box, he can detach that tiny unit and return it to the factory for attention at a trifling cost. Consequently there is still a real opening for the genuine cycle car, and this opening should gape permanently, however splendid the future of the light car proper may prove to be. The simpler vehicle will not only remain cheaper to buy but as its design becomes stereotyped and the quality of its workmanship is improved, it will show an increasing superiority in maintenance costs.



Two striking designs for 1914. Left—the new 5-6 h.p. Montgomery with driving pulley mounted on the camshaft. Right—the 2¾ h.p. Diamond with unit construction of clutch and gears and enclosed chain drive.

IMPRESSIONS OF THE SHOW

AND A BRIEF ACCOUNT OF SOME OF THE LADIES' MODELS.

By MARGARET COOKE.

THIS year, for the first time, I had the opportunity of seeing the Cycle and Motor Cycle Show in the making, and a most interesting sight it was. Peeping in at Olympia on the afternoon of Saturday, Nov. 22nd, I was confronted with piles of huge packing cases, crates, motor cycles, and pedal cycles, all seemingly in the greatest confusion.

A small army of men, each an expert at his own particular calling, was busy creating order from disorder, and in a short time some of the stands were transformed into the most artistic structures, as though further to enhance the beauties of the array of bicycles to be exhibited to an admiring and critical public.

Many of the leading lights of the sport had thus early put in an appearance, and were busy superintending the arrangements of the stands or critically examining arrangements already made.

Truly the motor cycle movement is an extraordinary one, and continues to grow at a remarkable rate! What it will be when machines are marketed at a lower figure it is impossible to conceive.

The Show.

On entering Olympia for the Show proper what a wealth of gorgeous display met the eye! Never before have the colourings of the tanks, etc., been so delicate and pretty, and these, allied with the glittering silver plating, presented a most striking and artistic picture. What a pity that even these magnificent machines should eventually become "crocks"!

Taken on the whole, the Exhibition might well be described as one for the "Paterfamilias," or, more strictly speaking perhaps, for the ladies of the family. This seemed to be fully realised, for on every hand were to be seen ladies taking careful note of sidecars—their comfort and capacity as well as their appearance. With such a variety of designs, it must have been difficult to make a choice. There were models to suit all purses. Sidecars of every conceivable shape and form have been evolved, some with the most luxurious upholstery and fittings imaginable; in fact, they are miniature cars, and look almost as comfortable. Others, again, are large enough for a man to take his wife and family with him to participate in his pleasure—a distinct and gratifying innovation.

Makers have, indeed, excelled themselves in respect of sidecars, and deserve to reap large orders. There were certainly a few weird-looking specimens, but no doubt these also would have their admirers. In the olden days sidecars were made so that the passenger might be quickly shed when occasion demanded (sometimes this happened very frequently). Now one is inclined to wonder how the passenger gets in or out—in some models.

ELSIE AND HER AUTO WHEEL.
A charming photograph of a device which will be much in evidence next year.

Weight and Price.

Sidecaring has undoubtedly been the most popular side of the sport during 1913. Makers have realised this fully, and have catered accordingly by making the motor bicycles more powerful, and in consequence heavier, thus unfitting them for solo riding. The ordinary 3½ h.p. single as we knew it seems less popular. In my opinion this is going to prove a real blessing in disguise to the lady riders' side of the movement. A new type of machine has been brought into being more suitable for solo riding. I mean the two-stroke lightweight which is being marketed at from twenty-five to thirty guineas, and yet is reliable and sufficiently powerful for all ordinary requirements. This will pave the way for a new open frame model, light, powerful, simple in design, and at a price within the reach of thousands who could not afford to pay £50. Two manufacturers assured me of their intentions to build such a model to order at the above price. Surely, we may hope to make still larger additions to our ranks this year.

Ladies' Models at Olympia.

The open frame models at the Exhibition this year were not so numerous as last year, but the few shown were very select and the most suitable yet exhibited.

The Douglas.

Our old friend the Douglas, which has survived the lean years when others have gone under, is still to the fore looking as bright and up-to-date as ever. It has proved its worth so many times in the past summer

Impressions of the Show.—

that no great change has been made in the design, although there are some minor improvements, and it sells at £53. We all believe in the survival of the fittest, hence we must give all honour to Messrs. Douglas Bros., but could it not be made a little lighter.

The Veloce.

This machine made its *début* in 1912. It is a very feasible looking mount, and has some excellent points. I have not had the pleasure of riding it, but have had very good reports of it. The price is forty-eight guineas. A lady's open frame model fitted with the 2¼ h.p. two-stroke engine, as in the diamond frame Velocette shown on the same stand, would be an ideal machine and could be listed under £30.

The Levis.

This machine with its complete frame nickel-plated is a very striking-looking exhibit. It is rather long in the wheelbase, but beautifully low. It is simplicity itself, and should be one of the most popular mounts next year. I ought to say that these machines are not turned out in silver plating; were it so, the thought of the cleaning process would make one shudder. The price is £40.

The Connaught.

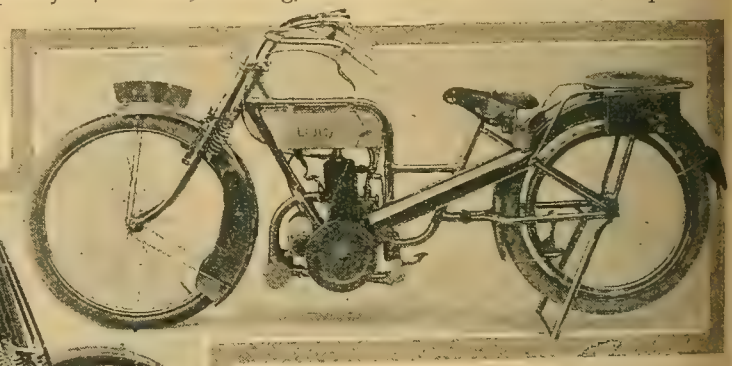
Here we have a machine at a very reasonable figure, namely, £36 for a single-geared model. This is a two-stroke motor cycle of which we have heard much during 1913. It has a 2½ h.p. two-stroke engine which makes for simplicity, has a low saddle position, is rather lacking in mudguarding, and weighs 125 lbs., but looks much lighter.

The Auto-wheel.

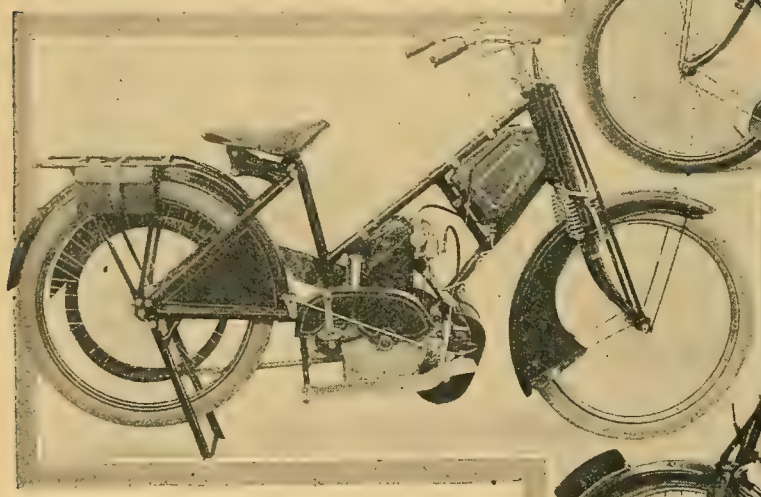
This was a most popular exhibit. It might be called the baby of the Show. Crowds of people were round the stand taking note of its working arrangements. Here we have the missionary of motor cycling, and especially in the case of ladies, who, after a few months' experience with an Auto-wheel, have the desire for a real motor bicycle, and have gained confidence from their experience with the former.

Cycle Cars.

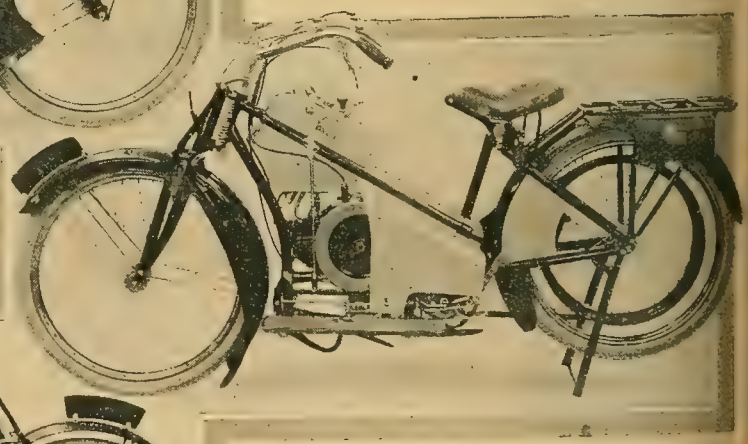
That these are receiving consideration was very evident during the Show. It was almost impossible to get near many of these vehicles because of the number of people inspecting them.



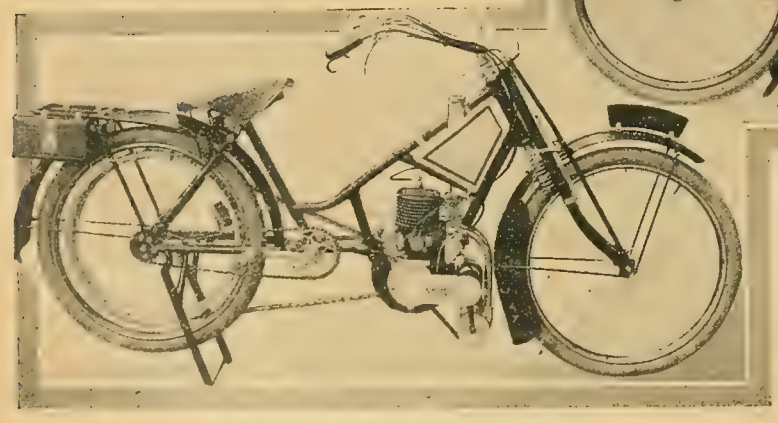
The two-stroke single-cylinder Levis, which is nickel plated throughout.



The 2¾ h.p. two-speed belt driven Veloce.



Flywheel side of the two-speed 2¾ h.p. Douglas, which has belt and chain drive.



The Connaught open frame two-stroke lightweight.

"The Ladies' Club."

Miss Mary Ellis, of 35, Portland Place, W., as mentioned in *The Motor Cycle* of November 20th, is anxious to form a ladies' Club. By supporting this I feel sure ladies will give good impetus to the cause

Letters to the Editor

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Two-stroke Lubrication.

Sir,—With reference to a letter from Mr. Davison in last week's issue, I wish to disabuse the mind of this correspondent and also, I believe, of your good selves, with reference to the question of the lubrication of the Connaught motor cycle.

We have never claimed that we were the *inventors* of this system, as a reference to our 1913 catalogue will show, that we clearly state that it was used in America, and we had adopted it from American manufacturers. What we did claim, however, was that we were the first people to apply this system commercially to motor cycles in England, and that other manufacturers who are using this system have waited until we overcame the prejudice that was naturally engendered before adopting it.

We should be glad if you would kindly publish this letter, as it will remove what we believe is a misconception on this point.

THE BORDESLEY ENGINEERING CO., LTD.
JOHN ROWLAND, Managing Director.

Sir,—I can confirm the statements in Mr. A. C. Davison's letter on p. 1610 of November 20th issue. I had one of the first small Clement-Garrard 1½ h.p. motors imported into this country and received the same tip from Mr. C. R. Garrard, *i.e.*, to combine the lubricating oil with the fuel.

There was, in practice, however, one slight objection to its use, viz., the heavier oil, when thinned down, used to "creep" outside the carburetter and gradually spread over the outside of the induction pipes and the engine generally (behaving very much as ordinary paraffin does in a lamp which is not constantly cleaned), and was a great collector and retainer of road dust.

The mixture of petrol and oil was, however, quite effective as a lubricant. T. W. BLUMFIELD.

Weights—Nominal or Actual.

Sir,—Your "Buyers' Guide" affords very interesting reading. Being a lightweight myself I am always keenly interested in the weights of machines. I am at present riding a very heavy 3½ single-cylinder. I have always had an idea that I would like to try a 6 h.p. twin, but have been afraid to tackle one, because I thought it would be too big and heavy. As a matter of fact, my present machine (which must be in the region of 260 lbs.) is really too heavy for me on very long rides. Judge of my surprise in looking down the weights given in your "Buyers' Guide" to find the 2¾ A.J.S., weighing 180 lbs., is actually heavier than the 6 h.p. Brough (170 lbs.), and, further, it is only an inch shorter in the wheelbase. The 3½ single-cylinder Indian (210 lbs.) is 20 lbs. heavier than the 7 h.p. machine of the same make, and the 4 h.p. single-cylinder Triumph (which I had always looked upon as a fairly light machine) is 10 lbs. heavier than the 7-9 N.S.U.—both of these two latter machines include a three-speed gear.

I think this question of weight interests a large number of readers like myself, who would like a fast and powerful machine but do not feel equal to hauling 2½ cwt. on and off the stand fifteen or sixteen times a day, or steering it about on greasy tramlines. VERY SCEPTICAL.

[The weights, like all other information published in the Buyers' Guide, are supplied by the makers. It is obviously impossible for us to obtain them otherwise.—ED.]

The Tourist Trophy Course.

Sir,—I was very pleased to read your editorial comments upon the 1914 T.T. Races in *The Motor Cycle* of November 20th, and sincerely trust you will use your influence in obtaining better conditions for the next contest. I quite agree with all your remarks regarding clothing, but what is more important, to my mind, is your first suggestion *re* a safer course. You will no doubt recollect that when the mountain course was first suggested, my brother and myself, and also many other experienced riders, decided that the A.C.U. were making a very bad move, and, moreover, for no apparent reason, the general excuse being that the mountain course provides a much severer test for a motor cycle. This, to my mind, however, is a fallacy which has well been proved by the manner in which the Junior machines make light of the mountain climb. My chief objection to the Four Inch course is the number of treacherous corners, any one of which might be the cause of a fatal accident, either in practice or in the actual race itself, to a rider who is not absolutely at home on the course. It is universally acknowledged amongst experienced road racers that the most dangerous corner is not the most acute, but one which can be taken at speed, and with this type of corner the mountain course simply abounds. Proof of this lies in the fact that in every case of a serious accident, it has occurred on a corner of this description. Although, of course, no average road could be considered safe, to my mind the original T.T. course was the nearest to ideal that it would be possible to find without going to the Continent, the number of dangerous corners being very few, and the course being shorter it is more easily learnt.

Trusting that your excellent suggestion will bear fruit,
C. R. COLLIER.

Rear Lights.

Sir,—The correspondence *re* rear lights, in your interesting but *not sensational* periodical, prompts me to put a word in on this matter.

To think that the authorities should want motor cyclists to use rear lights is, to my mind, the most foolish and absurd thing imaginable.

Where the need is greatest it seems to be overlooked, viz.: carters and "push" cyclists. For the last two years I have been in the habit of going to and from London—a distance of twenty miles—and I have only my lucky stars, or my brakes to thank, that I have not been killed through cyclists and carters not showing rear lights.

The cyclists with acetylene lamps are not so much to blame as those with apologies for lamps of oil. Many times I have purposely slowed up to ascertain whether they really had a light at all. Surely these offenders should be forced to carry a reflex light, as it is always the motorist that gets the blame if there is an accident.

Carters give a good example of how the law of England may be evaded. Many times I have suddenly come upon a carter with apparently no red light showing from behind, but when alongside I have discovered the elusive light. This state of things should not be. The rear light is nearly without exception obscured by the freight carried, or fixed in a wrong position. Cannot the authorities turn their attention to matters of grave danger to motor cyclists, instead of trying to enforce a silly regulation on us which is of no good?

I consider these two the only real dangers of the road at night; the car with the blinding head lights is an angel in disguise compared with these. GILERT M. DESPREY.

Missing Bristol Trams and Traffic.

Sir,—The following may be of use to readers going North *via* Bristol.

Coming from Bridgwater take L. turn about four miles before Bristol. This turning can easily be identified by the reservoir filters at the corner. Follow this lane to the next main road which it joins at a motor 'bus terminus, where turn R. and continue until tram terminus, which is on a railway bridge. Cross this bridge and immediately turn L., crossing river and docks by two swing bridges. After second bridge (narrow), sharp L. and alongside docks and river, under Suspension Bridge, and R. fork up hill, at top of which straight on past Zoo until trams again. Follow trams L. for a quarter of a mile, when signpost directs R. to Filton, where L. for Gloucester. Sharp R. at Ship Inn about six miles after Filton.

This misses all trams and traffic except the quarter of a mile mentioned, which is quite suburban. J. W. KAY.

Agents' High Commission.

Sir,—With reference to the Rev. B. H. Davies's "Open Letter to the Trade" appearing in your Nov. 20th issue, and quoting the following lines addressed to the manufacturers: "We venture to think that some of you pay ridiculously high commissions to your agents." Apparently the writer is not very familiar with agents' terms, at least in the London district, or else he would not write of "ridiculously high commissions" being paid to agents. So far from being high, I take it that most agents consider them much too low, and without Mr. Davies's suggestions, they are being decreased for 1914, in many cases. On the other hand, supposing Mr. Davies was to put himself in the position of an agent. He would find his expenses increasing year by year. I might mention advertising as a very good example. A paper with an increasing circulation, increases its rates for advertisements. Other journals spring into existence, and have, in most cases, to be supported by the agents and so in numerous other instances. Let Mr. Davies remember that the manufacturers have in the past, and undoubtedly will in the future, rely upon the bulk of their trade through the agent. This being the case, ought not the manufacturer to look well to the interests of the agents? I consider this particular part of Mr. Davies's article very misleading to the general public, as they will, without doubt, take advantage of such a fact, and ask the unfortunate agent to share some of that *huge commission* with them.

R. G. NYE.

Engine Classification for Records.

Sir,—About four years ago the British Motor Cycle Racing Club instituted a series of classes A, B, C, D, and E, for the purpose of classifying motor cycles for racing at Brooklands. These classes were found to be so convenient that they have been adopted by other bodies, including the Auto Cycle Union and the International Federation. They range from Class A, which is for motor cycles having a cylinder capacity not exceeding 275 c.c. (the origin of which class was the old 70×70 racing engine) up to 1,000 c.c., the largest practicable motor cycle engine commonly used. The increment in capacity of each class above the smaller one is not constant, as the classes were arranged to suit the majority of various motor cycle engines then on the market. For instance, there is only a difference of 75 c.c. between Classes A and B, 150 c.c. between B and C, and 250 c.c. between C and D and D and E.

The classification has been of undoubted value particularly in standardising the 350 c.c. and 500 c.c. machines, and by providing a method of sub-dividing records by which the best machines of nearly all recognised sizes can be at once picked out.

Unfortunately, Class A appears to have been neglected by the manufacturers, and there are comparatively few makes to-day which come within this class, although there are a large number which are only just excluded from it.

The remedy would appear to lie either in the creation of an intermediate class, or in altering the present limit to Class A. The chief objection to increasing the number of classes is that the record list is already somewhat unwieldy, and that any new class instituted between 275 c.c. and 350 c.c. would necessarily be very restricted. The latter objection also applies to an alteration of the Class A limit. As pointed out above, there is only 75 c.c. difference between machines of Classes A and B, whereas if we turn to the record list, we find that all Class D records are held by machines of Class C, *i.e.*, of no less than 250 c.c. smaller capacity. An alteration to the Class A limit would also be an injustice to the present record holders in that class.

You will gather that it is not easy to find a satisfactory solution of the difficulty, and I would suggest, therefore, that you should invite correspondence on this question, particularly from those half a dozen or so makers who at present feel themselves rather hardly hit by the existing classification. G. STANLEY CARTER.

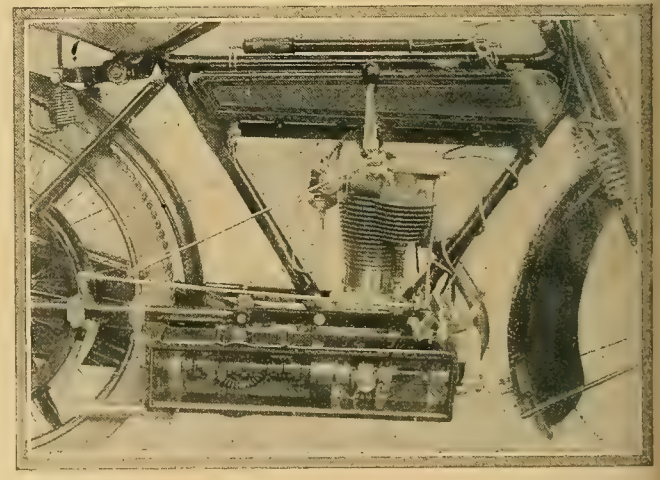
P.S.—Since writing the above, the F.I.C.M. has decreed that Class A is restricted to 250 c.c. This, however, does not help us out of the difficulty.

Cycle Car and Light Car.

Sir,—Like Messrs. Auto-carriers, we were turning out a considerable number of our cars before the term "cycle car" was invented. Nevertheless we do attach very considerable importance to the definition of the A.C.U. It was framed to include a new type of car—one which by its small engine-power and light construction should be at the same time speedy and economical. It was agreed that cars of this type should compete together in order that their merits and defects might be determined by public competition—the results of private trials are naturally taken with the proverbial grain of salt. But for purposes of competition a strict definition is absolutely necessary. It may be arbitrary, but it is essential. As the two distinguishing features of the new motoring were small engine power and light construction, the A.C.U. drew the line in regard to both these points, and their definition is accepted by the R.A.C., the F.I.C.M., and the Manufacturers' and Traders' Unions. No one imagines that there is anything sacrosanct in a limit of 1,100 c.c. and 6 cwt., but the line had to be drawn somewhere if competitions were to be of any value. We quite agree that for some purposes a "commonsense division" (the suggestion of *The Motor Cycle*) may be more satisfactory, but certainly not for competitions. This will, we believe, be acknowledged when the advocates of the light cars come to arrange competitions of their own. Some day, perhaps, competitions will become superfluous; then the necessity for a hard and fast definition will disappear. But the time is not yet. The Tourist Trophy, the Grand Prix, and the Six Days will be as instructive as they will be popular in 1914. MORGAN MOTOR CO., LTD.

Kick-starting.

Sir,—Surely the document entitled "An A.C.U. Certificate," etc., has missed its place amongst the jollities of your Christmas Number; The further I waded into this, the more hopelessly I groped for the "Q.E.D." May I, in simple fairness to a kick starter, the manipulation of which has been my fortunate lot daily since January, set forth an unvarnished statement of its performance. This kick



The power unit and gear of the 2¾ h.p Diamond. This was shown at Olympia under a glass case to facilitate inspection of the working.

starter is housed in a very damp cold country stable. A few nights ago we experienced a big frost. At ten o'clock the following morning the machine, a single-cylinder, was started in the open at the fifth operation of the kick starter, the carburetter being flooded with Shell II., throttle one-third open ignition half advanced—no petrol nor paraffin was injected. Without exception, this engine starts on first to third kick at all other times, far too numerous to reckon, my professional use of the machine requiring hundreds of starts a week. QUICK STARTER.

A Pleasant Run.

Sir,—I might suggest an interesting little run—one of many around Petersfield—which though in parts rather narrow, might appeal to cycle car enthusiasts out testing; that is to turn off on the Leas to Petersfield road at Bowyers, and thence up Rockpit and Old Stonor *viâ* Steep Mill and Ashford. The route is about three miles, and the view to be obtained at the top of the last hill is magnificent, extending over three counties. Many who come through Petersfield on their way to South Harting might be glad to try their machines round some of these local lanes, the surface of which, as a rule, is good. I do not think Old Stonor has as yet been tackled by a cycle car. It is about half a mile long, with a hard though rough surface, about 1 in 4 in parts. A. C. HOLDER.

Retreads.

Sir,—For the benefit of any reader who has but a shallow pocket, I give my experience of retreaded covers.

On the back wheel of my 6 h.p. Rex-de-Luxe and sidecar I fitted a well-known 650×65 grooved cover, which was worn out in 1,200 miles. A second cover lasted even less.

I was advised to have the cover retreaded, and decided upon Messrs. J. Pedley and Sons, Birmingham. I confess I did not expect much wear from a retread; however, this cover ran 2,100 miles without a puncture. Afterwards, I decided to try one of these retreads on the front wheel; this one ran 3,800 miles with only one puncture. I think the mileage remarkably good, considering the weight of the machine. ADAM KELLY.

Reckless Driving.

Sir,—In your number of the 20th ult., a "Car Owner-driver" complains of the reckless driving of some motor cyclists. I am sorry I cannot deny what he says, but I should like to know what consideration is shown to motor cyclists by the majority of motor car drivers—none.

Take, for instance, a car and cycle going in opposite directions: the cycle is forced into the gutter, and now on these greasy roads, when the mud is so thick on the sides that it is positively dangerous—the car driver will not deviate one inch from the centre of the road, and indeed in some cases he even turns his wheel upon you. Again, when a car overtakes a cyclist the driver flies past without giving any warning of his approach. On dark nights, with those blinding head-lights, knowing that one will only be allowed just room to get in between the side of the road and the car, a cyclist rides with fear and trembling. T. D. THOMAS.

Sir,—In your issue of November 20th a letter appeared under the heading signed "Car Owner-driver."

I think my first feeling after reading it was that of utter astonishment that "Car Owner-driver" could possibly have ever been a motor cyclist.

Of course, I admit that the type he writes about does exist, but I put it to anyone who cares to read this letter that the said type *never* "abounds in considerable numbers," even on the Portsmouth Road.

Might I suggest that "Car Owner-driver" should look to his own clan, that of the car owner, before carping at the behaviour of motor cyclists?

To prove that this is not bluff I quote two of my own actual experiences when being driven along the London-Coventry Road in a sidecar. We were going along at a fair pace (well on our right side of the road) when a Rolls-Royce car passed us and cut right in across our front wheel to avoid a car proceeding in the opposite direction, and to get a good space for the immediate swerve to the right up a side turning which the driver made. The result was that we came within inches of a collision through no fault of ours whatever. If that driver had been a gentleman, would he have attempted to pass, knowing that he was going to turn off within fifty yards? Anyhow, to raise "Car Owner-driver's" own point, passing should have been out of the question, owing to the position of the other car.

The second experience took place a month or two after on the same road, but in a place where the road is narrow. Coming towards us was a horse and trap, and some way behind was an Arrol-Johnston car travelling very fast. As we were passing the trap, the car driver attempted to do what "Car Owner-driver" deprecates so much, *i.e.*, cut in between the two vehicles, causing our sidecar wheel to mount the grass at the side of the road in avoiding him, and blowing off the motor cycle driver's cap with the draught caused. I am sure there was not more than six inches between his front wings and our handle-bars. Our remarks were vigorous and to the point when we turned round for the cap.

In both the above instances the drivers were men, so had not even the "recklessness of youth" as an excuse.

By all means, sir, let us have "a sound public opinion on the matter," but in trying to get it formed let us have FAIR PLAY.

The Motor Cycle in the Army.

Sir,—As Territorial motor cyclists who took part in the late Army Manœuvres, we should like to draw the attention of the authorities through your columns to the following facts:

1. We consider that the Government rate of pay is insufficient, and should be increased to 10s. per day.
2. Some adequate means of covering the machine should be provided. It is not good enough to expect machines, in many cases practically new motor cycles valued at anything up to £70, to stand all night in pouring rain, as our own machines did on several occasions this year.
3. The Government should insure both machine and rider. Much of the work is very risky; but it is extremely problematic whether in case of death one's dependents would get anything at all, and it is perfectly certain that a smashed machine would not be paid for by the Government.

To University men these details are not of much account, but to men like ourselves, who are, we trust, quite as useful as men possessed with a considerably larger portion of this world's goods, a smashed up machine and an injury which might prove permanent, if it is not fatal, are very important items.

We have not joined the Territorial Force with the idea of making money out of it; but we think the Government, which is considerably more wealthy than any of us happen to be, should find money to cover out-of-pocket expenses on manœuvres, to save the machine from greater damage by the elements than is absolutely necessary, and should also adequately recompense any man who happens to be injured on Government service, and repair damage to his machine incurred on the work free of all charge to him.

We give our names for your information, and sign ourselves,

SEVEN MOTOR CYCLISTS, TERRITORIAL FORCE.

Petrol Gauges.

Sir,—In your issue of November 13th your contributor "Ixion" grants me my contention that the sunk in type of gauge registers correctly, but he still finds other faults which I do not think fairly belong to it, and, like Oliver Twist, I crave for "more." He says that he has never managed to read his from the saddle, but I am sure I have read of him performing feats of adjustment while running, which must have necessitated him stooping to a position which would make reading a gauge child's play, so that I can only suppose he never tried very hard.

By a coincidence, since writing the article, I have heard a gentleman, quite a stranger to me, say that he could read his easily. The other two defects he mentions are the risk of losing the needle valve and the risk of being deceived if the rod is screwed quite down. Now, surely, the first of these could only arise from defective workmanship, and is not an inherent fault of the gauge. If the screw is a proper fit, and the rod put in with a slight camber as it should be, it will stay in any position and be quite free from rattle, and, in any case, the probability of it jumping up five inches and so getting lost seems rather a theoretical objection.

As regards being deceived by the needle valve being

closed, there is no need at all to close it, it is only a safeguard against the very remote chance of the glass getting broken, and some hard riders discard it altogether and take the very small risk.

In any case the trouble of unscrewing it half a turn if in doubt should not worry even the most happy-go-lucky individual. A. C. DAVISON.

Disqualifications in the Streatham Trial.

Sir,—I shall be obliged if you can spare me space to say that Mr. Cocks's disqualification in the above trial, as having claimed a non-stop which he had not accomplished, proves to have been due to his card having been hastily and carelessly signed and handed in at the conclusion of the event. It appears quite certain that he had no intention of making such a claim, and there is, therefore, no imputation against his honesty. SYDNEY J. TAYLER,

Judge of the Trial.

A Motor Cycle Show in Manchester.

Sir,—A few weeks ago I saw it stated that there was a possibility of a motor cycle show being held in Manchester early next year. I hope the idea will not be allowed to drop. Such a show is bound to be a success, for there are thousands of Northern and Midland motorists and prospective motorists who cannot get to Olympia.

Let us have a show at Rusholme, either to precede or to follow the car show.

Re excessive garage charges. Recently in Birmingham I was charged 1s. 6d. for seventeen hours for my bicycle with sidecar. It was explained that the charge was 6d. for six hours or fraction of six hours. E 1806

Date of Six Days Trial.

Sir,—I note with regret that the A.C.U. have fixed an early date in July for their 1914 Six Days Trial instead of a date in August.

If there is any chance of this arrangement being reconsidered I am sure you would earn the gratitude of most private owners, including myself, if you could, by means of any representations in your columns, or otherwise, induce the A.C.U. Committee to fix a later date.

So many private entrants are free in August, who would be quite unable to get off in July to compete; and the same applies to hundreds of others interested as spectators, and observers, etc.

It seems certain that the change to July would cause a falling off in entries, and in public interest generally; besides causing great disappointment to many, who, like myself, have looked forward to this trial as the chief feature of their summer holiday.

Hoping that you will kindly use your influence in this matter in the interests of the private owner.

C. PERCIVAL.

Exceeding the Limit.

Sir,—At about 8.30 p.m. on the 27th ult. I was riding a motor cycle along the Shooters Hill Road, when I was signalled to by a police constable and subsequently informed that I had been timed over a measured furlong and found to have exceeded the legal limit. I have no doubt such was the case.

It is only when oneself is so caught that one realises with what good grounds the bitter complaints I so frequently receive from the members of this Union are made. It is almost fatuous to remark that no responsible member of the motoring community objects to police regulation of traffic, or to the most vigorous action being taken against those who abuse the facilities of the road. It is equally true that every motorist habitually breaks the law.

I had hoped that the circular issued by the Home Secretary some little time ago would have abolished at least this class of trap—a trap deliberately designed to catch the unsuspecting motorist with no reference to the safety of the public, *i.e.*, the choice of an exceptionally wide, straight, level piece of road with no dangerous curvings, comparatively little traffic at any time, and practically none at night.

It would appear, however, that appeals to the discretionary powers of the Metropolitan Police, usually so wisely exercised, are in this matter made in vain, and the reason that at once suggests itself is hardly a creditable one.

T. W. LOUGHBOROUGH,
Secretary Auto Cycle Union, 89, Pall Mall, S.W.

The Price of a Differential.

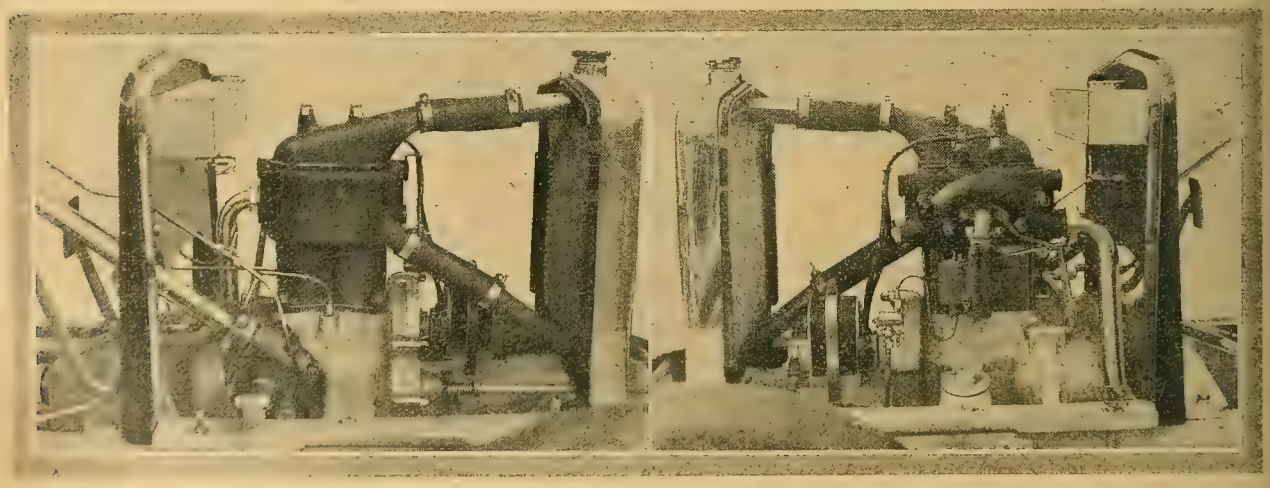
Sir,—The question of dispensing with a differential has been largely discussed in your interesting journal, but as this item is universally adopted in motor car practice, I do not see the reason why it can not be produced by British manufacturers at a low price.

Six years ago I owned an Orient buckboard 4 h.p. single-cylinder air-cooled engine located on the rear, and have actually in use a Metz runabout 8 h.p. opposed twin air-cooled engine carried in front under bonnet. The friction drive on both vehicles, including a small differential on the counter-shaft—so small, in fact, that it can be entirely covered with both hands—has given me no trouble at all, the final drive being by two chains to rear wheels. In my opinion a friction drive on these lines is most suitable for cycle cars and light vehicles and can be turned out at a very low figure.

Water-cooled engine, up-to-date carburetter, and better springing are the improvements that I should like to have in my next vehicle, which, I expect, will be a British made cycle car.

I read always with great interest your journal, which I receive regularly every week, and wish it continued success in the future.

E. DE PERMENTIER.



Two aspects of the twin-cylinder water-cooled Perry cycle car engine showing position of magneto, carburetter, and radiator.

SHOW GLEANINGS.

FURTHER NOVELTIES ON EXHIBITION AT OLYMPIA LAST WEEK.

A Neat Double-seated Sidecar.

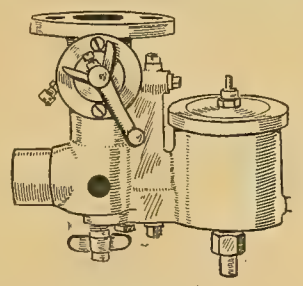
On the stand of the N.S.U. Motor Company, Purcell's double seated sidecar was shown. This is an interesting type sidecar of which the body is intended to carry two people seated tandem fashion, the back seat being a type of dickey. The body is mounted at the rear on double C springs. The chassis is of the double tube variety, and suspended at four points, while it is interesting to note that the joints are not brazed but acetylene welded. The frame is also dropped five inches; ten gauge spokes are employed, and a 2½ inch Hutchinson tyre is fitted. Illustrations appear on page 1650.

A Novel Sidecar Body.

Mr. James Parker, of Kendal, who was assisting the staff of the Scott Engineering Co., has brought out a novel sidecar body constructed on striking lines, which, made by a pattern maker, has no less than 800 pieces of wood, on the same lines as a wood pattern is made for a foundry. The body is like an elongated egg. The back semi-spherical piece is removable, and can be made to act as a receptacle for spares, etc., or even for carrying a small quantity of luggage. The interior of the body is beautifully upholstered, and the two fitments on the dash are a clock and speedometer, the latter being driven from the sidecar wheel. The dotted black line on the second illustration shows the position occupied by the seat. The base of this seat is only three inches from the floor and is tilted back. It will be noticed that the boy seated in the sidecar appears quite happy and comfortable. This illustration was taken to show that the seat, although a low one, is not intended to provide an abnormal position.

Sthenos Carburetter.

The Sthenos carburetter was shown at Olympia by Mr. J. A. Ryley, of Martineau Street, Birmingham, and is sold in a form suitable for the engines of cycle cars. It possesses two jets, one for starting and slow running and the other, which is a larger jet, for higher engine speeds. This model is practically the same as the larger types, except for the

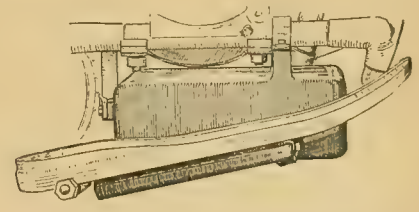


The latest pattern Sthenos carburetter.

fact that the regulating screw is done away with. On the throttle being opened the level of the petrol in the duct leading into the pilot jet falls so low that no petrol reaches it, and the main jet alone comes into operation. The points of accessibility have been well studied, and it is easy to get at the jets or to remove the cover of the float chamber.

A Tiny U.H. Magneto.

A new type of lightweight magneto was shown on the stand of S. Wolf and Company, specially designed for the smaller types of motor bicycles. It is completely waterproof, including the high tension terminal, which is neatly constructed and attached by means of a well designed snap fastener. The ignition point is fixed, and, instead of having two magnets, the little machine is provided with a large single one. The pole pieces are of standard pattern, the new U.H. type of pole pieces being only employed on magnetos in which the firing point is variable. A new type of contact breaker, which can be easily dismounted, is also fitted. It is interesting to note that the weight is 3¾ lbs. against the larger size, of which the weight is 5 lbs.



The large sized silencer and extension pipe under footboard on the horizontal twin-cylinder Bradbury

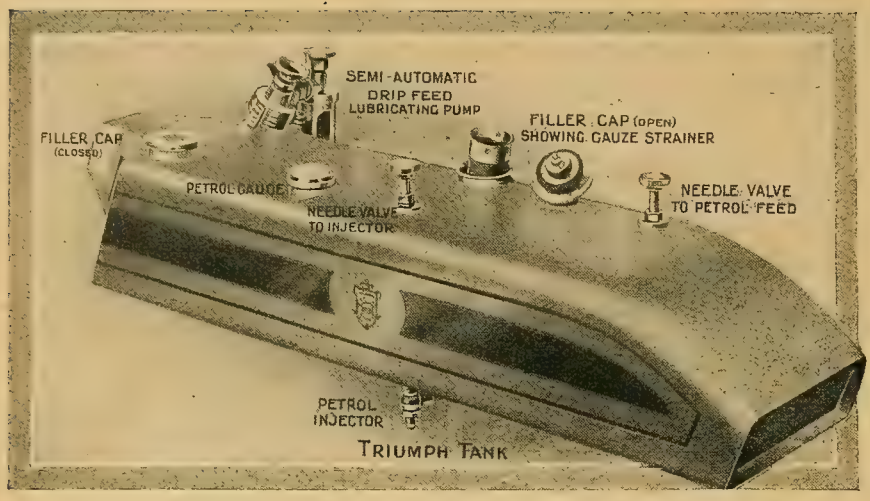
To Put Out Fires.

The Kyl-Fyre extinguisher was shown at Olympia last week. It was made by Kyl-Fyre, Ltd., of 12, Elms Buildings, Eastbourne. In case readers should think that in giving information regarding this fire extinguisher motor cycles are very prone to catch fire, we wish to correct any erroneous idea but would like to point out that it is as important to be in a position to deal with petrol flames on the road or in the garage as it is to insure against fire itself.

A New Belt.

The Stelastic Tyres, Ltd., 76, York Street, Westminster, whose tyres are well known to motor cyclists and cycle car owners, had on show last week at Olympia a new belt. Instead of a canvas core, this belt has a core made of wire springs interwoven on the same principle as the springs used in the composition of the Stelastic covers. The coil springs are arranged longitudinally so that when the belt is running over the small diameter of the engine pulley the coil spring will bend and take the same

A novel streamline sidecar made by J. Parker and Son, fitted in the front with a watch and a speedometer the latter driven from the sidecar wheel



Tank of the 1914 pattern 4 h.p. Triumph showing the whole of the fittings mounted thereon.

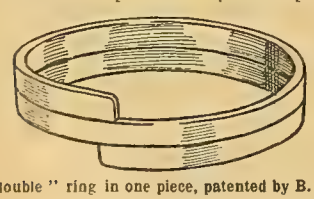
radius as the circumference of the pulley, and return to its original position without putting any strain on the wire. If a long flexible coil spring be taken in the hands and bent or folded to the circumference of the engine pulley, the action of the springs will readily be seen. Of course the rubber is pressed in between the coils in the moulding process in such a manner that each coil is supported by indiarubber, and the wires cannot work against each other and cause wear.

A New Fafnir Engine.

A new engine is being marketed for 1914 by Messrs. G. Strauss and Co., 211, Upper Thames Street, E.C. The engine is a low compression big single-cylinder of 689 c.c. The bore is 89 mm. and the stroke 96 mm. Like the other models, this engine is beautifully finished. The flywheels are extra heavy. The radiating fins are cast very thin. The valve caps are castellated. The usual method of operating both rockers by one cam is retained. The magneto is chain-driven. The weight of the engine is approximately 90 lbs., and it was illustrated on page 1604a of our last issue.

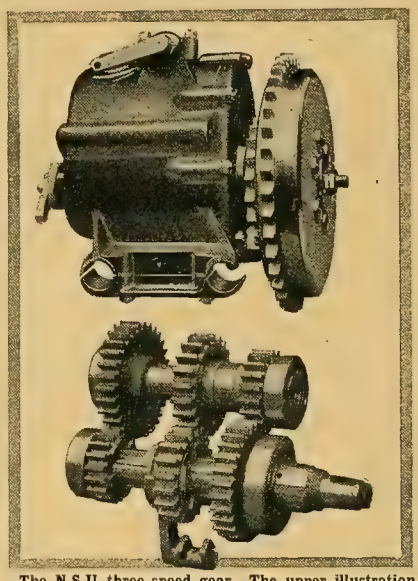
A Novel Piston Ring.

Mr. B. Yates last week showed us an interesting piston ring which has been patented in his name, and will in future be fitted to Humber motor cycles. The ring consists of a spiral coil of special piston ring cast iron, which is so arranged that in every part there are two complete coils round the piston body. A specially



A "double" ring in one piece, patented by B. Yates.

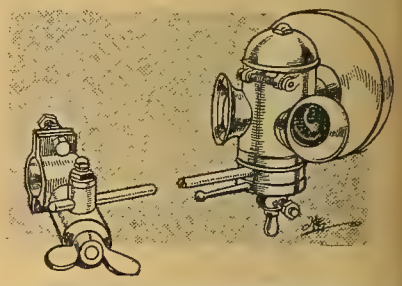
cut groove is, of course, necessary, and the ends of the ring are arranged to overlap. Besides giving excellent results in use the ring is particularly easy to detach, for this may be done by merely lifting the top or bottom ends out of the groove and unscrewing it either way.



The N.S.U. three-speed gear. The upper illustration shows the complete box, large clutch, and smooth exterior. The lower view the two gearshafts

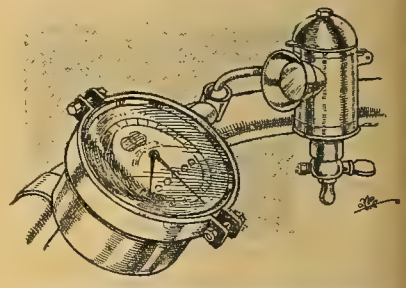
Novelties in Lamps

Several very neat accessories for motor cycles have been introduced by J. and R. Oldfield, Ltd., whose works are at Warwick Street, Birmingham. One is a



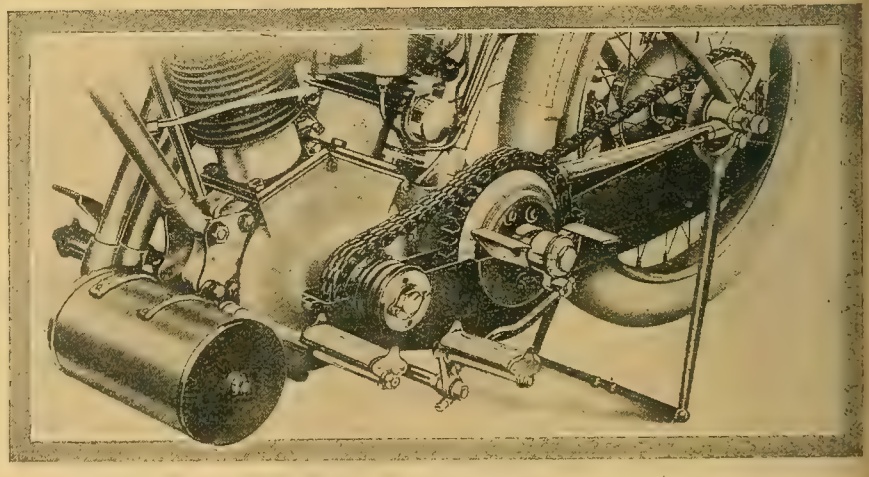
A combination rear light, speedometer lamp and mirror made by J. & R. Oldfields.

neat acetylene lamp, very tiny in its proportions, and fed from the ordinary generator to illuminate the speedometer. It is secured by a special clip designed to be clamped around the speedometer dial. We illustrate another novelty, viz., a combination rear light speedometer lamp and mirror. The mirror is used in

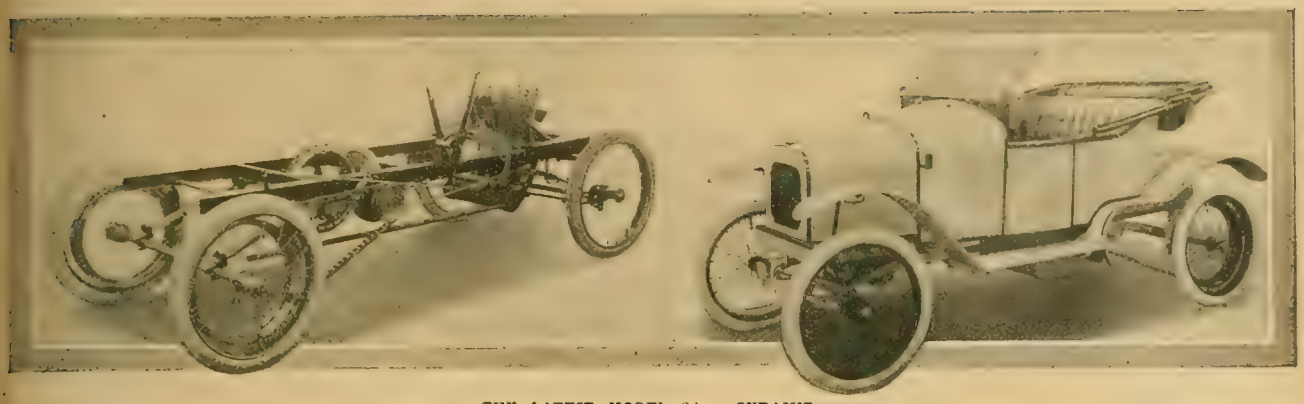


Oldfield's lamp for illuminating the speedometer dial.

daylight, while at night the lamp is brought into use, the white light illuminating the speedometer, and exhibiting a red light to the rear. Other motor cycle accessories include an electric handle-bar lamp and a swing over mirror with lever joint. Messrs. E. S. Thomas and Co. are the London agents.



Silent chain drive on the 7 h.p. Matchless, also showing clutch, shock absorber, and large silencer.



THE LATEST MODEL 8 h.p. PYRAMID.
Semi-rear view of the chassis, showing friction disc, belt drive and position of engine. The complete machine. Observe the clean lines and smart finish.

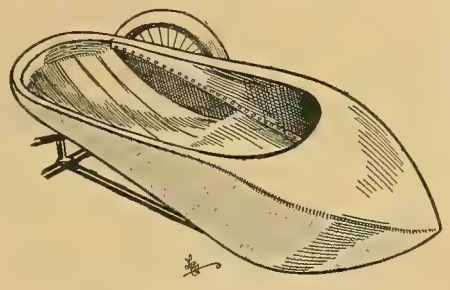
The Pyramid Cycle Car.

The Pyramid cycle car, made by Payne's Engineering Co., Hogarth Lane, Chiswick, W., is a two-seater, friction and belt-driven. The engine is a J.A.P., of 8 h.p., fan-cooled. A short propeller-shaft conveys the power to the friction gear, by which is given four speeds forward and a reverse, the ratios being 4.5, 6.7, 11, and 21 to 1.

The friction gear varies the spring pressure proportionately with the gear ratio, and gives higher efficiency on top gear by reason of the true rolling contact of the bevel friction wheels at top speed. The driven disc slides on a two-inch counter-shaft carrying adjustable pulleys, whence the final drive is by one-inch V belts to the back wheels. The frame is of channel steel supported on straight tubular axles and four quarter elliptic springs are used. Steering is by rack and pinion, controlled by a 14in. wheel, and we are assured that the car holds the road well at high speeds. The throttle, spark, and air controls are mounted on the dash, which carries a Best and Lloyd semi-automatic feed. Also the switch, the clutch, and the throttle are operated by pedals. The gear and another brake are controlled by levers set inside the body, which has a seat 38in wide, with a door on the side, and a locker at the rear.

A useful addition to the front of a sidecar is a wind screen as marketed by C. W. Bluemel Bros shown above

The ground clearance is eight inches, and wire wheels are fitted with 650 mm. × 65 mm. Avon tyres. The wheelbase is 7ft. and track 3ft. 6in. The chassis weighs 4¾ cwt., whilst the complete weight is 6¾ cwt.



The racing Canoelet sidecar, with hammock seat The bottom is composed of a strong twill

C.A.V. Lighting Sets.

The accompanying illustration is that of the cycle car lighting set made by C. A. Vandervell and Co., Warple Way, Acton Vale, W., and consists of a 6 volt dynamo battery in case, switchboard and head lamp, pair of side lamps and a tail lamp. In the illustration, a pair of head lights is shown, but Messrs.

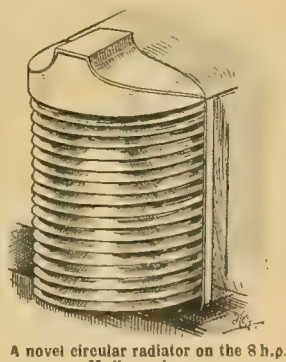
The complete C.A.V. cycle car dynamo lighting set.

Vandervell suggest that in the case of small cycle cars one head light is sufficient. The name of Vandervell is a sufficient guarantee to prove the suitability of this set for the purpose for which it is designed. The switchboard is known as the Hero type and has four tumblers, for the head lamp, the side lamps, the tail lamp, and one for the dynamo respectively. The set illustrated is the light car set, which comprises a somewhat more expensive switchboard than the Hero, a pair of medium sized head lights, etc., but the cycle car set is, to all intents and purposes, the same. The same firm make a speciality of head lights for motor cycles. All the C.A.V. motor cycle head lamps are now fitted with an improved focussing adapter. This allows for focussing the bulb, and the end piece which supports the cable is curved so as to relieve the armoured insulation of all friction.

The C.A.V. new pattern magneto and handle-bar control.

The Wolf Two-speed Gear.

In the description of the 2½ h.p. Wolf model in the last issue, we referred to the two-speed counter-shaft gear, clutch, and kick-starter on this machine, priced 32 guineas as an Albion—as a matter of fact, the machine is supplied with either Albion two-speed counter-shaft gear, chain, and belt drive, at 30 guineas, or Toroga two-speed counter-shaft gear, free engine, clutch, and kick starter at 32 guineas. The Wolf is one of the most moderate priced machines on the market, and is excellent value.



A novel circular radiator on the 8 h.p. Media cycle car.

OBSERVATIONS.

T. O. M. Sopwith, one of the earliest motor cycle and tricar drivers, now a prominent airman, has chosen a 10 h.p. A.C.

On Thursday last, W. H. Carson on his big single Excelsior carried a load of six people, weighing altogether 65 st. 9 lbs. up Netherhall Gardens, Hampstead, with plenty of power in hand. He informed us that if he could have discovered a method of carrying another passenger, he would have done so. The total weight of the passengers and outfit amounted to $12\frac{1}{4}$ cwt.

The new twin Brough with horizontally-opposed cylinders created a great amount of attention. We were interested to notice that the old Mercédès car system of running the valve springs through the stem of the valve instead of using cotters and caps was adopted. It adds to simplicity and lightens the valve.

The F.N. sections, showing clearly the working of the engine, gear, and transmission, were always a magnet.

Extraordinary care has been bestowed on the fitting of chain cases in many instances. So far from the cases looking ugly, they often actually improve the appearance of the machine. Lea-Francis, P. and M., Sunbeam, and A.J.S., came in for many flattering remarks on this point.

Trial runs during Show week were very popular, especially as the weather throughout was fine and mild.

The glass case which covered the gears and working parts of the engine on the $2\frac{3}{4}$ h.p. Diamond was an excellent idea and enabled anyone to grasp easily the principles of this interesting and cleverly designed machine.

We were very glad to see so many makers showing sections of engines, gears, carburetters, etc. Nothing explains more clearly to the interested novice how a mechanical contrivance actually works, and even experts seemed to take a pleasure in seeing "how the wheels went round."

The luxurious polished wood Bedford cord upholstered sidecar on Dunhill's stand came in for a lot of praise from the ladies, but mere masculinity did not take so kindly to its splendours. A wag suggested it ought to be sent through the London-Exeter-London Christmas Run under A.C.U. observation, and all damage to varnish and upholstery carefully noted.

Harry Bashall's choice for 1914 is a Morris-Oxford light car, which he hopes to drive in competitions next year. His brother, Aubrey, has arranged to take delivery of the special Show model Grand Prix Morgan, which he also will drive in the leading competitions of 1914.

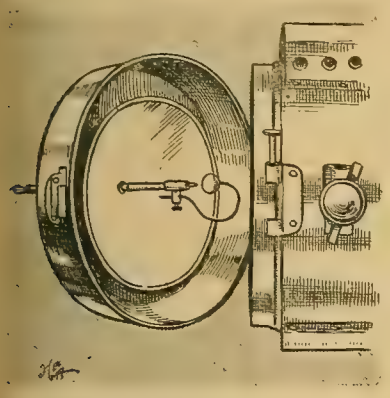
Everyone seemed to be talking "two-stroke." There is no doubt that something in the nature of a boom in this type of engine is being experienced.

The Depford stand had a prominent notice displayed "300 ordered for America." Another bore a notice, "Sold to S. F. Edge, Esq."

General view of the exhibits in the Main Hall at Olympia looking towards the Annexe

INCANDESCENT LIGHTING

Outside Olympia last week we noticed a very brilliant searchlight being projected on the walls of the houses in Hammersmith Road. On investigation, we discovered that it was a demonstration of a portable searchlight belonging to the Fallot Incandescent Light Co., Ltd., of 27, Noel Street, London, W. This light is an application of a patent pastille to motor lamps, searchlights, etc.



Fallox incandescent light showing the solid pastille.

Briefly described, it has the same advantages which the gas mantle gave to ordinary gas burners of the fish tail type,

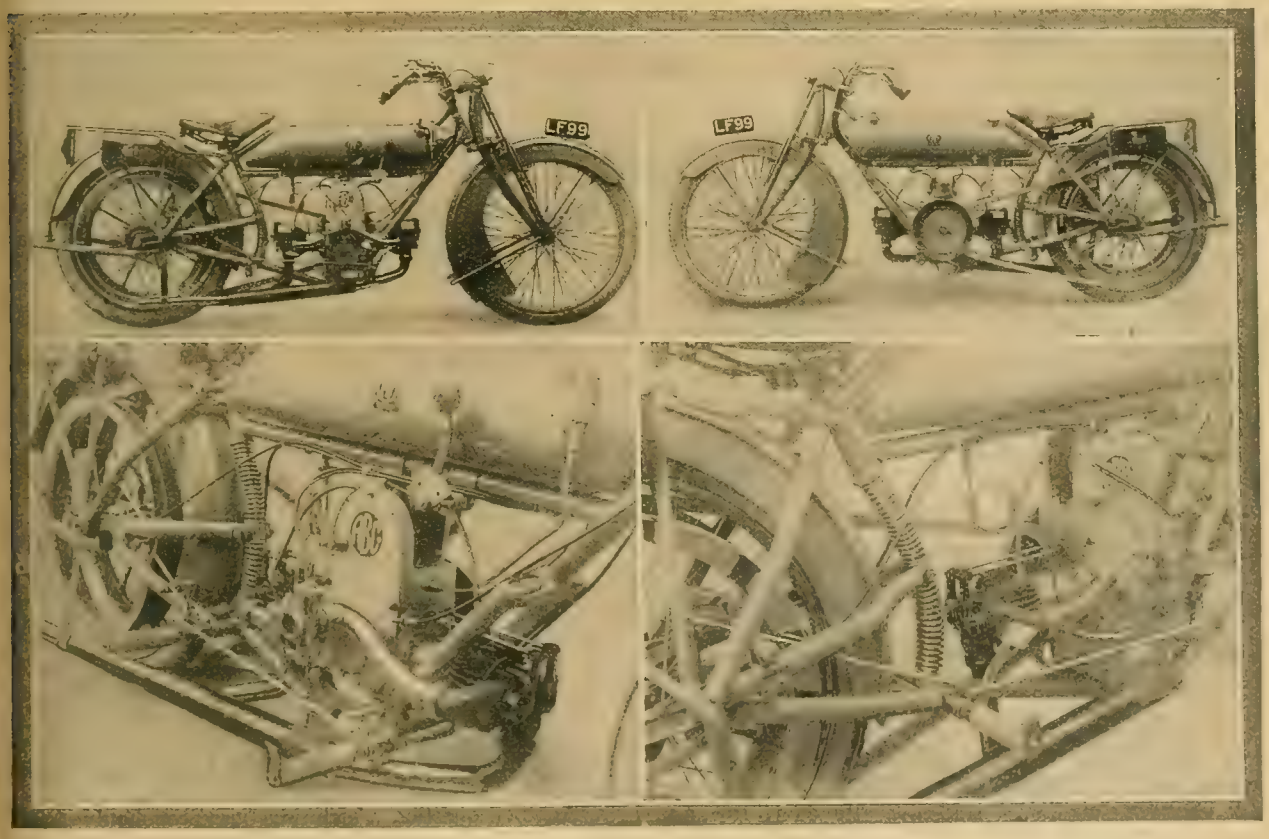
An oval type of Dover sidecar wind screen fitted with "non-flam."

but in place of a fragile mantle, a solid pastille is employed, which is heated to a high degree of incandescence, thus giving a point of intense light. It is claimed that the light which can be obtained with a given consumption of gas has never been attained before.

In addition, the consumption of gas is reduced to a minimum, the special generator designed for producing this gas being unusually small. Another advantage is that all light is reflected. This is because the incandescent pastille is directing the whole of its rays against the lens from which they are afterwards projected forwards by suitable focussing provided by sliding the burner through the centre of the mirror lens. Either a penetrating parallel beam or a spreading light over a wide field can be obtained. This is one of the most attractive features of the patent.

THE SPRING FRAME P.V.

Messrs. Elliston and Fell, Perry Vale, Forest Hill, S.E., are marketing for 1914 a new spring frame P.V. model, fitted with an A.B.C. horizontal opposed engine. This machine has been redesigned and is much neater in appearance than formerly. The frame forms a triangle underneath the engine. Below we illustrate the T.T. model, the roadster differing only in having a square tank instead of a round one, footboards and upturned handle-bars instead of dropped. All the other P.V. spring frame models are fitted with the 70 × 85 mm. and 76 × 85 mm. J.A.P. engines, Sturmey-Archer gears, Best and Lloyd lubricators, Bosch magnetos, and the usual first quality fittings.



The 3 h.p. P.V. in its latest form is fitted with an horizontally opposed twin-cylinder A.B.C. engine and spring frame

The two top illustrations show both sides of the complete machine while the lower ones give an idea of the general design of engine and method of springing

Some Humours of the Show.

By A STAND ATTENDANT.

IT has been said, and truly, that if one wishes to meet a Londoner all that is necessary is to take up one's stand at Charing Cross. Sooner or later the vigil will be rewarded. But standing at Charing Cross for an indefinite time, besides being decidedly monotonous and uncomfortable, is also impossible for a man who has to earn his living; and, anyway, I was by no means sure that my man was living in London.

It was an old schoolfellow whose whereabouts I wished to discover, so, knowing that he was a keen motor cyclist, the idea occurred to me that the Show afforded an excellent and much more congenial Charing Cross, provided I could be there the whole week. A stand attendantship seemed to fill the bill if it could be obtained, for there I would have the advantage of the fixed point in the stream past which, sooner or later, every floating straw must drift.

The first opportunity, therefore, which afforded itself was grasped at once, and Monday morning found me, in the company of fourteen other more experienced and genuine showmen, taking up my position on the Auto-wheel stand. From then on till Saturday evening, I dealt, to the best of my ability, with the thousands of questions hurled at me by interested, ignorant, cynical, or humorous persons. Some of these questions were quaintly funny.

Queries.

For instance, early in the week a visitor quite endeared himself to me by confessing that his hobbies were motor cycling and engineering, and we swopped lies about what we had done, and what we were going to do, and so on. This, however, was merely an introduction to the main point—could my interlocutor use an Auto-wheel both as it was intended to be used, and, when desired, as a power plant in his workshop? We discussed the momentous question at some length, discussing fans, beds, shafting, and so on, and decided that it could. The result of our deliberations emboldened an earnest enquirer to the remark that gardening was *his* hobby, and would an Auto-wheel and a garden roller——?

When the laughter had eased off a little, the earnest enquirer was not to be seen.

It must be borne in mind that nineteen out of twenty visitors to the stand had absolutely no mechanical knowledge whatever, but, even then, some of the questions asked seem almost incredible. What, for example, could one say to the lady who had been carefully watching the piston rising and falling, and the plug sparking, in a dissected model, what time the man in charge explained in words almost of one syllable just what it was that made "the wheels go round." It went something like this:

"You see, madam," said the attendant, turning the engine over by hand, as he spoke, "when the piston goes down a partial vacuum is created above it. This allows the inlet valve to open, and the piston sucks in a charge of gas, which is then ——"

"But it isn't doing it!"

Attendant heaves a muffled ——, takes a deep breath, and patiently points out that the vacuum is scarcely having fair play with only half a cylinder to help it. Notwithstanding an audible snigger from the back row, the lady, only half convinced that the whole thing is not a swindle, graciously permits the dazed attendant to proceed with his little lecture.

"At this point, then, a spark, as you can see, crosses the plug points and explodes the charge. The force of this explosion instantly sends the piston ——"

"Does it do it immediately, did you say?"

"Oh, yes, quite inst——"

"Then, surely there must be a great danger of it blowing out the spark!"

And firmly convinced that only her own astuteness had saved her from being swindled, the fair questioner shot a righteously indignant glance at the speechless dacoit behind the model, and moved haughtily away.

Horse-power.

The meaning of horse-power, not unnaturally, perhaps, caused a good deal of misunderstanding. One man who had been listening while I explained that the gradient which the Auto-wheel would climb unaided must, necessarily, be governed by certain factors, such as the presence or otherwise of wind, the nature and state of the surface, the weight of the rider, and so on, interrupted me to say that surely I must be mistaken His horse "didn't take no notice of anyone's weight"; in fact, he "didn't see 'ow an 'orse could tell to a stone or two, much less a little bit of a box o' tricks on a wheel."

A careful explanation of the intimate relationship existing between engine revolutions and horse-power failed to move him, and he shouldered his way through the crowd muttering that he'd "got an old yaller dog at 'ome wot 'ad more 'orse power nor that, and more 'orse sense too."

Two ladies, on different days, one a Londoner and the other from Dublin, strangely enough propounded almost identical questions, founded on the same misapprehension of the meaning of horse-power. The London lady explained that she shortly intended making an extended tour through Europe on a caravan, and wished to know whether it would be possible to dispense with horses, and install in their place four Auto-wheels coupled together between the shafts. The lady from Dublin differed only from the caravan enthusiast in assuming that an Auto-wheel *would* be a perfect substitute for a horse "and ever so much cheaper." Fancy an Auto-wheel between the shafts of a brougham!

Another question which was very commonly asked was, "Why don't you fit a neat cover all over the engine?"

Some Humours of the Show.—

I was asked on several occasions how often it was necessary to re-charge the magneto, and on one of these, whether in earnest or as a joke I could not decide, for there was not a shadow of a smile on his face, another member of the crowd struck in with an answer, or, at any rate, a surmise. He supposed the ordinary magnesia, obtainable at any chemists, would do. A passing wag, overhearing this brilliant suggestion, stated that he had found citrate of magnesia to be the best form, adding that in case of compression failure at any time it would be always advisable to carry a small box of compression tablets in the toolbag. Another time someone had complained about the lack of footrests. A fellow in the crowd looked ostentatiously downwards at the other's feet, then, looking up, enquired: "'Ow much extra would it be for a pair of railway platforms?"

Experts and Knuts.

One youth took me into his confidence so far as to explain (after a knowing beck and behind his hand) that he had for some considerable time past been saving up for a bicycle, and had at last accumulated funds sufficient for the purpose, but that his financial affairs did not admit of his indulging in an Auto-wheel as well. However, he would prefer the Auto-wheel. Did I think it would take him long to learn to ride it without a bicycle?

Then there was the knowing man, backed up by a few admiring members of the same cycle club. Laying his hand on the float chamber, he would enquire briskly and brusquely, "How often do you have to fill this up with oil?" or, toying with the magnets, "I see you've got a different type of silencer this year?"

I had rather a joke with one such knowing gentleman. I had stuck on to the backbone of my Auto-wheel one of those miniature petrol cans which Pratt's were distributing as souvenirs, and had found it useful, on occasion, to raise a laugh. Some low born thief eventually stole it, but that is by the way. Well, four would-be knuts pulled up, ripe for a little nether limb extension. One of them constituted himself Arch Filbert, and, after a little banter, asked, "What's that for?" pointing to the little can. (It was about two inches in height.)

I told him that it was for carrying a spare supply of petrol. Strangely enough he took this seriously, and was greatly disconcerted by the derisive howls of his brother barcelonas. I fancy I had got the better of the preceding badinage, and this thought appeared also to strike another of the nuts, for he assumed a conciliatory air, and, in an as-one-man-to another kind of way, began discussing seriously just what happened exactly when the bicycle turned either to the right or the left.

The Principles of Steering.

He disagreed with my explanation of what did happen, and I tried to convince him by a second explanation, which included references to such ordinary terms as horizontal and vertical planes, angles of inclination, points of road contact, and so on. It was quickly apparent that he had not the haziest notion of what I was talking about, and, as he insisted on pretending that he quite understood—"but that didn't affect the question," which was, would the Auto-wheel lift off the ground? I succumbed to the temptation of pulling his leg.

For one glorious minute, or so, I plied him with a torrent of such chemical, electrical, botanical, hydrostatic, and ballistic technical words, phrases, and expressions as I could recall to mind, turned out as quickly as I could utter them (and it has been stated that my ordinary manner of speaking is too rapid), and I was beating my brain for something really brilliant as a peroration, when the horrible thought entered my head that there might be some sane person within hearing, and, leaning forward, I lowered my voice impressively and wound up (with both brakes on hard), "and so, sir, as the old Greek poet says, although in quite a different connection, for, of course, here we are not dealing with the centre of gravity fashionable in those far-away days, *mens sana in corpore sano*. But you see my point, for, of course, the principle remains the same?" And I beamed benignly on him and stood up.

He had been trying for about threequarters of a minute to make his face look as though he understood, and judging from the net result, I don't think that some of the muscles he brought into play had ever been used before. After his jaw had moved up and down noiselessly once or twice, his face relaxed here and there sufficiently for him to get at his mouth, so to speak. But he was game. There was a certain amount of judicious and deliberate consideration in his tones as he replied:

"Well, perhaps you're right after all. I don't pretend to ——. Yes, I think the wheel *wouldn't* rise on corners. Come on, boys."

I expressed my pleasure at having convinced him at last, and hoped that after our serious conversation his friend on the left would pardon me for having tried to pull his leg in the matter of the spare petrol can.

That was the most interesting personal encounter I had with an "expert," but one of my fellow attendants was congratulated (on behalf of the firm) on the 1914 improvements. This particular "expert" thought that the universal joint on the high tension wire was great.

Price Cutting.

One old gentleman pointing to a model which was fixed on a wooden stand alongside the front wheel of a bicycle, remarked casually that "The d—— thing comes out pretty expensive after all. I didn't think you had to fit 'em to the front wheel as well."

Talking of expense reminds me of another incident. After a very exhaustive explanation of the little machine, its capabilities and its limitations, my hearer said to me:

"There's only one thing as I can see as'll prevent a lotta people frum buyin' it, an' that's the price."

I agreed that this was possible, and suggested tentatively that if the price were five pounds, and the potential buyers thereby greatly increased, that even then all would not be joy, for a still greater public would then be waiting to rush to the bank when the price was still further reduced to ninepence.

He enthusiastically agreed with me, got a ticket for a trial run, and is, I fancy, waiting for the year to arrive that will bring with it the ninepenny motor cycle.

I found my friend. TOUCHSTONE.

TIME TO LIGHT LAMPS.

Dec.	4	4.51 p.m.
,,	6	4.50 ,,
,,	8	4.49 ,,
,,	10	4.49 ,,

Pan Saddle Patents.

The Law Officer at the High Court of Justice last week decided in the case of Brooks *v.* XlAll that the applicants' (XlAll, Ltd.) patents be sealed and the defendants were ordered to pay the costs of the applicants attending the hearing.

Records at Brooklands.

On Thursday last Max Heinzel, on a 190 c.c. 2 h.p. N.S.U., beat the three-hour record in Class A for machines up to 275 c.c. In that time he rode a distance of 135 miles 1,101 yards, which gives an average speed of 45.21 m.p.h. The previous record, made on the 6th ult., was 134 miles 366 yards, and stood to the credit of R. O. Clark (F.N.).

1914 Scottish Trials.

We were glad to meet Campbell Macgregor, the secretary of the Edinburgh and District M.C.C., at Olympia, looking quite fit after his mishap last summer. We gathered that there was little doubt that the Scottish Trials would again be held next year, but the question of the date was rather a stumbling-block, owing to the dates for the big A.C.U. events being brought forward next year. Scotland is still under snow in May in many parts, so probably the Scottish Trials will have to be later than usual, say August.

America's National Road Race.

An event which promises to equal, if not surpass in point of interest and true competition, any previous motor cycle contest held in the States, is the 300 mile road race to be held on the Grand Prize Course, Savannah, Georgia, on Christmas Day. It will be national in its scope, and many of the country's best riders will compete. Prizes will total $850, and will be distributed as follows: First, $500; second, $250; third, $100.

The entry list is limited to 100, and the fee charged is $10. Many leading American manufacturers are planning to enter teams of three. Entries have already been received from about twenty-five individual riders, and others have signified their intention of participating in the event.

The famous Grand Prize Course, used in the Vanderbilt Cup Races, will be the scene of the race. The course is 11.25 miles to the lap, and the contestants will be called upon to make twenty-seven laps, or a total of 303¾ miles. We fear the announcement is too short for any English riders to take part.

"The Motor Cycle" Show Report.

We desire to acknowledge with many thanks the receipt of many congratulations on our record Show Report Number of last week.

There was a total of 244 pages, and the postage on each copy posted abroad was 5d.

If the 91,000 copies of this issue were placed one on another, they would make a pile higher than Skiddaw.

The Date of the Six Days Trials.

The early date fixed for the A.C.U. Six Days Trials next year (July 5th-11th) is unfortunate in that it is almost bound to cause a rather poor entry of private owners. A very large number of amateurs cannot arrange their summer holidays till August, but owing to the big racing programme to be carried out in the Isle of Man during next summer, the A.C.U. have practically no choice in the matter.

Presentation.

A very successful function was held at the Florence Restaurant, Rupert Street, on Wednesday of last week, when the "F.N." (England) Co. invited Mr. R. O. Clark to meet some of their clients, and took the opportunity of presenting him with a silver cup as a souvenir of his recent accomplishment on a 2½ h.p. F.N. (275 class) at Brooklands.

A Capital Suggestion.

There is a strong probability that the 1914 trials in Scotland may be so arranged that a start be made on a Thursday and the finish timed to occur on the following Wednesday evening. This would allow competitors to rest on the intervening Sunday and give them time to change their tyres in comfort at the half-way stage. Altogether, this plan seems to us to be an admirable one, for these trials are so strenuous under present rules as to constitute more of a tax on the rider than on the machines, and this has never been the idea of promoters of such trials. We have little doubt that competitors would heartily welcome such an innovation.

Initials of Machines.

At one time cars threatened almost a monopoly of nomenclature by initials, the fashion being started by the Italians with the F.I.A.T. Nowadays motor cycles and cycle cars have equalled, if not passed, cars in this respect, and the Italians are still to the fore with the S.I.A.M.T. Among others identified by the first letters of their full names are the B.S.A., N.S.U., A.J.S., F.N., L.M.C., M.R., P.V., N.U.T., O.K., P. and M., A.C., G.W.K., and G.N., while among engines we have, of course, the J.A.P., A.B.C., and M.A.G. Again, there are

SPECIAL FEATURES:

SOLO MACHINES AT OLYMPIA.
EXPERIENCES WITH BENZOLE.

the B. and B., S.U., U.H., U. and I., and F.R.S. among well-known accessories. We wonder how many motor cyclists can give the full name correctly of all these makes?

Miniature Motor Cycles.

Those who talk of the miniature motor cycle as an entirely "new" type conveniently ignore the existence of machines such as the Motosacoche, 2 h.p. Humber, and 1½ h.p. N.S.U., to mention but three which have been on the market for some years.

M.C.C. London-Exeter Run.

Additional entries for the M.C.C. winter run are given hereunder.

H. Johnson (3½ T.T. Triumph)
F. J. Watson (3½ Ariel sc.)
G. T. Gray (5 Rudge sc.)
S. Tharp (3½ Triumph)
E. Frasetti (7 Indian sc.)
J. H. Kerr (3½ N.S.U.)
R. R. Rothwell (10 Singer)
G. P. Howe (3½ Rudge sc.)
H. Playfair-Robertson (3½ Premier)
M. G. Abraham (5¾ Zenith)
D. S. Ainger (3½ Sunbeam)
F. G. Barton (10 Morris-Oxford)
E. F. Baxter (6 Rex sc.)
R. T. Blattman (6 Grandex)
W. Bretherton (8 G.W.K.)
J. F. Buckingham (8 Buckingham c.c.)
R. K. Butler (8 Sparkbrook sc.)
K. E. Don (3½ Rover)
H. E. Fairchild (6 A.J.S. sc.)
T. S. Fordham (7-9 Premier sc.)
S. G. Gliksten (8 Humberette)
W. M. Greenwood (8 Little Midland c.c.)
L. Inscoe (6 A.J.S. sc.)
H. Haynes (3½ Premier sc.)
J. H. Jeffery (9 Matchless c.c.)
J. Lake (3½ Bradbury)
A. C. Maitland (10 Beacon c.c.)
R. F. Mann (8 Duo c.c.)
F. H. May (8 Morgan c.c.)
S. D. Marr (8 H.S.M. double sc.)
F. E. Mocatta (8-10 G.N. c.c.)
L. Mogridge (3½ Rudge)
A. Noble (10 A.C. c.c.)
W. J. Brownsort (6 A.C. Sociable)
J. Munday (6 A.C. Sociable)
J. Oliphant (7-9 Premier sc.)
P. C. Oxborrow (8 H.S.M. double sc.)
P. Pike (2½ Levis)
C. Pressland (8 Crouch carette)
C. Taylor (2½ Connaught)
F. E. Thomas (3½ Triumph)
H. A. Thompson (9 Buckingham c.c.)
F. C. Townshend (8 Humberette)
R. E. Townshend (3½ N.U.T. sc.)
P. W. White (8 Matchless sc.)
C. R. Woolley (8-6 Clyno sc.)
G. Bax (3¾ Scott sc.)
V. Garland (8 Williamson sc.)
O. P. C. Collier (5¾ Grandex)
R. E. Guest (8 Collier sc.)
A. Mariani (8 Morgan)
T. S. V. Phillips, R.N. (5 A.J.S. sc.)
S. W. Carver (6 Rubr sc.)
T. Rigley (6 Brough)
K. A. MacDonald (3½ Singer)

Entries finally close on Monday next, the 8th inst. No more non-members can be elected in time for participating in this run. From present indications a total of 200 entries will be reached. Already there are over 100 in hand.

Copies of the instructions to competitors will be issued in a few days

Venue of Next Year's Six Days Trial.

It is proposed to hold the annual A.C.U. Six Days Trials, fixed for July 5th to 11th, 1914, in North Wales, with Chester as a centre.

Hideous Hoardings.

The Scapa Society has addressed a letter to the Chairman of the A.A. and M.U. (Mr. W. Joynson-Hicks, M.P.), asking him to use his efforts and those of his Association to prevent the disfigurement by hideous hoardings of beauty spots visited by motorists.

F.I.M.C. International Trials.

Mr. T. W. Loughborough informed us last week that Grenoble, near Lyons, would be the venue of the Six Days International Trial to be promoted by the F.I.M.C., and that he hoped a representative team, or teams, would go over from this country to compete. It was also the intention of the A.C.U. to do all in its power to promote interest in this event and to make it as international in character as possible.

A.A. and M.U. Notes.

WINTER ROAD INFORMATION FOR MEMBERS.—Now that the winter season has arrived, members of the Automobile Association and Motor Union are advised to keep themselves well acquainted with the road information issued every week by the Road Department. The Road Patrol organisation enables the Association to obtain prompt reports of impassable or bad roads; when motoring in districts where roads are liable to be flooded by heavy rains, members are especially recommended to consult the road patrols.

Exhibits at the Show.

Many people will be rather surprised to learn that there were actually fewer motor cycles in Olympia this year than last. There were more stands, however, and this led to a reduction in the space available on each. The actual figures were 608 motor cycles this year, against 638 last year. In 1911 the total exhibited was 529. Cycle cars show a shrinkage also, but probably this can be accounted for by the vigorous adhesion to the A.C.U. cycle car definition insisted upon this year before admission to the Show. There were 90 cycle cars, including chassis, on exhibition, against 99 in 1912, and 33 in 1911. The attendance was much greater.

A Sporting Suggestion.

Mr. R. H. Head, chairman of the Motor Cycling Club Committee, told us last week that the M.C.C. have had in view for some time past a scheme for organising a run from London to Edinburgh to be undertaken by a rider of a motor bicycle, and that they would beat any aeroplane constructed in a speed trial between the capitals of England and Scotland. The distance, as our readers know, is about 400 miles, and if only permission could be obtained for an open course for a single rider the M.C.C. have a man in view who they say, could beat the existing aeroplane time for 400 miles. Although we publish the paragraph concerning the sporting suggestion, we think that the possibility of obtaining permission for a road event of this nature is extremely remote.

FUTURE EVENTS.

Dec. 13.—Birmingham M.C.C. Open Cycle Car One Day Trial.
" 13.—M.C.C. Annual Dinner.
" 26-27.—MOTOR CYCLING CLUB Winter Run from London to Exeter and Back.
" 26-27.—Bristol M.C.C. Open 24 hour Trial to Land's End and Back.
" 27.—Birmingham M.C.C. Reliability Trial to York.

1914.
Jan. 14.—A.C.U. Annual Dinner.
" 23.—Liverpool A.C.C. Trial.
Mar. 7.—A.C.U. Spring One Day Trial.

Large Orders.

A telegram ordering 1,000 of the Levisette motor cycles was received by the makers during Show week. The Levisette was, by the way, probably the lightest motor cycle in Olympia last week, scaling 80 lbs. Contracts with different makers for 300 machines were common.

The 1914 Paris-Nice Trial.

Many of our readers will remember the Paris-Nice competition run by *l'Aero*, and for which *The Motor Cycle* organised an English team. Next year this event will take place between the 18th and 20th March, and will, we understand, be a great improvement over last year's trial. The rules and route cards will be printed in English for the benefit of British competitors. The more southern part of the course will include the famous road from Bourg to Nantua, in which there are numerous hairpin bends, and gradients in places of 1 in 6. The Riviera will be reached *via* Grenoble and the Alps, and on the last day there will be a hill-climb on the road which rises straight away from the Bay of Monaco to the fort situated far above in the hills. Already several well-known English riders who took part in the Paris-Nice last year have expressed their desire to enter again, and over one hundred entries are expected in France alone.

A Race Across a Desert.

A most severe test of motor cycle endurance was the race across 441 miles of desert, from San Diego, California, to Phœnix, Arizona, on November 2nd. It was won by Paul Derkum of Los Angeles, and the most astonishing feature of his record is that he beat the best time made by cars over the famous "desert course." His time was sixteen hours and four minutes, while the best time made by a car between the two cities was sixteen hours and forty-nine minutes. Derkum's lead over the other contestants in the race was three hours and twenty-nine minutes ahead of his nearest competitor. That the desert race is no joke is indicated by the fact that one of the entrants in the contest is missing, and grave fears are entertained for his safety.

A New Fishguard Road.

Fishguard, the town with the reputation of having the worst main road hill in Wales, last week celebrated the opening of a new road, made at a cost of about £4,000, to avoid the old hill with a gradient of 1 in 3 and with two hairpin bends. A large number of motorists assembled in the square of the old town. Col. Ivor Phillips, addressing the crowd at the ceremony, said he thought this improvement would be appreciated not only by the people of the district but by motorists from all parts of the country. The old road out of Fishguard to Cardigan, Aberystwyth, etc., was always looked upon with dread by motorists, and he thought the time was not far off when local authorities would receive grants from the Commons, and would have to see that roads were kept in good repair or would lose that grant. The cost of the new road was raised by subscription. In the days when the pilgrims journeyed to St. David's it was known as "Ye Bad Way," and until that afternoon it certainly was. Colonel Phillips's car, followed by a long string of other motorists, then moved forward breaking tapes across the road.

The first motor cycle up the new road at Fishguard. The machine is a 6 h.p. Enfield sidecar. (See accompanying paragraph.)

Running a Triumph on Benzole.

I HAVE just completed 1,400 miles running on benzole with my 3½ h.p. Triumph and coach-built sidecar attached on an average consumption of 100 miles per gallon, and I think, perhaps, a few notes on the subject may be of interest.

Acting on the maxim that a smaller jet and the same air is preferable to the same jet and more air, a reduction in the spirit orifice can be made at once, and in view of the fact that benzole does not evaporate as readily as petrol, a jet with a number of small openings is better than one large one, as the liquid has a greater chance of becoming atomised by the inrushing air.

A Smaller Jet.

Experiments were, therefore, made with a six-spray N.L.G. jet, and by stopping up one or more of the sprays various results could be obtained. The air cone was first removed with good results as regards power, but finally replaced, as it was found to give quieter running. Three of the jet openings were stopped up, and with the remaining three open the machine attained a good speed on the level with fair power on hills, the air lever being always in advance of the throttle, but as a little more power appeared advisable one of the closed jets was re-opened.

The writer of the accompanying article mounted on his 3½ h.p. Triumph and Canoelet sidecar outfit.

With this four-jet arrangement the machine has frequently carried three up at well over twenty-five miles per hour with a 4¾ to 1 gear, and will run at seven miles per hour on top gear without misfiring. The spirit used is the standard 90% benzole.

No great amount of trouble has been experienced in starting up when cold, a few drops of the liquid injected into the cylinder curing any stubbornness on a cold day on first taking the machine out.

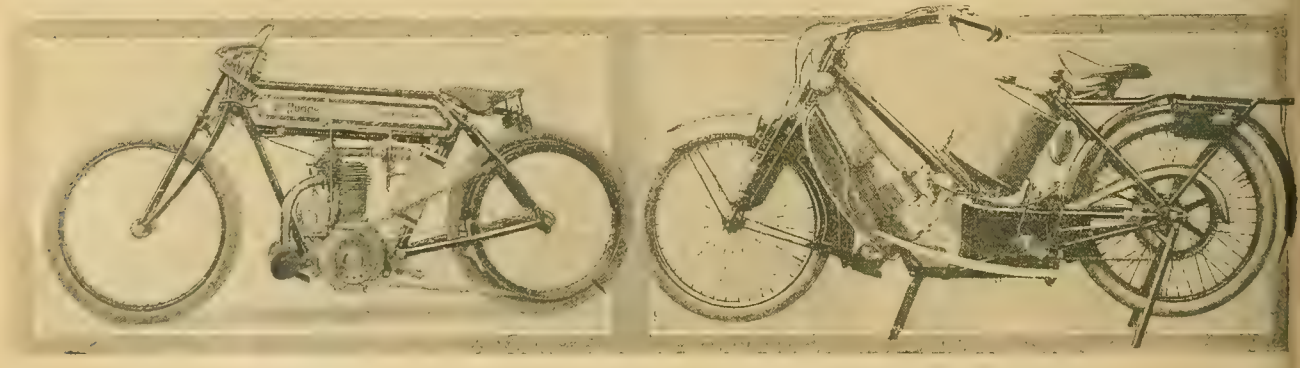
The Lodge plug has never sooted up, and in order to produce black smoke from the exhaust outlet it is necessary to close completely the air lever, showing that with ordinary driving the combustion is practically perfect. After running 1,000 miles the cylinder was dismantled for cleaning, and the slight deposit of burnt oil due to over-lubrication removed. This deposit was of a soft nature, and easily scraped off with a knife.

The Effect on Enamel.

The only drawback to the use of benzole is the effect on the outside of the tank, as great care must be exercised to prevent spilling the liquid when filling; but if by accident any should run over the side, do not attempt to wipe it off or the green and red enamel will be completely removed. Benzole apparently softens the enamel, but if allowed to dry naturally it hardens again, a slightly roughened surface being left. I have not noticed any effect on the aluminium finish nor on the black stoving on the frame. The engine tends to run slightly hotter than with petrol, but this is not surprising in view of the extra power obtained. Finally, no alteration has been made to the float for the simple reason that benzole is not obtainable everywhere at present, and there is almost certain to be some occasion when the supply in the tank is exhausted, when any previous alteration of the float would mean excessive flooding with petrol.

From these experiments the writer is convinced that when once motor cyclists realise the entire absence of knocking, and the marvellous way an engine will keep on plugging up a stiff incline, they will consider benzole to be quite the best fuel obtainable.

F.E.S



AT OLYMPIA 1) 1914 model 3½ h.p. T.T. Rudge. 2) Transmission side of the 3½ h.p. 1914 Scott.

The Inauguration of the Electrified Indian.

ON Wednesday of last week the Hendee Manufacturing Co., whose new address is 366-368, Euston Road, N.W., invited a few friends and press representatives to an informal luncheon, held (in the words of the menu) "to inaugurate the opening of the new English wigwam of the Hendee Company, and to meet the president of the firm, Mr. George M. Hendee."

Mr. W. H. Wells (English manager) occupied the chair, and amongst those present were Messrs. G. M. Hendee, R. H. Head, T. W. Loughborough (A.C.U.), Alfred Bednell (secretary Manufacturers' Union), T. K. Hastings (Hendee Company's Australian manager), D. S. Baddeley, and others. *The Motor Cycle* was represented by Mr. W. Grew.

The speeches were brief and to the point.

Mr. Head proposed the health of Messrs. G. M. Hendee and W. H. Wells. Mr. Wells, who was the first to reply, explained in a few words his gratitude to Mr. Hendee for the help and free hand he had been given to organise the business on British lines. Mr. Hendee, in replying, invited any of those present to Springfield (Mass.), to inspect their works, and explained that the luncheon was held to inaugurate the opening of their London premises.

Mr. O'Reilly, in a dry vein, expressed his views on the early types of motor cycles.

Mr. T. W. Loughborough, in welcoming the Indian machine to British shores, said that he was sure British sportsmen would be glad they had such a good machine to try and beat. He hoped that, in next year's International Six Days Trials, to be held near Grenoble, France, Mr. Hendee would use his influence to secure an American team for the competition.

The company spent a pleasant hour inspecting the premises, the lay-out of which has been the work of Mr. W. H. Wells, who found the building (an old coach works), though after his efforts we do not think the original tenants would recognise it now it has been transformed into a most up-to-date motor cycle depot.

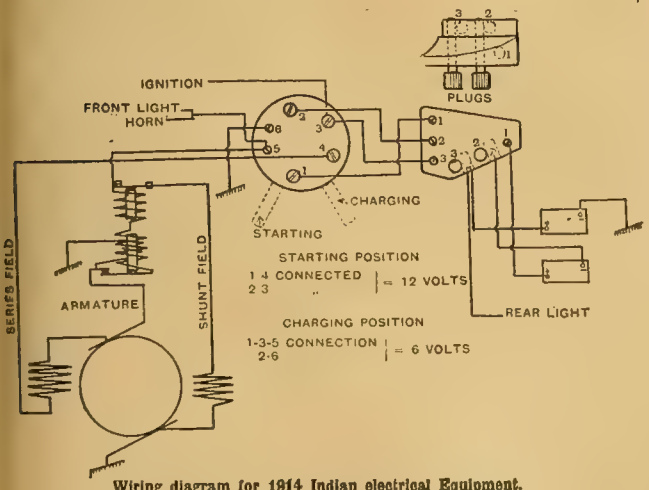
Mr. George M. Hendee's Views.

We had an interesting chat with Mr. Hendee, who extended us a cordial invitation to visit the Indian factory. He informed us that he was very much surprised at the large amount of business which they had done in this country and the Continent, as he was previously under the impression that the British public was somewhat antagonistic to American motor products. It was explained that British motor cyclists recognised the Indian as a first-class production and were interested in it as purchasers. In competitions it was given a fair field, and every credit was given to it for its leading position in some of the more important races, and other competitions which have taken place during the last two or three years. In comparing British and American depots and garages for the sale of motor cycles Mr. Hendee said that his company had in America several large depots of their own and were rapidly extending branches in this direction, not only in America but also in British colonies and the chief Continental cities.

The Designer of the Electrical Starter.

We also had a very interesting conversation with the designer of the new Indian electric starting and lighting device (Mr. G. B. Jacobson), who is the member of the technical staff who is responsible for this ingenious addition to the Indian Special, particulars of which we have already published. It will interest readers, however, to know that the batteries will light two lamps, with the machine at rest, for twenty-five hours, and, if desired, the starter can be used as an auxiliary to the power given off by the engine if it should be labouring when ascending hills. The power provided in this way is equal to one horse-power if the starter be switched on when the engine is running.

Mr. Frasetti, a well-known competition rider, demonstrated to the visitors the ease with which the engine could be started by means of the electrical motor, and also showed, in a darkened portion of the basement, the illuminating powers of the electrical head lights; the electrical "buzzer" horn was also demonstrated. One or two enthusiastic motorists among those present sat across the machine and started up the engine with the greatest ease by merely switching on the starting dynamo. In Mr. Jacobson's opinion, the spark produced by means of the batteries (which, by the way, are known in the States as "starting batteries"—being somewhat specially designed for this purpose) is quite equal to any spark produced by a magneto. We pointed out to Mr. Jacobson that, possibly, batteries using ordinary liquid electrolyte would prove unsatisfactory on the majority of unsprung motor bicycles, but in the case of the Indian with its rear and front springing they would be no doubt satisfactory. Mr. Jacobson assured us that the Hendee Co. had not placed their starting ignition and lighting device on the market without experimenting with it in a very thorough manner; in fact, for upwards of two years he has been perfecting the arrangement. He quite agreed that in the case of an unsprung machine the batteries might easily give trouble through vibration, and that the rear springing of the Indian saved the situation. Of course, semi-solid electrolyte would be equally good from the vibration view point, but batteries so filled do not give the same ampèrage for a given plate area or the same ampère hours as those of the liquid variety owing to the enormously increased resistance of the semi-solid electrolyte.



Wiring diagram for 1914 Indian electrical Equipment.

RECORD ATTENDANCE FIGURES AT OLYMPIA.

The attendance at Olympia last week was, as can be verified by the figures given below, very much greater than last year, Wednesday being a record day, when no fewer than 33,126 persons passed the turnstiles The total attendance for the week showed an increase of 16,873. This is extremely gratifying to us when comparing the figures with the circulation of over 90,000 for our Show Report Number.

Mr. C. D. Clayton, the Press Manager at the Show, who provided us with the above figures, also informs us that it was generally recognised by all the foreign journalists who attended the Show, and particularly the American pressmen, that the Olympia Motor Cycle Show was the Show of the world for motor cycles and cycle cars, although there were splendid examples of motor cycle construction from both America and the Continent, these journalists were struck by the general quality of the exhibits and were quite enthusiastic about the high standard and merit and progress shown, particularly in cycle car and sidecar construction.

Our congratulations are extended to the Show Management Committee of the Cycle Manufacturers' Union and its secretary, Mr. Alfred Bednell.

OLYMPIA FIGURES.

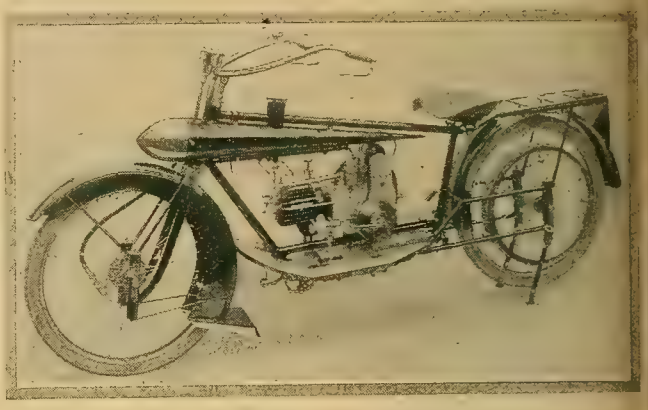
	This year	Last year.
Monday	17,069	15,165
Tuesday	20,321	17,941
Wednesday	33,126	27,334
Thursday	28,290	25,520
Friday	19,415	16,892
Saturday	29,528	28,024
Total ..	147,749	130,876

The Interesting Wooler Two-stroke.

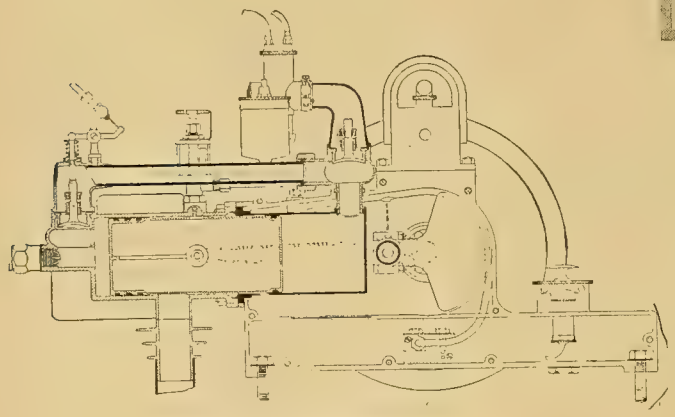
An original design having a two-stroke single-cylinder horizontal engine.

THIS machine arrived rather late at the Show last week, and was consequently omitted from our report. It has not undergone any startling alterations since last described in these pages, but a fresh company has been formed, under the title of the Wooler Engineering Co., 453, Strand, London, W.C., with works at Harrow.

The Wooler engine is an unconventional type of two-stroke, in which there is no crank case compression. The piston is double-ended, and on its up stroke draws in mixture through an automatic inlet valve. An explosion at the other end of the piston causes the mixture to be compressed in the chamber, and forces it through the transfer pipe and a check valve at the end of it into the combustion chamber, where it is then fired. As the pressure falls at the return of the piston a fresh charge comes into the displacer chamber, and the exhaust is driven out by the in-coming charge through a port in the cylinder. The gudgeon pin passes right through the piston, and to each end the two connecting rods, which are outside the cylinder, are attached, the gudgeon pin passing through slots in the cylinder walls.



The two-stroke Wooler in its latest form



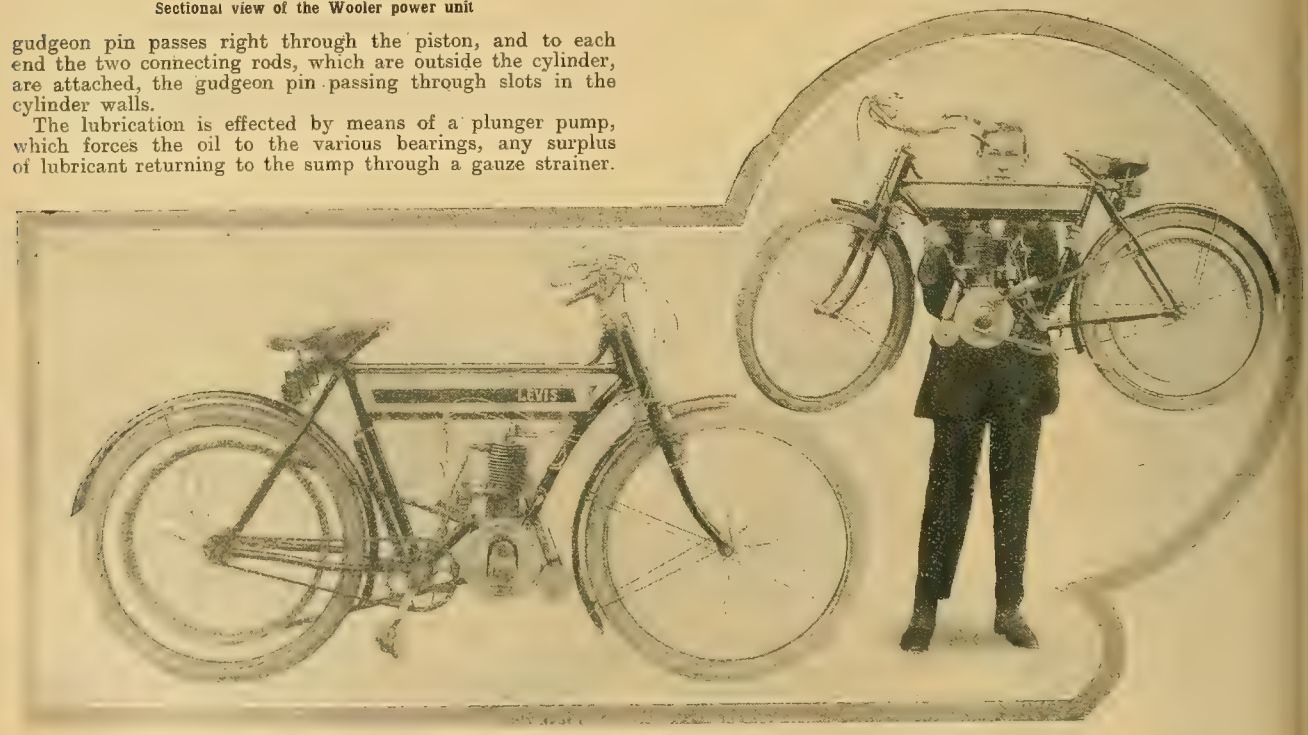
Sectional view of the Wooler power unit

The lubrication is effected by means of a plunger pump, which forces the oil to the various bearings, any surplus of lubricant returning to the sump through a gauze strainer.

An expanding type of under-geared pulley is fitted, and worked by means of a rocking pedal, which can be locked in several different positions. The pulley is also provided with a belt tensioning and shock absorbing device, allowing the slack of the belt to be quickly taken up, and absorbing the engine shocks.

The machine is well equipped as regards mud-guarding, and is provided with comfortable footboards, while the wheel spindles are supported between coil springs working in tubes.

The attractive looking torpedo shaped tank is provided with two compartments, and, if desired, one portion can be filled with paraffin and one with petrol, as this engine works admirably on the heavier type of fuel



THE NEW 1½ h.p. LEVISETTE TWO-STROKE.

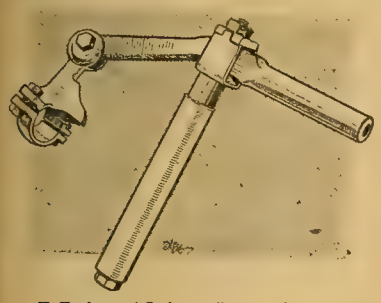
Side view showing magneto position and design of frame.

Showing how easily it may be lifted off the ground, as the machine weighs only 80 lbs. complete.

AMONG THE ACCESSORIES.

A Spring Seat Pillar.

The Cantilever Spring Seat Pillar, made by H. Taylor and Co., 21a, Store Street, Tottenham Court Road, W.C., should go a long way towards reducing the vibration of unsprung sidecar models. The pillar portion "A" is fitted to the seat tube in the ordinary manner. The bracket "B" is clipped round the top tube, and the springing of the pillar is worked by means of a coil spring concealed in the partion which fits inside the seat tube. The movement of the saddle is



H. Taylor and Co.'s cantilever spring seat-pillar.

through an arc, and has a vertical movement of about one inch. Our experience of this type of cantilever pillar is that it is very comfortable, and very acceptable on rough roads.

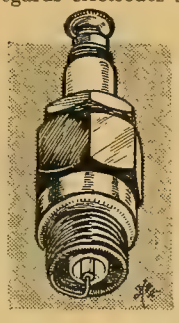
For those riders who believe in such things, Messrs. Taylor supply a policeman mascot, in cast metal, holding under his left arm an enlarged watch. His right arm is extended as if in the act of stopping a motorist. It is excellently made and will doubtless prove popular.

A New Gas Whistle.

The firm of H. M. Hobson exhibited at Olympia last week an interesting little warning whistle operated by the pressure of gas in the cylinder. As readers know, the usual motor cycle whistle is operated by the pressure of the exhaust gas. The one now under review is slightly different. Instead of the whistle being on the exhaust pipe it is screwed into the cap over the exhaust valve, the thread on the whistle being the same as on a sparking plug. Reference to the annexed sketch will show that the whistle projects a little higher than a long sparking plug, but on engines which have a fair clearance between the combustion head and the tank, or on engines which have combustion heads extending beyond the underside of the tank, there is sufficient space to fit the whistle and allow the lever to operate it. As will be seen, the lever is drawn downwards by the Bowden cable and wire, and, according to the position of "A," which is adjustable, the sound of the whistle is shrill or mellow. The address of the makers is H. M. Hobson, Ltd., 29, Vauxhall Bridge Road, S.W.

The Cup Plug.

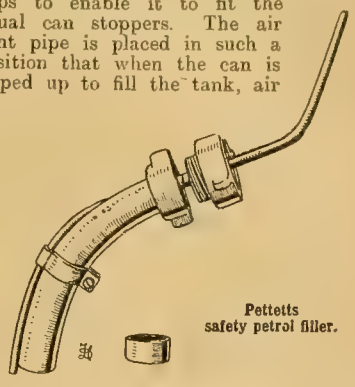
The new model Cup plug is illustrated herewith. This is quite new, both as regards electrodes and construction of the insulator. The earthed electro reaches nearly to the bottom of the cup. We have previously referred to the freedom from sooting up, and other well-known qualities of the Cup plug, which is designed and made under the personal supervision of Dr. A. M. Low, manager of the British Low Accessories Co., 15, Great St. Helens. E.C.



The latest pattern Cup, single point, one spark plug.

A Safety Petrol Filler.

We have tried several different petrol fillers from time to time, but we do not remember having found a more satisfactory one than the Pettetts safety filler, which is marketed by Mr. S. Pettetts, of 46a, Regency Square, Brighton. At garages, etc., petrol is usually measured out to motor cyclists, as the tanks seldom hold sufficient to enable two gallons to be poured in at one time; the filler therefore would be of little use on the road, but at home in the motor shed it is very handy, and the one we have used shows no signs of leakage. It is provided with two sizes of screwed caps to enable it to fit the usual can stoppers. The air vent pipe is placed in such a position that when the can is tipped up to fill the tank, air

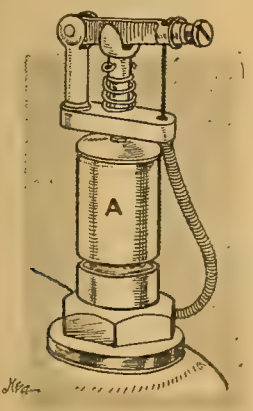


Pettetts safety petrol filler.

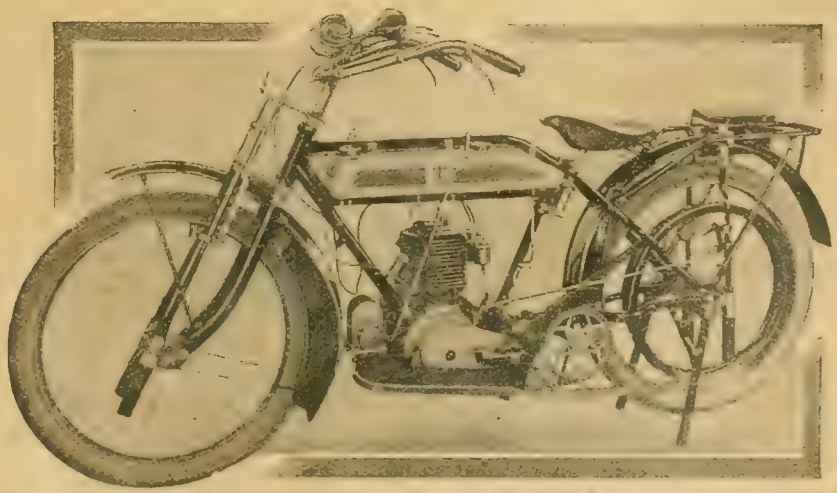
can enter, and immediately the petrol level in the tank reaches the end of the spout, the flow of petrol from the can ceases. When the clip on the spout is set in the required position, it can be lodged against the edge of the tank filler, and acts as a gauge for filling the tank to the required level.

Spring Suspension.

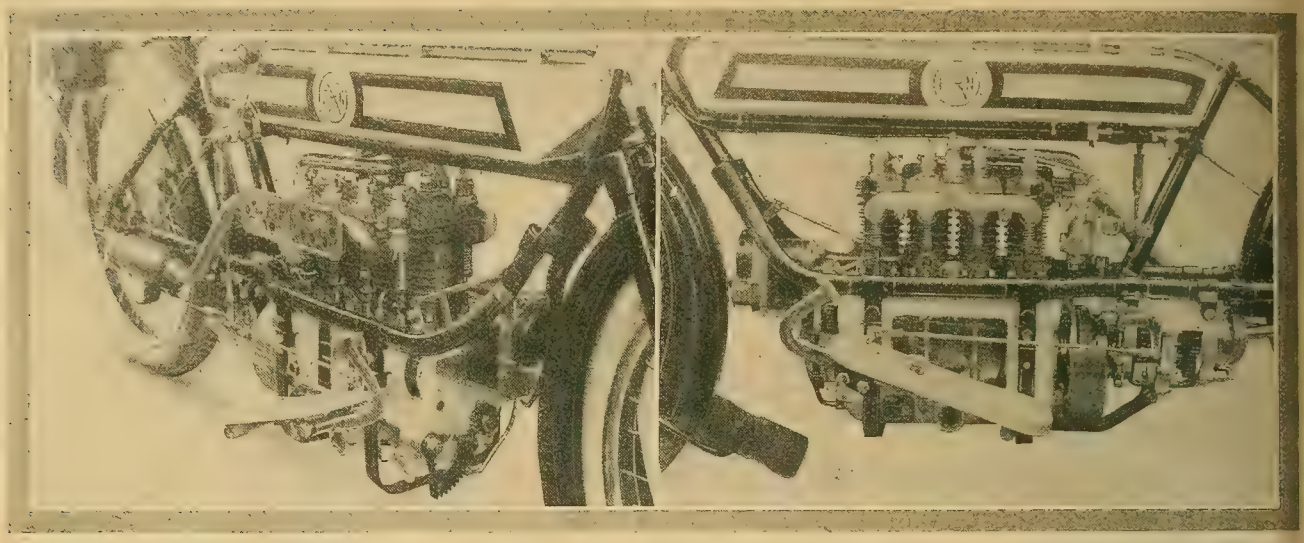
The N.A.B. spring suspenders made by the Reliance Works Co., Ltd., Southampton, for different parts of a motor cycle are specialities of this firm, and have been well-known for many years. This form of suspension is chiefly applied to the front forks, the back wheel and the saddle pillar on motor cycles, and an old machine may be modernised by these fitments. It is claimed that when a motor cycle is fitted with this form of suspension, extreme comfort is obtained in riding over even the roughest roads.



A novel type of exhaust whistle marketed by H. M. Hobson Ltd. It fits into the exhaust valve cap.



A spring frame motor bicycle fitted up with N.A.B. specialities



Both sides of the new 7 h.p. four-cylinder F.N. as shown at Olympia with sections cut away to show its working. Observe the arrangement of the kick-starter.

CLUB NEWS.

Bournemouth and District M.C.C.

A winter open one day reliability trial will be held on Jan. 7th, 1914, comprising a flexibility test, hill-climb, speed trial, and non-stop reliability test. The speed trial will be held in Canford Park, by kind permission of Lady Wimborne. A large list of prizes is promised, and the committee state that the trial will be run over good roads and no freak hills will be included in the course. Entry forms may be obtained from the hon. trials sec., Harry Counter, The Gymnasium, Boscombe.

Bristol M.C.C.

A twenty-four hours' open trial from Bristol to Land's End and back will be held on December 26th and 27th, and seems likely to be a very sporting event. The course is 402 miles and no secret checks will be used. All that a rider need do to qualify for a gold medal is to complete the journey in twenty-four hours, and avoid being more than fifteen minutes late or early at the Exeter, Land's End, Exeter, and Bristol checks. Breakfast and supper has been arranged for, and a club member is providing Oxo at Bodmin on the outward and inward journey. Already over thirty entries have been received and entries close December 18th. Full particulars may be obtained from the hon. secretary, Philip Grout, Keynsham near Bristol.

P. H. A. Mathews (3½ h.p. Rudge), winner of the 500 c.c. class in the Public Schools M.C. meeting at Brooklands on Saturday.

The Public Schools Club at Brooklands.

The Public Schools M.C.C. held a successful meeting at Brooklands on Saturday last, the 29th ult., when members were timed over the flying kilometre. The riders for the most part handled their machines in great style; one rider, however, had the misfortune to come off twice in exactly the same place. The weather was favourable.

Douglas machines were much in evidence and ran splendidly. Among other machines we noted Zeniths handled by A. J. Luce and L. P. Openshaw; Indians by Roy Walker and T. R. Browning; a Rudge, Hazlewood, Blackburne, Triumphs, and E. J. Gibbons's 8 h.p. overhead Martin, which has performed so successfully in both hill-climbs and speed trials, and which is more than a year old. The classes resulted as follow:

350 c.c. (Solo).—Flying kilometre.

	m.p.h.
A. Nicholson, Bradfield (2¾ Douglas) ...	50.84
P. C. Douglas, Marlborough (2¾ Douglas) ...	48.42
M. Cremetti, Harrow (2¾ Douglas)	48.40

500 c.c. (Solo).

P. Mathews, Clifton (3½ Rudge)	66.81
C. Roberts, Bradfield (3½ Blackburne) ...	56.73
R. L. Keller, Rugby (3½ Triumph)	54.83

Open Class.

E. J. Gibbons (8 Martin)	71.70
L. P. Openshaw (8 Zenith)	71.24
T. R. Browning, Eton (7 Indian)	60.76

Sidecar Class.—Under 600 c.c.

M. Cremetti, Harrow (2¾ Douglas)	40.81
P. C. Barton, Blundell's (Hazelwood) ...	37.79

Sidecar Class.—Open.

L. P. Openshaw (8 Zenith sc.)	56.20
A. J. Luce, Eton (8 Zenith)	52.76

Openshaw drove his 90×77.5 side-by-side valve Zenith, and Luce's engine had overhead valves.

Three-lap Handicap.

A. J. Luce (8 Zenith) had a handicap of 4m. 25s., and came in first 11m. 41⅘s after the first man had been despatched. In spite of being held back somewhat by a big car which was going round the track at the time of the race, his Zenith was lapping at close on 70 m.p.h.

Returning from Brooklands, Roy Walker was encountered bemoaning his luck. The roads were extremely greasy and the tail of his big twin had wagged so sturdily that he had just had his second or third fall. After leaving his machine at a garage, he took a seat beside a member of our staff in a G.N. cycle car.

Club News.—

Cheltenham M.C.C.

The annual general meeting took place on the 18th ult. The officers were re-elected *en bloc*, and a vote of thanks was accorded to Mr. A. W. Golesworthy, the hon. secretary.

Canberra M.C.C. (Sydney).

This club was formed quite recently, and now has over fifty members. Three hill-climbs and a reliability trial have been successfully held. The honorary secretary is Mr. A. A. Levi.

Cardiff Motor Club.

The annual dinner and distribution of prizes took place at the Whitehall Rooms, Cardiff, on Wednesday, November 19th. The president of the club (Mr. Daniel Radcliffe, J.P.) was in the chair.

Motor Cycling Club.

The instruction sheets for the London-Exeter-London Run have now been issued containing a full list of times and distances and detailed directions with regard to route. Entries close on Monday, the 8th inst.

Sutton Coldfield and Mid-Warwickshire A.C.

A members' reliability trial will take place on the 6th inst., starting at 11.30 a.m., from the Royal Hotel, Sutton Coldfield, over a secret course. Marks will be awarded for the Muratti-Ariston Trophy and Ixion Challenge Cup.

Insch and District M.C.C.

The members recently held a hill-climb at Luce Hill, Aberdeenshire. The surface was greasy and the gradient 1 in 6 followed by a sharp right-angled corner and a rise of 1 in 5. G. McHattie (3½ T.T. Rudge), W. Morrison (3½ Triumph), and J. Clarke (3½ Rudge sc.) made excellent ascents. The following failed at the bend: A. Cooper (2¾ Douglas), A. Rhynd (3½ Rudge), and J. Cooper (5-6 V.S.). Several riders considered the hill too bad to attempt.

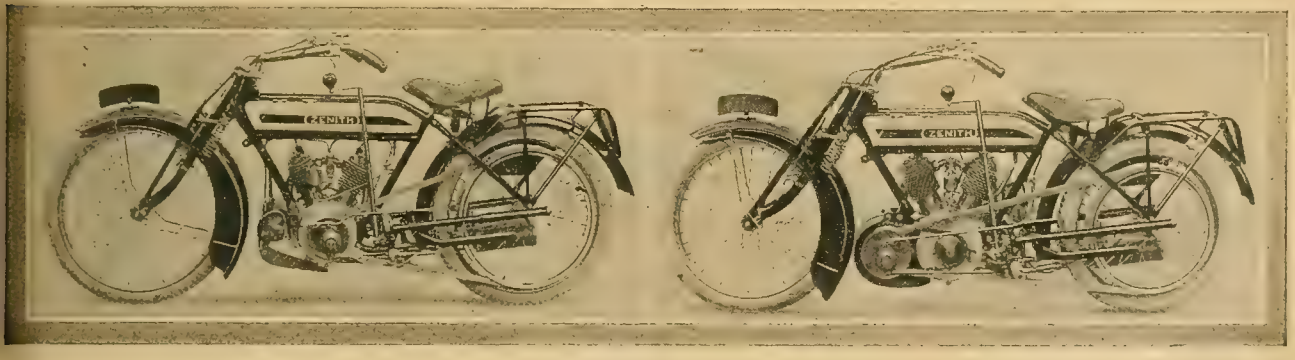
Mersey (Liverpool) M.C.C.

The annual dinner, followed by the prize distribution and a concert, took place on the 20th ult. The following officers were elected for the ensuing year. President, Mr. G. H. Lake; captain, Mr. W. E. Smith; hon. treasurer, Mr. G. Morley; hon. secretary, Mr. S. W. Carty, 5, Redcross Street, Liverpool. Four open trials were held during the year, the chief being the Colwyn Bay speed trials. The club membership has largely increased.

Oxford University M.C.C.

Under favourable conditions the speed trials were run off on November 19th. Messrs. Davis and Slingo did the timing. the Course was 860 yards. Best times were as follow:

Rider and machine.	Time.	Speed in m.p.h
Lightweights.		
D. L. Hall (2¾ Douglas)	33⅘s. ...	52.1
Cycle Cars		
C. G. Brocklebank (10 Mathis) ...	34s. ...	51.8
J. G. Coates (10 Singer)	35⅖s. ...	49.7
T.T. Machines.		
W. E. Russell (3½ Rudge) ...	28⅖s. ...	62
G. K. Pippett (3½ Singer) ...	29s. ...	60.7
J. W. Pedley (3½ Triumph) } —. Marshall (3½ Zenith) }	30⅕s ...	58.3
Twins.		
L. P. Openshaw (8 Zenith) ...	22⅖s. ...	77.9
C. F. A. Portal (6 Bat)	27⅖s. ...	64.3
Open Class.		
L. P. Openshaw (8 Zenith) ...	21⅖s. ...	82.19
G. K. Pippett (3½ Singer) ...	27⅕s. ...	64.7
W. E. Russell (3½ Rudge) ...	27⅖s. ...	64.3
Sidecars.		
L. P. Openshaw (8 Zenith sc.)	25⅘s. ...	68.2



TWO ZENITHS FOR 1914.

(1) The 3½ h.p. twin with drive direct from engine-shaft.

(2) The 8 h.p. model with counter-shaft gear in front of the engine by which means lower gear ratios may be obtained.

ADDENDA TO THE BUYERS' GUIDE.

The following particulars arrived too late for inclusion in our tabulated Buyers' Guide:

Motor Bicycles.

Arno.— 2¾ h.p., 77 × 81 mm., 377 c.c.; and 3½ h.p. 84 × 89 mm., 493 c.c., side by side valves, B. and B., Sturmey-Archer hub to order, Hutchinson tyres. Prices: £34 to £57 10s.

Brough.—3½ h.p. twin. Price £56 10s.

Calthorpe.—Precision engines, 2 h.p., 60×60 mm., 170 c.c., overhead valves; 3½ h.p., 85 × 88 mm., 499 c.c.; and 4¼ h.p., 89 × 96 mm., 597 c.c., side by side valves, drip feed, Senspray, Armstrong hub or Calthorpe counter-shaft gear, Michelin tyres. Prices: £26 5s., £55, and £48 10s. respectively. Weights: 108 lbs., 218 lbs., and 230 lbs.

Dot.—3½ h.p., 85 × 88 mm., 499 c.c.; 4¼ h.p., 89 × 96 mm., 597 c.c.; 3½ h.p. Jap twin, 70 × 64½ mm., 496 c.c.; 6 h.p. Jap twin, 76 × 85 mm., 770 c.c.; and 8 h.p. Jap twin, 85 × 85 mm., 964 c.c, side by side valves, mechanical lubrication, Amac, Armstrong or two-speed counter-shaft gear, Hutchinson tyres. Prices: £59, £60 18s., £63 10s., £67 4s., and £73 10s. Weights: 190 lbs., 200 lbs., 180 lbs., 200 lbs., and 220 lbs.

Hampton.—3½ h.p. T.D.C., 85 × 88 mm., 499 c.c., side by side valves, B. and B., Armstrong hub, Hutchinson tyres. £47 5s. Weight: 270 lbs.

Montgomery.—5-6 twin, 180°, 75 × 78 mm., 688 c.c., side by side valves, semi-automatic lubrication, Armstrong hub Mark VII., gears 5, 7½, and 11½ to 1. Belt, driven by pulley on camshaft.

P. and M.—The price of the standard model is £65.

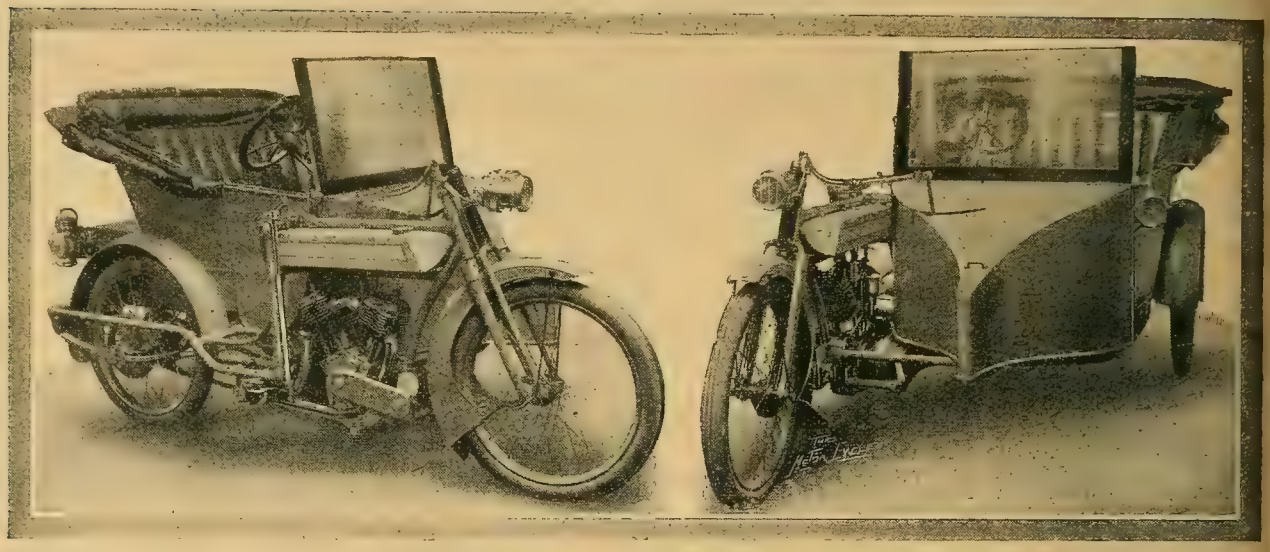
Triumph.—The price of the 4 h.p. model with three-speed hub is £60.

Cycle Cars.

Melen.—Alpha twin engine, 86 × 95 mm., 1,099 c.c., water-cooled, Solex carburetter, three speeds and reverse, 4, 8¼, and 13½ to 1, shaft drive, wheelbase 7ft. 6in., track 4ft., Dunlop tyres, 700 × 80 mm. Price £155 8s.

In justice to ourselves, we must mention that the prices first published were inadvertently supplied by the makers.

The H.S.M. Runabout.



(1) Side view showing counter-shaft gear, chain drive, and rear springing. (2) The pointed nose of the two-seated body, also showing wind screen and steering mechanism.

WE recently examined a 1914 model of this machine at the showrooms of Turner, Marr and Co., 9, The Arcade, New Broad Street, E.C., who are the sole distributing agents.

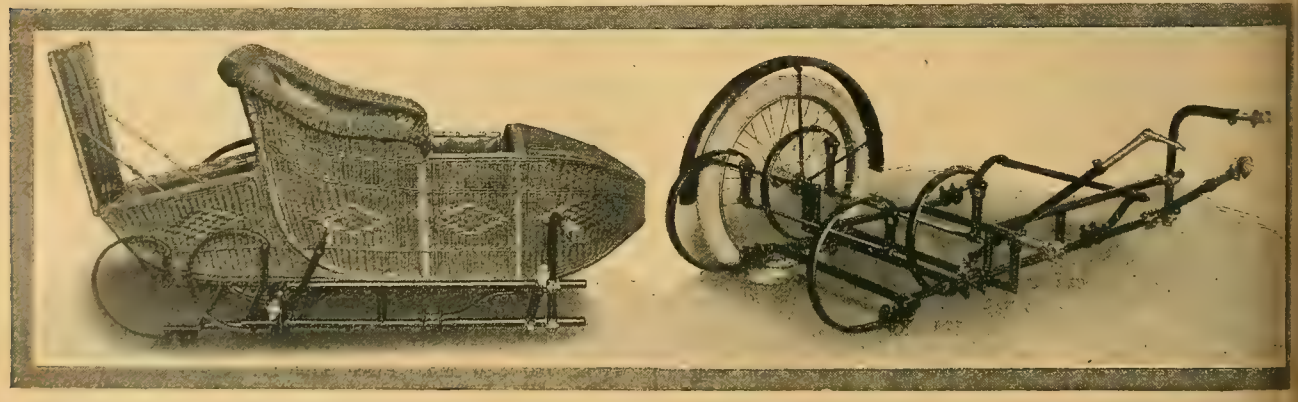
The engine is an 8 h.p. air-cooled twin-cylinder, fitted with Bosch magneto and the new pattern B. and B. carburetter. Lubrication is by drip feed and an auxiliary oil pump. Transmission is by chain throughout, and a multiple-disc clutch running in oil is fitted. The gear box gives three speeds, all shafts running on ball bearings. Wire wheels are fitted, and steering is by wheel. Speeds from 6 to 50 m.p.h. on top gear are claimed by the makers.

The body is a two-seater of the sociable type, fitted with two large tool lockers, wind screen, and Cape cart hood. The tyres are 650 × 65 mm. The makers intend to turn out three machines a week till Easter; they hope to turn out twenty machines per week after that time.

Impressions of a Trial Run.

It should be noted that the machine is built on the lines of a motor cycle and sidecar, but the frame is specially designed and strengthened. Chater-Lea spring forks are fitted to the front wheel, and the springing throughout is well arranged.

We were privileged to have a trial run on a machine of this type, the first that was built, and were favourably impressed. The only delays were caused in the first place by the driver of a cart who backed his cart into the front of the machine and smashed the lamp; in the second place by tyre troubles. The steering of the car required some adjustment, but as the car was in its fourth year and the engine in its seventh, as we were informed, one must expect to find some adjustments necessary. The advantage this handy little vehicle has over the motor cycle and sidecar is that both passenger and driver sit in comfort and are protected from the elements by the hood and screen. The engine pulled very well considering it was a veteran with automatic valves, and it was easy to start the machine from a standstill on a comparatively high top gear. The clutch was very smooth in its working. We drove the machine a short distance, and, except for the slackness in the steering, found it easy to handle. It is interesting to note that this machine comes well inside the £100 mark with full equipment.



Chassis and body of a tandem-seated sidecar of novel design with one-piece welded chassis. The twin axle pillar and duplicated support for rear coupling should be noted. This sidecar was on the N.S.U. stand at Olympia.

QUESTIONS & REPLIES

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Curing Compression Leaks.

I have bought a second-hand motor cycle of unknown make. The cylinder has a separate head and air leaks out between the joining. (1.) Is there any sort of substance which I could put between the head and cylinder, as I have cleaned both parts and it still leaks? (2.) Oil leaks from the crank case; is there a remedy? —J.B.

(1.) If the surfaces of the joint are clean and true and a good copper and asbestos washer is used, there should be no chance of leakage. If, after you have verified these points and fitted a new good washer, a leakage still occurs, you might try painting the joint with fish glue. (2.) The same remarks apply here. Some improvement might be made by fitting a brown paper washer round the joints, or the fitting of an extra relief valve might cure the trouble. Seccotine is a useful substance to put on crank case washers to stop oil leaks. Even tightening of all bolts is essential.

Cost of Running.

I should be much obliged if you could tell me if there are any motor cycles which, for tyre wear, taxes, and petrol, would run at ½d. per mile on good London roads?—J.M.U.

It is the use of a clutch or low gear in traffic in London, not the road surface, that spoils one's petrol consumption. With very careful handling a lightweight 2½-2¾ single-cylinder might possibly be run at this cost, but it is rather doubtful. You make no mention of depreciation.

Two-stroke v. Four-stroke.

Would a two-stroke engine of 350 c.c. give off as much power as a 499 c.c. four-stroke? Also, would there be any difficulty in keeping a two-stroke of the above dimensions (air-cooled) cool?—A.P.G.

Certainly not. To all intents and purposes the four-stroke engine puts forth as much power as an equal two-stroke. To explain the reason in a few words, we would point out that the two-stroke engine cannot take in a full charge of gas every revolution, since there is a certain amount of burnt gas left in the cylinder after each explosion; also, part of the nominal cubic capacity is lost by the opening of the inlet and exhaust ports at the bottom of the stroke. Both engines run coolly.

Driving Advice to a Novice.

As a novice I should be much obliged if you will kindly answer the following questions: (1.) When the ignition lever to my Bosch magneto is placed in its correct position for starting, is it to be left in the same place for all speeds, or is it to be moved about to correspond with the different speeds? (2.) When riding down long hills, can the exhaust valve be raised for half a minute or so and then dropped again without the rider interfering with any of the other levers? (3.) Which is the correct way to stop the machine? Is it by raising the exhaust valve, or otherwise? (4.) Do you think a 2¾-3 h.p. three-speed model would be strong enough to take a person weighing 11 stones up most main road hills?—J.E.W.

(1.) No; when the ignition lever is placed in the correct position for starting it should be about two-thirds full advance, and when going at a fair speed it should be fully advanced. The chief thing to remember is always to drive with the ignition as far advanced as possible. If you have any signs of knocking you should retard the spark until the knocking ceases. (2.) The exhaust valve may be raised, but at the same time the throttle should be closed, since otherwise the exhaust valve is liable to be burnt. When the throttle is open a stream of gas has to pass the exhaust valve, and if this took place for any length of time the valve would probably become badly pitted. (3.) When you wish to stop, first close the throttle, when, if it closes completely, the compression of the engine gives a braking effect which helps the machine to pull up in a short distance. Personally, we never use the exhaust valve lifter except for starting purposes, and we drive on the throttle only on every possible occasion. (4.) A machine of the horse-power you mention, and fitted with three-speed gear, should certainly climb all hills you are likely to meet on average main roads.

Mr. G. H. Wait, of Leicester, with his daughter in a sidecar attached to the latest model twin-cylinder Clyde. A feature of this machine is that the engine is suspended in a loop frame.

Engine for Pumping.

I require a petrol engine of about 6 h.p. single-cylinder water-cooled, magneto ignition, with outside flywheel preferred. I want to rig it up to drive a 2in. high-lift centrifugal pump. For that purpose the shaft would have to be strong enough and long enough to enable a 5in. face pulley for flat belt to be fitted. Can you suggest anything to suit my requirements?—D.W.P.

We have personally had considerable success with an engine out of an Oldsmobile car. This is a large horizontal single-cylinder engine and can be run in quite a satisfactory manner on gas, paraffin, or almost any fuel. Such engines are occasionally advertised in our columns.

Starting Difficulties.

Could you kindly assist me in the following difficulty? My machine (1910 Premier) is very difficult to start on the road. On the stand, however, it starts almost at a touch without any trouble, hot or cold.—J.E.A.

In all probability your trouble is caused by the rocker arm of the magneto sticking slightly, or the points requiring readjustment. The faces of the points should be quite true, and parted by about half a millimetre. See that your plug points are not too far apart, and also be careful that there are no air leaks between the carburetter and the engine. The latter is a more frequent cause of difficulty in starting than is imagined.

Air Leaks.

I have been much troubled by the misfiring in the front cylinder of my 6 h.p. twin. Both cylinders will fire at about 20 m.p.h., but if I throttle down the front cylinder cuts itself out, and I run on the back cylinder only as slowly as about 5 m.p.h. if required. If I open the throttle, there is but little result until the front cylinder starts again, when the machine will rush off like a horse which has received a sharp cut with the whip. The spark is good, and I have tried several plugs. The compression is excellent in both cylinders. An examination of the plugs shows the points of the rear plug to be covered with soot, while the front remains clean. This, of course, points to the fact that the rear cylinder is getting too rich a mixture and suggests an air leak in the front, but I have very carefully examined all parts without discovering one, and have tried reversing the inlet pipe and wrapping the joints with insulating tape, but without result.—TWINCY

We agree with you that an air leak is the cause of your trouble, and we should advise you to search again very carefully for this. It would be advisable to start the engine up on the stand and rub all likely parts with oil, which will perhaps enable you to discover the position of the leak, which may be in some part not easily seen. Occasionally misfiring is caused by the plug points being too close together, but we think an air leak the most likely solution.

Carburetters and Benzole.

Would you kindly say if you consider benzole is to be recommended for a motor bicycle on the grounds of general economy and reliability, and can benzole be used with any carburetter?—E.H.G.

Benzole is quite suitable for use on motor cycles and cars, but with some carburetters a certain amount of adjustment, in order to give more air, is required. Benzole cannot be used with a carburetter fitted with a cork float as is the case with some American carburetters, owing to the destructive action of the benzole on the float, but a coating of shellac varnish carefully applied to the cork will sometimes work well. It is also possible to have a thin coating of copper deposited on the float, which would, of course, be the most efficacious method.

READERS' REPLIES.

Re your reply to "W.N.G." in your issue of November 20th he will find the following a much better route from Waltham Cross: On reaching the Four Swans at Waltham Cross, turn to left and follow tramlines for a couple of miles to Southbury Road on right. Tramlines from here to Enfield (about 1½ miles). On reaching Enfield go straight across the road, bearing left at fork, under railway bridge, to Potter's Bar (about four miles). Here turn left to High Barnet and join Watford Road at church. Total distance, roughly, ten miles. Good roads all the way, which can hardly be missed, and will save many, many miles—if he went straight, which I doubt, as the roads about Waltham and Northam are very complicated. An alternative route from Waltham Cross to Enfield is: Follow trams for half a mile, first on right to Forty Hill, turn left to Enfield. No trams, but not such a good road.—BENJ. HARVEY.

In your issue of the 20th ult. I notice "R.O." asks if a 3½ h.p., with his wife and two children up, would take a reasonable hill on this load. I have ridden hundreds of miles this season with my wife and child of 3½ years in sidecar, and boy of twelve on the carrier, without any difficulty. We recently had a spin of over fifty miles so loaded. The machine is a 3½ h.p. T.T. Ariel, and in August last took us a tour in North Wales, also with baggage.—No. 7715.

Removing Tar Stains.

In your issue of the 13th of November you advise a reader to use butter for cleaning tar off the enamel of a motor cycle. The best thing is to use essence of turpentine. Simply rub the tar with a cloth saturated with turpentine and it will come off and leave a beautiful polish on the enamel.—M. L. LEGRAS.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries below should be addressed c/o The Editor.

"J.M.W." (Sheffield).—Morgan runabout; comfort on bad roads.

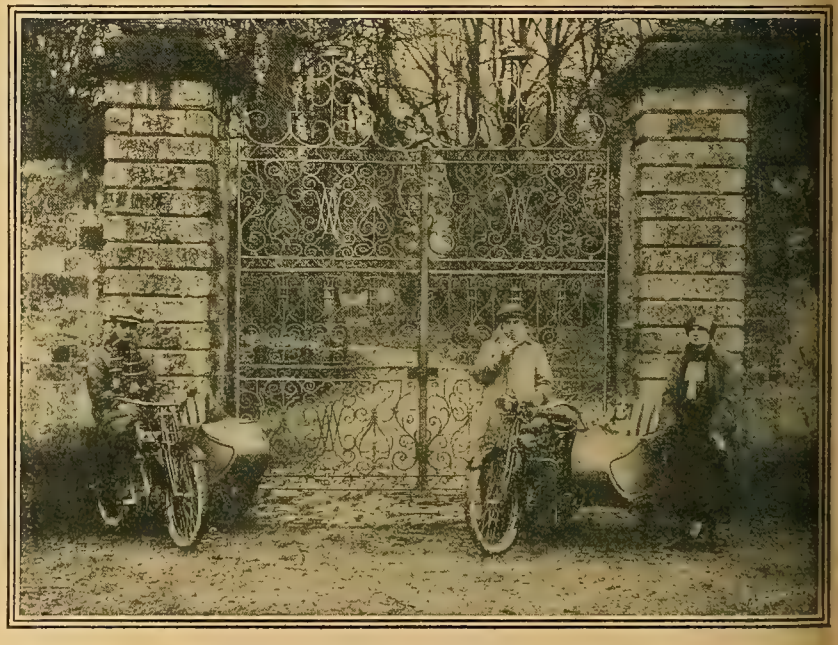
"A.C." (Godalming).—Carden cycle car. General reliability and comfort.

"F.B." (Birmingham).—Suitability of 3½ h.p. P. and M. to take sidecar in hilly country.

"F.L.R." (Burslem).—2¼ h.p. Levis, and 2½ h.p. Connaught, single speeds. Hill-climbing and reliability.

"B.O.S." (Middlesbrough).—Millennium Gear. Durability and reliability. Also power of light and durability of Voltalite lighting set.

"S.R." (Wolverhampton).—1911 and 1912 6 h.p. twin Rex two speed, with sidecar. Reliability and petrol consumption, solo and sidecar; also efficiency on benzole.



GATES AT THE ENTRANCE TO WROXTON ABBEY, THE SEAT OF LORD NORTH.
In the foreground are two Rover 1914 sidecar outfits.

I am just writing you a line to let you know how my Rushmore Lamp and Generator are going along.

The other night, a friend and myself went out for a ride into the hills, where it was absolutely pitch dark, no moon, stars or artificial light, and out of curiosity as we were standing by smoking, thought it might be interesting to know how far one could read ordinary print, so having walked a fair distance up the road, we stopped and tried, and finding it possible to read it, we paced the distance back to the lamp, and the distance was 154 paces, or I should say about 130 to 140 yards!

It gives me great pleasure in going out at night on a real dark road with a fine beam of light ahead, besides the fact it makes night riding nearly as fast and safe as day, thus doubling the pleasure of night riding.

The flame is absolutely as steady when moving as when standing and the Generator is perfect, you might describe the whole outfit as "IT."

Yours faithfully,
P. W. ENGELBACH.

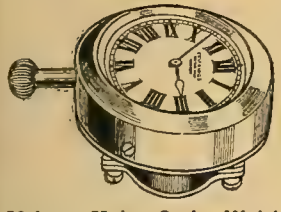
RUSHMORE MOTOR CYCLE LAMP

RUSHMORE LAMPS LTD
46 Brewer St London W

RUSHMORE MOTOR CYCLE GENERATOR

SELFRIDGE'S

CHRISTMAS GIFTS FOR MOTOR CYCLISTS



30-hour Motor Cycle Watch and Case (as sketch). Lever movement. Dust and weatherproof. With guarantee, **9/6**. In heart shaped case, **10/6**.

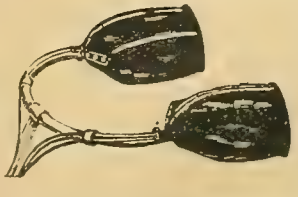
Double-twist Motor Cycle Horn (as sketch). Powerful deep note. In nickel, with adjustable clip fastening, **9/6**.

BY buying in large quantities we are able to offer you (we believe) a larger selection of accessories at a lower price, quality considered, than is elsewhere obtainable in London.

If unable to call, our Letter order department will carefully and promptly carry out your instructions. We pay carriage throughout the British Isles.

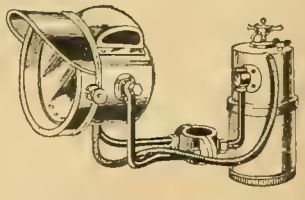
Spare Belt and Tube Case (as sketch), in solid leather, 6¼in. diameter, 3½in. deep, **6/9**.

Billiken Mascot (as sketch), will fit ⅞ and 1in. bar, nickel finish, **5/6**.



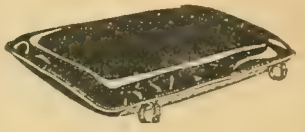
Motor Cyclist's Hand Muffs, self-supporting and flexible. Cover all levers, but do not interfere with free access to them. In Black Waterproof lined Grey Cloth, a pair **9/6**; in best Black Waterproof lined Tamo, a pair **15/6**; in Tan Waterproof Leather lined Fur, a pair **22/6**.

Authorised Agents for De Dion and Ford Cars.

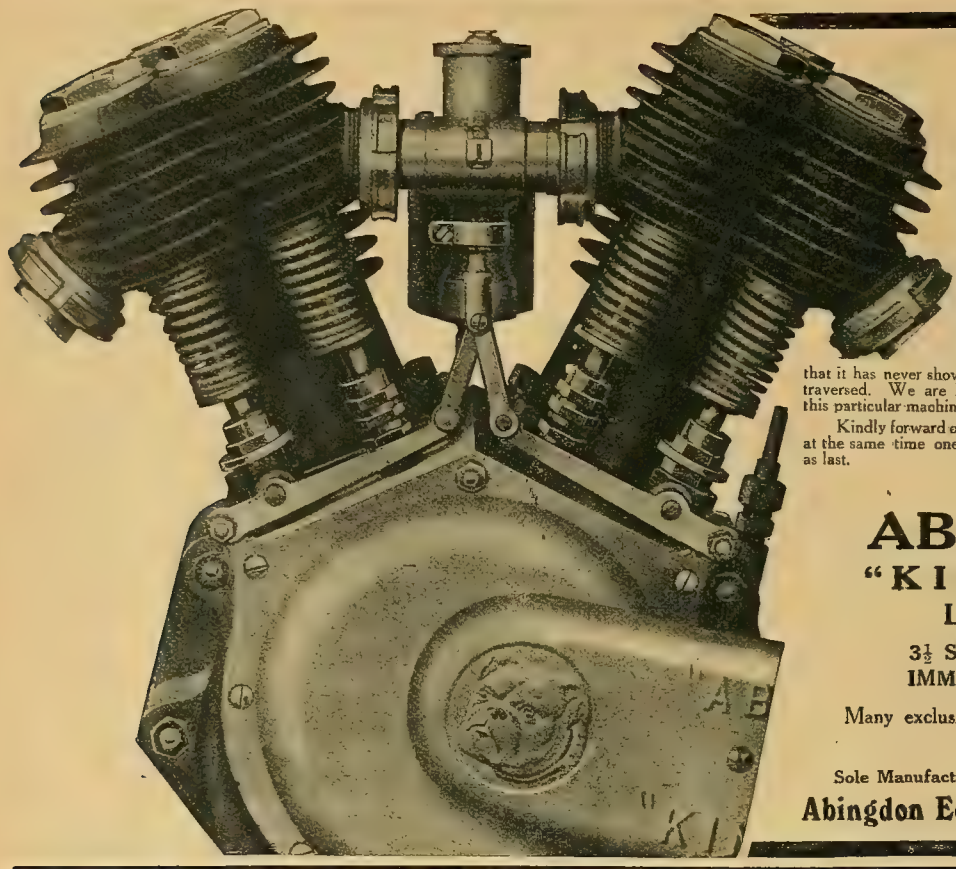


The "Sovereign" Motor Cycle Lamp Set (as sketch)—Lamp, Generator, and Bracket. Special price, complete, **20/-**.

Carrier Cushion (as sketch) for fitting over carrier, to provide a comfortable seat for a passenger. Made of leather, with Japanned top, and filled with Doe Hair. Size 15 × 7½in., and complete with four straps. Each **4/6**.



SELFRIDGE & CO., LTD., OXFORD STREET, W.



One of the many entirely unsolicited testimonials:—

Messrs. Abingdon & Co.,
Birmingham,
November 4th, 1913.

Dear Sirs,

In reference to your favour, dated August 19th, 1913, we are sending you herewith a report on the work done by your Abingdon Ecco Twin Cylinder Machine, which we feel it our duty, owing to the more than anticipated satisfaction it has given us. The machine in question was put on the road on Saturday, Oct. 11th, and since that date has done 1997 miles, which we think is a very severe test in a little over three weeks, but we must mention that this mileage is with a petrol consumption averaging 65 miles to the gallon, which is in our idea a record, with a heavy Millford Cabrio sidecar. In addition we would say that it has never shown any trouble on the steepest hills we have traversed. We are looking forward to doing a good business in this particular machine, as we have had several enquiries.

Kindly forward one Inlet and one Exhaust Valve, and despatch at the same time one 5/6 h.p. Twin Engine complete, the same as last.

Yours faithfully,

ABINGDON
"KING DICK"
Leads the way.

3½ Single. 5-6 Twin.
IMMEDIATE DELIVERY.

Many exclusive features, latest improvements, no complication.

Sole Manufacturers:

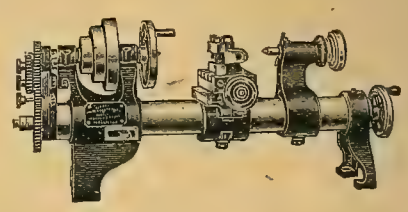
Abingdon Ecco Ltd., Tyseley, B'ham.

SAFEGUARD
YOUR POCKET

by installing in your garage a tool that will provide you with the means to solving the question of repairs. With a lathe in your garage, you will find yourself able to do a large amount of running repairs and the like that would otherwise have to be done outside; you will have always to hand the means of making adjustments, of tuning up, and of experimenting, while your machine will run all the better for constant and careful attention. You will find it a paying proposition.

£5 10s. is the price of the lathe illustrated below. This machine is a well-thought, well-made, and capable tool; it is screw-cutting, boring, and milling, and well able to undertake the thousand and one jobs that will crop up when motor cycling. The tool slide is removable by the undoing of one nut; this leaves a T slotted boring table to which work can be conveniently bolted, and the automatic travel put into operation. As the bed is circular this table can be partly revolved round it. Work bolted to the table can therefore be raised to various heights, thus doing away entirely with packing pieces or a vertical slide. This is an exceptionally convenient property of this lathe, and really converts it into a milling machine on which keyway cutting, slotting, etc., can be done, the cutter running on an arbor between centres.

Specification. The bed is of cast iron, hollow circular section, very stiff, and is ground on "Norton" grinders to a limit of error of 1/1,000 of an inch. The mandrel is steel, ground true, and runs in best hard gunmetal adjustable bearings, and not, as in some inferior types, in the plain casting. The tailstock will set over for long taper turning. The cross slide can be turned to any angle, and is graduated. A set of nine change wheels will cut from 5 to 48 threads per inch, Whitworth, also a great variety of odd and fine threads. All threads can be cut right or left hand. The above is only a very brief specification, but full details are given in an illustrated booklet, sent promptly on application.



DRUMMOND BROS., LTD., REED HILL, GUILDFORD, SURREY.

A Message from Canada

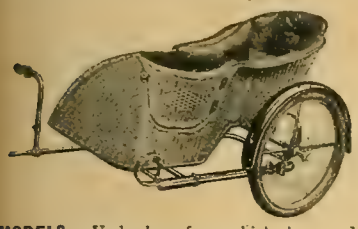
Concerning Coronet Sidecars

6, Bloor Street, E.,
Toronto,
October 29th, 1913.

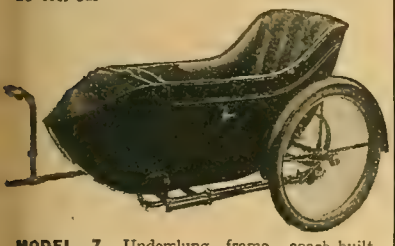
Booth's Motories.

Sirs.— I am very sorry I have not notified you before this that I received sidecar in first-class condition about 6 weeks ago. It quite surpasses my expectations in every way. I think I have the finest Sidecar in Toronto, being quite different from any of the other models now here. Hoping to have further dealings with you.

Yours truly, P. STANTON.



MODELS.—Underslung frame, high-class reed cane body, sides and floor lined to exclude draughts. "Coronet" detachable joints **£8 17s. 6d.**



MODEL 7.—Underslung frame, coach-built body, tool-box under front, also under seat. A real high-class sidecar. **£10 15s.**

SENT CARRIAGE PAID.
TRADE SUPPLIED.

24 Guineas only

secures a brand new

1914 2½ h.p. WOLF.

Immediate Delivery. **Write for Illustration.**

N.S.U. GEARS.

We have a few of these gears for any make of engine. The latest models fitted with adjustable pulleys. Write for particulars. Quick delivery.

Brand New Bosch Magnetos

We have a few Bosch magnetos suitable for twin engines. These are perfect in every respect and fully guaranteed.

49/- and 59/6.

Don't miss these.

NEW MOTOR CYCLE FRAMES.

Latest up-to-date pattern, low riding position, dropped top tube, back forks wide enough to take 3-speed hubs; **£1 12s. 6d.**

Set of malleable iron castings for Triumph pattern foot brake	1/6
Set of four engine plates for Precision engines	2/-
Set of castings and legs for kick-up stand	2/6
Set of castings for hand-starting device	2/-
Set of castings for heel brake	1/-

BOOTH'S MOTORIES,

Portland Place, Skircoat Road,

HALIFAX

(Opposite County Court).

Telephone 1062.

MOTOR CYCLES FOR SALE.

B.S.A.

TWO New 1913 B.S.A.'s, 2-speed, 2½ tyres, drip feed, one chain and one belt, £54; also 1912 T.T. and 1912 clutch, best offers.—Haines Strange, Cheltenham. [4470

1912 B.S.A., 3½h.p., free engine model, Cowey, new belt, new Clincher Dreadnought back, new Kempshall anti-skid front, Lucas lamp, horn, etc., n.t. done 5,000 miles; £35, offer.—H. Clegg, Ltd., Burnley. [X7605

Calthorpe.

3½h.p. Calthorpe-Precision, 1911, just overhauled, new heavy tyre, 3 butt enders; £22/10.—Straker, 4, All Saint's Passage, Cambridge. [X8447

Centaur.

1912 2½h.p. Centaur Lightweight, a real topper, brand new; sacr. £34.—Cordingley, Haslingden. Tel.: 2Y. [4570

CENTAUR, 2¾h.p. twin, 3-speed, free engine, handle starter, spring footboards, lamp, generator, etc., almost new; £28.—37, Finchley Rd., N.W. [4443

Chater-Lea.

1911 4h.p. Chater-Lea; £19/10; magneto bike part, —86, Fulton Rd., Walkley, Sheffield. [X8577

CHATER-LEA, J.A.P., 3½h.p., fitted with Bosch mag., variable pulley, spring forks, B. and B. carburetter, in perfect condition; £18.—Colmore Depot, 31, Colmore Row, Birmingham. [X8500

Clyde.

CLYDE, 2¾h.p., B. and B., Clinchers, h.b.c., lamp, spares; £7/10.—101, Melton Rd., King's Heath, Birmingham. [X8551

Clyno.

CLYNO, 5-6h.p., 1914 model, complete with sidecar; £85; delivery from stock.—Cordingley, Haslingden. Tel.: 2Y. [X7865

CLYNO, 1911, 6h.p., 2-speed, chain drive, tyres and engine as new; any trial; £39.—Robinson's, Green St., Cambridge. [4482

CLYNO, 1912, and sidecar, 2 lamps, speedometer, horn, whistle, accessories; £55.—Macdonald, 757, Lea Bridge Rd., Walthamstow. [4454

CLYNO, late 1911, just overhauled, new gears, 2 new back tyres, cyclometer, Montgomery sidecar, complete; £35, bargain.—Graham, Springs, Malvern. [X7654

CLYNO, 5-6h.p., 2-speed gear, just like new, with Mills-Fulford spring wheel sidecar to match; would exchange lower power and cash; call and see it.—125, London Rd., Manchester. [0399

CLYNO, 1911, horn, lamp, etc., perfect, best offer over £30; also 1913 14 gn. coachbuilt sidecar, best offer over £5 secures.—Box L3,381, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4581

CLYNO, 1913, sidecar combination, 3-speed gear, chain drive, quick detachable wheels, spare wheel and tyre, large F.R.S. lamp, wind screen, horn and speedometer, in excellent condition; £68.—Robinson's, Green St., Cambridge. [4483

Connaught.

1913 Connaught, 2-stroke, new April, little ridden, perfect condition, accessories; accept £27, near offer; exchange.—Asquith, Cavendish Place, Witton, Blackburn. [X8467

De Dion.

2¾h.p. De Dion, B. and B., new Dunlop specials, spring forks, low and comfortable, splendid order; £9/10.—Jackson, Elmgrove Rd., Weybridge. [4559

Douglas.

DOUGLAS.—Don't get left, order now from Gourlay, Fallowfield, Manchester. [X7505

1911 Douglas, first-class order throughout; £19/10.—Dias, 53, Lowther St., Carlisle. [X5407

GOURLAY is now booking orders for the great 3½ h.p. Douglas.—Fallowfield, Manchester. [X7506

DOUGLAS, T.T., 1913¾, not done 500, spares, accessories; cheap.—61, Church St., St. Helens. [4513

DOUGLAS, 1914 models, in stock.—Gourlay, the great Douglas agent, Fallowfield, Manchester. [X7507

DOUGLAS, 1910, single speed model, sound condition, lamp, horn, etc.; £16/10.—Laytons, Bicester, Oxon. [X8492

DOUGLAS 1914 Models from Stock. Liberal exchanges.—Halifax Motor Exchange, Westgate, Halifax. [0386

DOUGLAS, 2-speed, 1912, ridden about 800 miles, beautiful order; £35.—Lamb's, 151, High St., Walthamstow. [4260

DOUGLAS, 1913 model R, 2-speed, kick starter, Amac carburetter, in good order; £42.—Chirnside, Cable St., Lancaster. [4438

DOUGLAS, 1913, model R, 2 speeds, clutch, kick start, splendid condition; £43.—Hawthorne, Pollard St., Kettering. [X8407

ONE Douglas, model P, delivered September, guaranteed, not been over 50 miles; £43.—A. Cumming and Co., 89, Cromwell Rd., South Kensington, S.W. [0379

DOUGLAS, 1910, 2¾h.p., engine, tyres, and belt in good condition; very cheap at £20; another at £18.—Colmore Depot, 31, Colmore Row, Birmingham. [X8503

OFFERS WANTED.

We wish to clear to make room for new stock.

3½ h.p. **HUMBER**, 1911, 2 speeds, handle starting, complete with sidecar	£26 10
3½ h.p. **REX**, spring forks, magneto	£10 10
3½ h.p. **BRADBURY**, 1912 model, with 2-speed gear and £11 coachbuilt Sidecar	£42 10
4 h.p. **ROC**, 2-speed gear, handle starting, with Sidecar	£20 0
4-cylinder **F.N.**, magneto	£16 10
3½ h.p. **PRECISION**, brand new, 1913	£38 0
3½ h.p. **REX**, M.O.V., low built	£7 15
8 h.p. **BAT-J.A.P.**, P. and M. 2-speed	£35 10
3½ h.p. **REX**, 1909 model, magneto	£15 10
4 h.p. **J.A.P.**, fitted with 1913 Armstrong 3-speed gear	£22 10
3½ h.p. **PREMIER**, 1911½, B.S.A 2-speed	£32 10
3½ h.p. **HUMBER**, 1913, 3-speed model, done about 200 miles, complete with sidecar	£46 0
4½ h.p. Twin **MINERVA**, m.o.v., magneto	£12 10
3½ h.p. **REX**, 1008, 2-speed, sidecar	£18 10
3½ h.p. **A.S.L.**, brand new, 1913 model	£35 10
3½ h.p. **PREMIER**, 1912, 3-speed model, complete with Sidecar	£42 10
4 h.p. **ROC**, 2 speeds, handle-starting	£20 0
3½ h.p. **N.S.U.**, free engine, splendid order	£19 10
3½ h.p. **QUADRANT**, 1908, magneto	£15 10
TWIN HUMBER, 1912 Lightweight, free engine	£29 10
2 h.p. **MOTOSACOCHE** 1910, magneto	£13 10
3½ h.p. **REX**, 1910 model	£17 10
6½ h.p. **REX** open-frame Tricar, water-cooled, 2 speeds, wheel steering, splendid Wood-Milne 700×80 tyres; make splendid cycle car	£10 0
3½ h.p. **N.S.U.**, m.o.v.	£8 15
2 h.p. **MOTO-REVE**, 2-speed gear	£16 10
6 h.p. **REX-J.A.P.** Sidette, nearly new	£49 10
3½ h.p. **TRIUMPH**, 1907 model	£18 10
8 h.p. **BAT-J.A.P.** 2 speeds, with £9 Sidecar	£39 10
3½ h.p. **REX**, m.o.v., low built	£7 15
6 h.p. **CLYNO**, 1912, with Sidecar	£45 0
6 h.p. **REX**, 1909, 2 speeds, sidecar	£26 10
4 h.p. **ROC**, free engine, magneto	£14 10

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MILLFORD castor wheel	£3 10
Nearly new coach-built, side door	£7 0
CORONET, cane body	£3 15
Good rigid sidecar	£2 15
Ditto, Chater-Lea joints	£3 5
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4 h.p. twin **N.S.U.**, with magneto and carburetter	£7 10
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DOUGLAS 2¾ h.p., Bosch magneto, good running order **£18**

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DOUGLAS, 1913, T.T., 3-speed, Amac, spare tube, valves, tyres and belt good; £36.—Robinson's, Green St., Cambridge. [4479

DOUGLAS, all models, for immediate delivery; trade supplied.—Rey. 378-384, Euston Rd., and 173, Gt Portland St., W. [3534

DOUGLAS, 1912 model K, speedometer, horn, spare tyre; £33. no offers.—Stutfield, Grove House, Hampton, Middlesex. [4521

1912½ Douglas, 2-speed, kick starter, lamp, horn, speedometer, excellent condition; £36.—Pierce Broughton, Aldridge, Staffs. [X8521

1913 (October) T.T. Douglas, 2-speed, total mileage 800, lamp and horn as new; 40 gns.—Motorist, 24, Cardington Rd., Bedford. [X8602

DOUGLASES, all models, in stock for immediate delivery; trade supplied.—Thompson and Co., agents, 408, Commercial Rd., Portsmouth. [4583

DOUGLAS, 1913, model R, not done 300 miles; cost £52, for quick sale will accept £42.—Colmore Depot, 31, Colmore Row, Birmingham. [X8504

1913 Douglas, 2-speed, clutch, and kick start; offers. —The Stamford Hill Motor Co., 128, High Rd., S. Tottenham. 'Phone: 1982 Tottenham. [X8618

1912 Douglas, 2-speed, clutch, and kick start; offers. —The Stamford Hill Motor Co., 128, High Rd., S. Tottenham. 'Phone: 1982 Tottenham. [X8619

DOUGLAS, 1911, just overhauled, belt and tyre practically new; £20; will allow £3 for good push bike.—Myhill, Whitmore Rd., Birmingham. [X8412

DOUGLAS, 1914, model W, just arrived from the works; immediate delivery; £52. — Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [4464

DOUGLAS, good, reliable condition, £15; ditto, 2-speed, 1911 model, with horn and Jones cyclometer, splendid condition, £26.—Lloyd and Son, Douglas agents, Lewes. [X8563

DOUGLASES.—Earliest deliveries 1914 models, cash or E.P.S.; also a few 1913 models going cheap.—Lamb's, 151, High St., Walthamstow, and at 50, High Rd., Wood Green. [4255

DOUGLAS K, July, 1912, 2 speeds, clutch, kick starter, Cowey, lamp, horn, accessories, done 2,500, good as new, Dunlop 2¼ on back wheel; £38.—Oakley, Dunchurch, Rugby. [X8598

DOUGLAS, Douglas, Douglas.—The king of lightweight motor cycles; immediate delivery from stock of all models; Scottish trade supplied.—Alexander and Co., 115, Lothian, Edinburgh. [X9870

DOUGLAS, 1913½, model R, kick starter, 2 speeds, speedometer, horn, lamp, etc.; cost £60, take best offer over £40; seen any time.—Apply, Woolley, 3, Tylney Rd., Bromley, Kent. [4458

1914 T.T. Douglas, just delivered, never ridden; must sell, cost £48, offers wanted, exceptional opportunity of securing a bargain. — Box 4,590, *The Motor Cycle* Offices, Coventry. [X8548

BOMBARDIER WELLS'S 2¾h.p. model R Douglas, 2-speed, kick starter, complete, Cowey speedometer, Lucas King Road lamp, horn, etc., new 3 months ago, only ridden 1,000 miles; buying car; £42.—Maidment, Selsey. [4430

1913 (September) Douglas, model P, 2-speed, guaranteed condition throughout; first reasonable offer accepted, cash needed; inspection willingly by appointment.—Box 4,591, *The Motor Cycle* Offices, Coventry. Advertiser please send address. [X8549

DOUGLAS, T.T., 2-speed, new last September, not ridden 100 miles, with P. and H. best large lamp set and Post horn, spare inner tube and valve; cost £55; going into business; accept £45, a bargain.—18, Bickerston Rd., Highgate, London, N. [X8525

Enfield.

ENFIELD, 2¾h.p., 1911, chain drive, excellent condition; £20.—Rawlings, 10, Priory Av., Taunton. [X8466

6h.p. Enfield Combination, late 1912, head light, speedometer, luggage carrier; £56.—Randall, Andover. [X7651

6h.p. Enfield Combination, 1914, coachbuilt sidecar; immediate delivery; £84.—Cordingley, Haslingden. Tel.: 2Y. [X7872

ENFIELD, 2¾h.p., new last June, 2-speed, kick start, splendid condition; price £35, or near offer.—Sorrell, Clarico, Victoria Park, N.E. [4395

ENFIELDS.—Earliest deliveries 1914 models; special easy payments.—Lamb's, 151, High St., Walthamstow, and at 50, High Rd., Wood Green. [4258

1912 6h.p. Enfield Combination, thorough good order, Jones 5 gn. speedometer, Lucas black lamp, horn, and generator; £55.—J. F. Armitage, Rothwell, Leeds. [X7974

ENFIELD, 1914, 6h.p., with coachbuilt sidecar and luggage grid, the finest combination made, just arrived from the works; £84 cash, or lowest easy payments.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [4461

ENFIELD, 1913, 6h.p., coach combination, Lucas head and sidecar lamps, speedometer, luggage grid, 2 spare covers (re-treaded) and tubes, spare chain, valves, springs, etc., perfect condition; any examination; £65, or nearest.—Ainscow, 32, Atherton Rd., Hindley. [X8337

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7 h.p. Matchless, 3-speed, chain drive, the very latest, with Hercules coachbuilt sidecar; £88.—Cordingley, Haslingden. Tel.: 2Y. [X7873

8 h.p. Matchless, 2-speed, passenger, F.R.S. 1,200, new 70/- Rom and belts, overhauled; £50.—Box 4,543, *The Motor Cycle* Offices, Coventry. [X7745

MATCHLESS, 8h.p., 2-speed, free engine, and Bramble sidecar, all as new; accept £62.—Colmore Depot, 49, John Bright St., Birmingham. [X8417

MATCHLESS-J.A.P., 8h.p., 2-speed, 2 years old, Gondola sidecar, 2 seat., new spring, extras; £43.—Phillipps, King St, Egremont, Cheshire. [X8540

1913 8h.p. Double Chain Drive Matchless and coachbuilt sidecar, perfect condition; cost £105 last August; take £85.—Baxenden, Holly Bank, Gipsy Lane, Hunton Bridge (near Watford). [4574

MATCHLESS, 8h.p., fixed engine, late 1912, with wicker torpedo sidecar, Lucas lamp, horn, speedometer, etc., in splendid condition throughout; genuine bargain at £42.—C. E. Cox, 154, Highland Rd., Portsmouth. [4545

MATCHLESS, 1913, 3½h.p. twin, 3-speed, free engine, kick starter, countershaft, ridden 1,500 miles, excellent condition throughout, demonstration machine; £50, or nearest, with accessories.—Apply, Motor, Heytord, Banbury. [X7967

MATCHLESS, 1913, 8h.p., 2-speed, double belt drive, with best cane body sidecar, Jones speedometer, lamp, generator, and horn; open to any examination; genuine bargain, £57/10, lowest to clear.—Morris Garages, Oxford. [4428

MATCHLESS, 1913, 6h.p., twin belt drive, 2-speed, special torpedo sidecar, fitted with F.R.S. and P.H. lamps, horn, Klaxon, Cowey speedometer, tools, spare parts, had carefnl and little use, condition as new; any trial; bargain, £70, cost £100; machine only, £58/10.—Cumming, Clieveden, Higher Drive, Purley. [4526

8 h.p. Matchless, 1912, 2-speed, just returned from makers completely overhauled, tank, etc., re-enamelled, Cowey, King of the Road, 20 gn. Gloria sidecar, new 70/- tyre and spare tubes, etc.; £60, or nearest offer during the week Dec. 4th-11th.—Shorthouse, Hampton, Middlesex. 'Phone: 247 Molesey. [0365

Minerva.

2¾ h.p. Minerva, newly overhauled, modern fittings, powerful; £10/10.—Wood, Skipton Rd., Colne. [X8556

MINERVA, 3h.p., spring forks, B. and B., 40 amp accumulator, fast; photo; £10, offer.—Albott Hockin, Hayle, Cornwall. [4427

M.M.C.

3½ h.p. M.M.C., mag., takes sidecar; £16/10, bargain.—71, Coleridge Rd., Crouch End. [4503

Moto-Reve.

TWIN Moto-Reve Lightweight, lamp, horn, Druid forks; £12/10.—80, Pershore Rd., Birmingham. [X8554

4 h.p. Moto-Reve, twin, chain drive, Enfield shock absorber, 2-speed, Watford speedometer, very fast, take sidecar anywhere, new October; cost £68, offers.—Dixon, Worksop. [4519

Motosacoche.

1913 Motosacoche, 2½h.p., condition as new; bargain, £20.—Moore, Osborne Rd., Spennymoor. [X7830

New Hudson.

NEW Hudson, 1912, 3-speed, Canoe let sidecar, fittings, powerful, reliable; £48, or best offer.—Morton, 36, Church Rd., Richmond. [4529

Norton.

1913 (March) Big Four Norton, 3-speed, accessories; any examination; £45. — Curtis, 14, Elmwood Rd., Chiswick. [4564

N.S.U.

3¾ h.p. N.S.U., 2-speed gear, and free engine; bargain, £22.—James Rankin, Cloughorr House, Portrush. [4515

3½ h.p. N.S.U., free engine, 2 speeds, studded tyres, new lamp and horn; £12/10.—Dearsley, Euston Rectory, Suffolk. [4441

Peugeot.

5-6h.p. Twin Peugeot, Chater-Lea sidecar, Bosch, Cowey speedometer; £28. G.H.P., Lyndhurst, Carterhatch Rd., Enfield Highway. [4524

P.M.

1913 P.M., 3½h.p., done about 1,000, perfect as new; any trial and examination; with £7 extras; £55 cash; without £50; bought runabout.—Hugo, 11, West Wycombe Rd., High Wycombe. [4426

Phelon and Moore.

P. and M., 2-speed, and sidecar, 3½h.p., new tyres, and all accessories; must sell this week; sacrifice £28. Apply by letter, 4, Savoy House, Bromley. [4448

P. and M., 1913, 3½h.p., 2-speed, free engine, fitted with Bramble sidecar, whole lot equal to new; £60, complete, with lamp, horn, and spares.—The Colmore Depot, 31, Colmore Row, Birmingham. [X8501

Precision.

1912½ 4½h.p. Precision, P. and M. gear, cane torpedo sidecar, perfect; £45, no offers.—J. Flanagan, 82, High St., Heckmondwike. [X8468

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BRADBURY, 6 h.p., 3 speeds	£75	0
BRADBURY, Horizontal Twin, 3 speeds	£65	0
DOUGLAS, 2¾ h.p., 2-speed	£48	0
REX Sidette, belt drive	£75	0
REX Sidette, chain drive, 3 speeds	£85	0
REX-J.A.P., 8 h.p., 3 speeds, chain drive	£77	10
REX-J.A.P., 6 h.p., ditto, ditto	£75	12
BUNGEAM, 8 h.p., 3 speeds	£84	0
WILLIAMSON, 8 h.p., and Sidecar	£97	10
CALTHORPE, 2 h.p., 2-speed, Junior	25	guineas

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REX, 1912, 6 h.p., 2-speed, twin, NEW	£53	0
JAMES, 1912, 3½ h.p., 2-speed	£39	10
B.S.A., 1912, 3½ h.p., 2-speed	£42	10
HUMBER Lightweight, little used	£25	0
1911 2¾ h.p. 3-speed **NEW HUDSON**	£31	10
1912 2-speed Twin **CLYNO**	£42	10
REX, 1913, 6 h.p., 2-speed, done 200 miles	£43	10
REX, 5 h.p., 1909, 2-speed, de luxe	£26	10
CLYNO, 1912, and special cane Sidecar	£49	10
SINGER, 1911, magneto, lightweight	£19	19
REX, 1913, 4 h.p., 2-speed, de luxe, chain drive brand new	£39	10
MOTOSACOCHE, Lightweight	£15	10
1911 Twin **REX** Sidette, chain drive	£45	0
1912 Twin **REX** de Luxe, and new Sidecar	£45	0
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31	10
2¾ h.p. 3-speed **CENTAUR**, as new	£35	10
5½ h.p. Magneto Twin **REX**	£17	10
N.S.U., 1911, 3 h.p., 2-speed, as new	£29	10
N.S.U., 5½ h.p., twin	£24	10
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31	0
REX, 3½ h.p., spring forks	£12	10
F.N., Lightweight, battery ignition	£9	10
REX, 3½ h.p., magneto, 1910	£24	10
REX, 3½ h.p., magneto, 1909	£22	10
REX, 1912, 4 h.p., demonstration machine	£31	10
3½ h.p. Light Low **REX**, specially good	£10	10
MOTOSACOCHE, 1911, M.O.V.	£19	10
REX, 5½ h.p., twin, spring forks	£14	10
J.A.P., 6 h.p., M.O.V., free engine	£34	10
MOTO-REVE, twin, lightweight, runs well	£15	10
BRADBURY, 1912, 3-speed Sturmey	£39	10
REX, 3½ h.p., magneto, spring forks, 1908	£19	10
3½ h.p. 1912 **BRADBURY**, chain drive	£39	10
5-6 h.p. Twin **J.A.P.**, magneto, spring forks	£29	10
3½ h.p. Magneto **SIMMS**	£22	10
1909-10 2-sp. Twin **REX** and Mills-Fulford coach-built Sidecar. Specially good	£33	10
6 h.p. **BAT-J.A.P.**, spring forks	£29	10
5 h.p. 2-speed **QUADRANT** Carette	£7	5
REX, 1913 twin, 2-speed, NEW.	£57	10

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£5 5s. to £10 10s. List on application.
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3½ **REX**	£10 10	1¾ **F.N.**	£9 10
3½ **REX**	£12 10	5½ Twin **REX**	£15 10
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New 1913 Machines to clear.

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1913 4 h.p. **REX** de Luxe, chain drive £61 5
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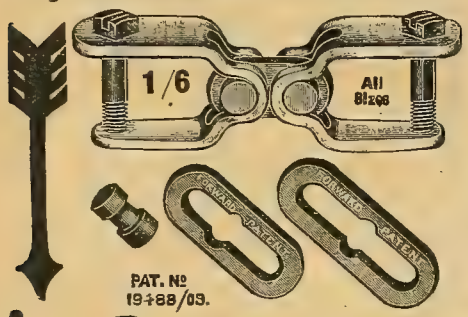

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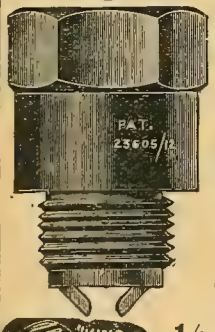

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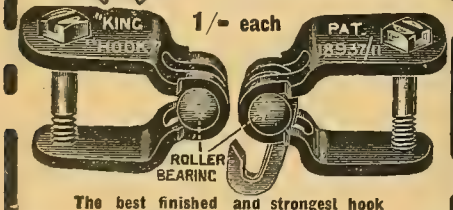

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Precision.

PRECISION, 1911, 3½h.p., T.T. roadster, Albion free engine clutch, engine just overhauled by makers, good order; £20, or easy terms.—Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. [0400

Premier.

T.T. Premier 2½h.p. 1913 Lightweight, only run 600, new condition; £25.—Plastow, Grimsby. [4423

1912 2½h.p. Premier, exceptionally good condition; £23.—Stanley House, Beechen Cliff, Bath. [X7970

PREMIER, 1912½, 6½h.p., good condition; £24/10.—Box No. 4,589, *The Motor Cycle* Offices, Coventry. [X8487

PREMIER, 2½h.p., 1913, perfect condition, not done 500 miles; £28—.Penny, The Retreat, Witham, Essex. [4555

PREMIER, 1912½, 2½h.p., all accessories, splendid condition; £22/10, offers.—Reynolds, 7, Ramsgate, Louth, Lincs. [4445

END of Season Sale.—2½h.p. new lightweight Premier, £30; 3½h.p. 2-speed Premier, at £50.—Hall, engineer, Tonbridge. [4439

PREMIER, late 1912, 3½h.p., Sturmey-Archer, 3-speed, free engine, carefully used; £35. — Dr. Blackett, Audley, N. Staffs. [X8530

1913 2½h.p. Premier, fast, splendid hill-climber; £27/10; after 6, not Sunday.—Tham, 2, Pyrland Rd., Milmay Park, London, N. [4543

PREMIER, 3½h.p. (1913), 3-speed, and Speedwell sidecar, grand hill-climber, big F.R.S. lamp, best accessories and spares; £45.—Allen, "Guardian," Sheerness. [X8445

PREMIER, 3½h.p., counter-shaft 2-speed model, and £13 Montgomery sidecar, done 2,500, all as new; £50, lowest.—Hop 981.—1, The Crescent, Belvedere Rd., S.E. [4364

7-9h.p. Premier Twin Motor Cycle, complete with Gloria sidecar, speedometer, 2 lamps, horn, complete, latest model, unused; £85.—Myers and Burnell, Davygate Garage, York. [X7966

1913 3½h.p. Counter-shaft 2-speed Gear Box Free Engine Premier, new in May, perfect everywhere, new back tyre, Stewart speedometer, lamp, horn, spare tyre, valves, etc.; cost £62, accept £40.—Skinner, Knebworth, Herts. [X8559

3¾h.p. Premier, twin-cyl., the best 1912 model, Millennium 2-speed gear, Brooks new 170 saddle, splendid condition, very strong and speedy, will take sidecar anywhere, complete with canoe pattern cane wicker sidecar, Chater-Lea chassis; price £50. — G. Lloyd, Station St., Lewes. [X8562

Quadrant.

1914 7-9h.p. 2-speed Chain Drive Quadrant, Enfield gear, handle starting, etc., only ridden 100 miles; price 55 gns.—G. H. Cox and Co., Ltd., Castle Rd., Southsea. [4393a

Regal-Precision.

REGAL-PRECISION, 4h.p., 1913, with sidecar, Armstrong 3-speed gear, Palmer tyres, with apron, spares, and accessories, not covered 800 miles; £45 cash; seen and tried by appointment.—Beta, Godbold's Publicity Agency, 8, Bream's Buildings, E.C. [4456

Rex.

1913 Rex, 6h.p., de luxe, new, fitted with our new £14/14 tandem model sidecar; £66.

1913 Rex, 4h.p., de luxe, new; £40.—Bastone's, 228, Pentonville Rd., King's Cross, London, N. [4554

REX Sidette, 1913, 6h.p. twin, latest coachbuilt; offers.—22, Victoria Terrace, Leamington. [X8539

REX, 1910, 3½h.p., mag., good tyres, and excellent engine; £15.—Robinson's, Green St., Cambridge. [4481

3½h.p. Rex, B. and B., Palmer tyres, new belt, good condition; £8/10.—Wright, 94, Mill Rd., Cambridge. [X8524

5-6h.p. Twin Rex, free engine, and sidecar, good condition, very low; £11.—138, Catherine St., Leicester. [X7975

£9/15.—3¼h.p Rex and sidecar, condition and running guaranteed; bargain.—A. Lloyd, Maesgwyn, Ton Pentre, Glam. [X8573

REX, 3½h.p., free engine, handle starting, in good running order; £15, or nearest offer.—Creese, Garboldisham, Norfolk. [X8336

5-6h.p. Twin Rex, free engine, mag., splendid condition; offers.—Smith, 204, Edward Rd., Balsall Heath, Birmingham. [X7789

1912½ 6h.p. Twin Rex, special T.T., equal new, in splendid running order; £26; photo; bargain.—Baines, Crane St., Leicester. [4449

REX.—New 1912, 1913, and 1914 models from stock. Special exchange quotations.—Halifax Motor Exchange, Westgate, Halifax. [0387

REX, 3½h.p., 2-stroke, 2-speed, new Canoelet sidecar, perfect order, very complete accessories; at Holmes' Garage, Treville St., Plymouth; £35. [4197

LATEST 1913 Rex de Luxe, 6h.p., and new Rex sidecar, coach, Cowey speedometer, 2 lamps, spare tyre, belt, tube, kick start; abroad Xmas; £56, or nearest.—A. Booth, Rainow, Crewe. [X8335

1913 6h.p. Rex, 2-speed, Portland lounge sidecar, brand new combination throughout maker's price £80, our price £70; exchanges or easy payments.—Maudes', 136, Great Portland St., London, W. [2136

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FIVE HUNDRED AND FIFTY-NINTH CONSECUTIVE ISSUE.

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Novelty in Reliability Trials.

THOSE clubs who seek variety in competitions in order to stimulate further interest among members might do worse than take a leaf out of the book of the Sutton Coldfield and Mid-Warwickshire Automobile Club, which body on Saturday last held a novel, interesting, and yet instructive event. We have on several occasions pointed out the desirability of introducing more novelty in competitions if they are to retain their present popularity, and on that account welcomed the innovations introduced by the Streatham Club in their autumn trial, which included stopping and starting tests in addition to a speed test on Brooklands with certain minimum set speeds for the different classes. The points tested in the Midland trial referred to were flexibility as determined by slow and fast ascents of a certain hill, the ability to stop and restart, and acceleration powers, all on the same gradient and performed during the non-stop run, so that no special adjustments of the machine in order to show up particularly well in any individual test were possible. All that is needed is a course on unfrequented roads, so that the repeated procession of competitors shall not cause annoyance to other road users and residents along the route, and a comparatively straight hill. Of course, the points tested in the trial already referred to do not exhaust all the possibilities.

The idea might be carried on *ad infinitum*, such as by the measurement of petrol consumption, highest and slowest speeds on top gear, etc., but those headings enumerated are sufficient to impart a welcome variety in competitions of the future, and it seems to be generally agreed that the ordinary run of reliability trials has become exceedingly monotonous now that motor cycles have attained such a degree of reliability. We are at the moment commending this idea to clubs for closed contests; we realise that in an open trial with a large entry the conditions might become too complex; indeed, we well recollect the tedious delay in the A.C.U. Six Days Trials on the morning of the flexibility test on Warnell Fell. To carry out tests of this nature at all accurately requires a great deal of time and patience, and it would be a pity if by interposing too many different tests the trial was spoilt by its unwieldiness.

Excessive Garage Charges.

IN recent issues we have published letters on the subject of the charges made in various parts of the country for garaging motor cycles. We have since received a number of such letters which show that a charge of 1s. per day is not by any means unusual. Now, while most people will not complain of this charge for a single day of twenty-four hours, it certainly seems excessive when spread over a period of weeks or months. In fact, such a charge might equal or exceed all other running charges put together, including depreciation, and it is equivalent to the rent of a small house. A motor cycle takes up far less room than the smallest of cars and is much easier to handle, therefore the charge should be much less than for a car. Garage proprietors may claim to know their own business best and think that they have a right to charge what they can get. This may be so, but our opinion is that a satisfied customer is an excellent advertisement, and that on the other hand a garage where the charges are excessive will soon become known and avoided. Therefore, in their own interests, proprietors are advised to consider the future as well as the present or they will soon "kill the cow that lays the golden milk," as one of our politicians has so wisely said. The moral of this is that motor cyclists should ask what charges are made before they leave their machines. The man who bought a motor cycle without ascertaining the price and afterwards complained that the cost was excessive would receive little sympathy. Finally, this seems to be a matter into which the A.C.U. or A.A. and M.U. might enquire with a view to fixing some universal charge which would be fair to all parties, though we are fully aware that local conditions might in some cases make this difficult.

Freak Hill-climbing in Africa.

THE mania for climbing mountains is not by any means confined to Great Britain, for news reaches us that South Africa is now becoming the scene of such exploits, Table Mountain having capitulated before a 6 h.p. Royal Enfield. Let our correspondent tell the story.

"On November 2nd," he writes, "Mr. Donald Garlick made the first motor ascent on record of Table Mountain, riding a 6 h.p. Royal Enfield. There are only two bridle paths or routes by which materials and supplies are carried up the mountain on pack saddles to the employees on the reservoir services on the plateau behind the mountain face. The shorter, but more abrupt, of these bridle paths rises from the main road intersecting Groote Schuur at a point near Kirstenbosch. It was by this route, the Diamond Spring Path, that the remarkable climb was accomplished.

"The observer was dropped at a point well up the path where the track becomes too narrow for a sidecar, and the attachment had also to be dropped. From here the ascent was continued solo on track never more than 3ft. 6i wide, and frequently reduced width by boulders, thus lea ing less than eighteen inches of fr passage, with at times a sheer dr on the other side for hundreds feet into the gulley below. On t of this, the surface is mostly loo consisting mainly of rock chippin without earth binding. Excepti where in one or two places t Enfield was lifted over bould rising out of the path, it complet the climb to the Back Table e tirely under its own power.

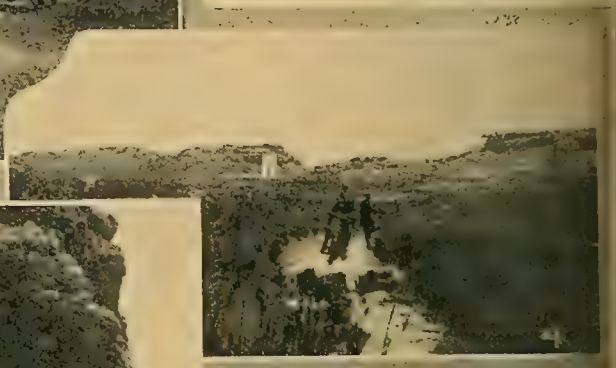


TABLE MOUNTAIN (CAPE TOW CLIMBED ON A MOTOR CYCLE

(1) Detaching the sidecar at the fo of Diamond Spring Path.

(2) A skid on Diamond Spring P due to loose surface on a right ang and The gradient at this point 1 in 6.

(3) One of the many narrow rid tracks with a surface of loose sto and a drop of several hundred f on the outside.

(4) The Back Table—2,400 feet above sea level.

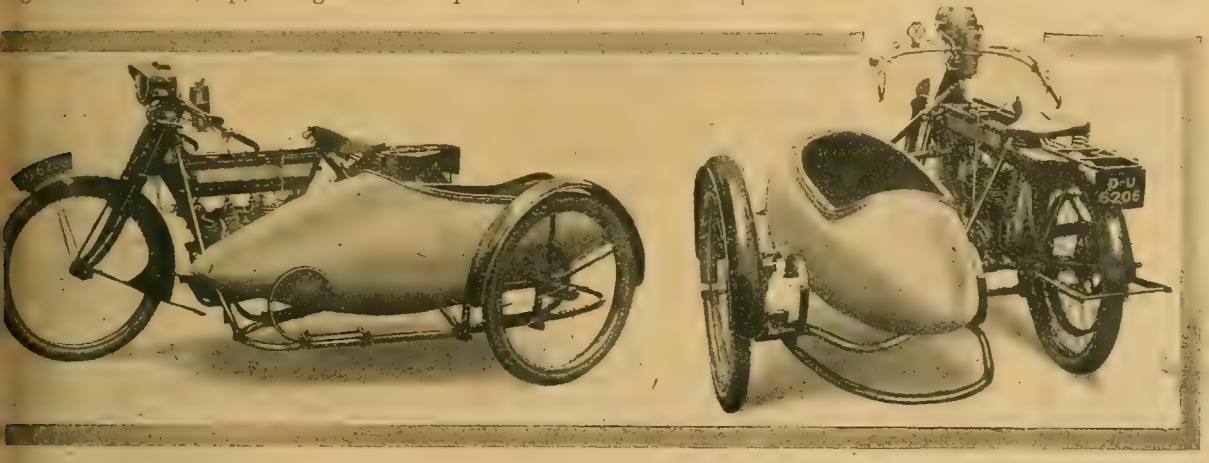
(5) A reed grass track on the Back Table.

(6) Wynberg Reservoir—one of on the plateau on the top of Ta Mountain.

Hill-climbing in Africa.—

The highest point ultimately attained was on a with the Woodhead Reservoir, at the top of Disa Gorge, about 2,400 feet above sea-level. n here the path was unrideable, and, petrol being in the tank, no attempt was made to find another to the face, 1,200 feet higher up. On the eau the rider was heartily congratulated by several ntain parties; and the mountain ranger, hearing exhaust (the silencer having been removed for ter road clearance), came down on the outlook for hers or forbidden guns.

The descent by the same route was even more ing than the climb up, owing to the steepness of the gradients, which at one part necessitated checking momentum by means of a rope tied to the back stay of the machine and held by an observer, to prevent the rider making a flying leap into space at the foot of a 1 in 5 drop. The presence of several true hair-pin bends caused some anxiety on the downward journey, as these were mostly hidden by foliage, with the straight ending precipitately, and with nothing to prevent overshooting the turning and ending disastrously in the ravine. But Mr. Garlick remained in the saddle all the way, and reached the foot of the mountain again without any accident. This ascent, when it became known, created considerable excitement in Cape Town."

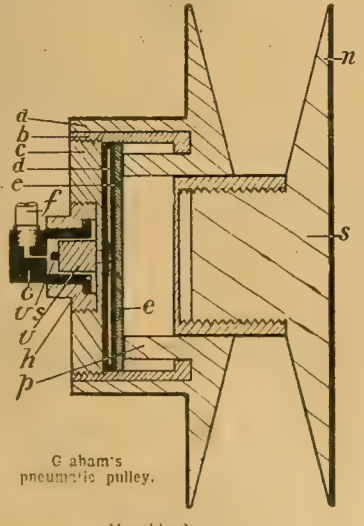


A streamline sidecar fitted to a 3½ h.p. Motosacoche machine, designed and owned by C. L. Scott, of Sydney Westall's, Ltd., Great Portland Street, W., and built by Sidettes, Ltd., of Coventry. One of the several interesting features of design is an underslung chassis.

A PNEUMATIC ADJUSTABLE PULLEY.

r. J. Graham, 29, Perham Road, West Kenon, W., has invented and made an ingenious stable pulley, of which we show a section here-

The con- was entirely matic, and ted by a hi- pump fixed in nvenient posi- on the side of tank, and a g connection from the e to the con- on F. A few es of the p would raise pulley gradu- from the low high speed, e if the belt pressed up ist the nipple air would e fast or ually at will rapidly or ly lower the It appar- worked per- y and demon- ed the true



Graham's pneumatic pulley.

a. Movable flange.
b. Chamber for air bag D.
c. Cap for chamber B.
d. Rubber air bag.
e. Thrust plate.
f. Pump connection.
g. Nipple (stationary).
h. Gland.
v. Non-return valve.
s. Stem of valve V.
n. Fixed flange.
s. Boss of pulley.
p. Pins.

elasticity of the belt. The pulley consists of a movable flange A and a chamber for the air bag D. On the air entering the bag it will expand and push the thrust plate E against the pins P, pushing the movable flange inward. Of course, the object of the pulley is to make the method of expanding and contracting very simple; and, though it may be anticipated that working by air pressure would cause trouble, this does not actually appear to be the case in practice. The cap C is screwed into the front of the boss, and carries the gland H, in which the nipple G is held loosely, so that the latter may remain stationary while the rest, of course, revolves. A non-return valve V is fitted, so as to be quite airtight.

THE QUESTION OF MAGNETO SUPPLY.

In a leading article in *The Autocar* of December 6th a matter of vital interest to all motorists is dealt with. This is the question of our dependency upon foreign manufacturers for our supply of magnetos. It can readily be imagined that this is a position fraught with grave risks to the welfare of the home industry. In the event of a political disturbance in Germany (by far the greatest magneto producer), or even a strike, our industry might very well be completely crippled until such disturbance had been settled. At the present time we believe we are correct in saying that the number of magneto machines manufactured in Great Britain is not sufficient to keep any one prosperous works supplied.

A Novel Rear Brake.

Another detail of intrinsic excellence, but unostentatious character, was to be seen on the new Rover machines. I refer to the rear brake. Standard brakes consist either of a concave V shoe on the inside of the belt rim circle, or of a convex V shoe on the outside of the circle. The former is the more powerful, but the latter needs no attention when a wheel is dropped out. The Rover design combines the merits of both types. A V block is fitted to the outside of the belt rim, which is, of course, provided with an extra flange for the purpose. The slight increase of weight thus necessitated is amply justified. We get the accessible rear wheel, the quest for which inspired the original Rudge convex outside V, now abandoned, because it was a shade feeble and apt to open the belt rim or otherwise distort the belt's bed, and simultaneously we get full brake power, and a true belt bed. This is one of the refinements which make for perfection.

Accessibility.

No! Wild horses will not drag the name from me; but there was, there really was, a machine in the Show from which neither valve caps nor sparking plugs could be extracted unless the engine were first dropped from the frame. I daresay the sparking plug indictment has an answer, for it was obviously possible to substitute midget plugs for the tall samples actually fitted, and midgets would have been removable; but fancy having to take the engine out of the frame if a valve cotter broke!

Bravo! the Zenith.

I should have been very sorrowful if the advance of the three-speed gears had driven the infinitely variables off the market. The danger was real and urgent. In their original forms these truly delicious gears did not admit of a lower-bottom ratio than 7 to 1, or thereabouts, and at this ratio the contact area of the belt was at its minimum, and the driving strains at their maximum. Simultaneously the 12 to 1 emergency gears of the three-speeders induced trials organisers to adopt routes bristling with hills which no 3½ h.p. could hope to climb on a 7 to 1 gear with a pulley screwed out to the diameter of an umbrella ferrule! Hence the infinitely variable 3½ h.p. was practically handicapped out of this season's chief trials, or in other words, banished from public attention, and I, for one, was distinctly afraid that the infinitely variable gear might either disappear altogether, or be restricted to solo mounts of abnormal and [illegible] horse power. But I reckoned without [illegible] Barnes; he has kept his clever gear, and he has contrived to embody a series of real emergency ratios, thus preserving for our use one of the most efficient and pleasant specifications on the road.

The Detachability of Three-speed Hubs.

I was a trifle disappointed that the designers of three-speed hubs had not managed to effect more in the direction of quick detachability of the wheel. To my mind the only real defect of the modern three-speed hub is the finickiness of its removal from the frame and of the reassembling. I presume the makers realise this difficulty as intimately as I do myself, and that nothing better is within the sphere of possibility. But some weeks ago a reader sent me details of a suggested modification which struck me as promising. He thought that the control rods might be coupled to toggles mounted on the chain stays, instead of on the spindle of the hub, so that the hub could drop clear provided the tips of its light internal push-rods clear the ends of the controlling bell cranks, these bell cranks being fixed to the chain stay brackets. The whole idea was strongly reminiscent of the Trium free engine control. At the time I thought the difficulty would lie in the fact that there is hardly any clearance between these push-rods and the bell cranks that the push-rods might be badly strained by careless riders during wheel removals; and that the scheme might render it very difficult to procure the precise nicety of adjustment required for such a delicate control. However, I ventilate the idea for what it is worth. Under existing design it is possible for a smart mechanic to get a wheel out and in again within a very short period; but the average amateur probably needs well over an hour to effect a tyre change.

Do Sidecars Skid?

My paragraph on this subject brought me a number of letters from riders who are unanimous in asserting that sidecars skid. The evidence is to the effect that they require efficient non-skid tyres, that they slide on sharp corners, that they are much steadier when the weight of a passenger gives the side tyre a firm grip, and that they skid when coasting down greasy hills with the valve lifted. This consensus of evidence rather surprises me, for, admitting that my sidecar experience embodies less than ten thousand miles, I honestly cannot recall a single instance of even a small skid with a sidecar or with a De Dion type tricycle, save only dry skids due to negotiating sharp corners at very unjustifiable speeds, *e.g.*, when insisting on tackling a corner when I had really overshot it by a yard or so. One correspondent suggests, however, that the average man is prone to exaggerate the seriousness of a skid. He describes how his sidecar skidded, and ejaculating, "By Jove that *was* a skid!" he dismounted to examine the wheel-tracks, and found that he had only erred about five degrees from the straight line for a couple of yards, whereas in imagination he had travelled crosswise for thirty yards!

The Low-priced Machines.

There is some risk that novices may credit the new ra-cheap motor cycles, listed from £25 upwards, h all the capabilities of the more refined and ex- nsive types, pace only excluded. It should be arly understood by the tyro that the service to be pected of a miniature four-stroke-engined bantam- ight, with direct single-geared belt drive, is of a y restricted character. It is equal to touring work level country, but it cannot climb severe hills un- s it receives pedal assistance of a somewhat exhaust- character; trouble with the transmission is to be icipated in bad weather, and the engine must be y carefully attended to, if "tune" is to be main- ned, for there is not the slightest reserve of power, l there is no emergency gear to fly to the rescue of enfeebled or badly driven engine. However, a ver driver can extract plenty of fun from one of se handy little lightweights, provided his riding onfined to a tolerably easy district. When we rise a higher price-stratum, and contemplate the three- eded four-stroke lightweight, or the two-speeded -stroker, matters are very different. A good nple of these types can go anywhere, and the big dsters will only beat it in the matter of speed uphill.

Twist-grip Control.

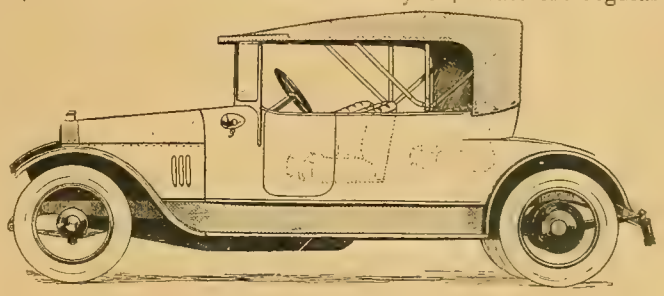
heard a fierce controversy raging between parently) an Indian and a Triumph enthusiast at Bowden stand anent the respective merits of twist- and radial lever control, the debate being ired by the Bowden people's inclination to push ir new twist-grip control. Probably 75% of my ng has been done with the standard radial lever trol, and my subconscious mind has become so roughly habituated to this type that try as I may, annot re-accustom myself to the twisting grips; in y emergency my right forefinger makes a wild h for a radial throttle, and, when I cannot find it, left-hand fingers paw the air madly in search of inverted valve lifter. I should opine that custom the controlling factor. A novice whose brain is in soil in this respect may well prefer the twisting , which has the advantage of retaining a "clean" idle-bar; but the man who has served a long renticeship with radial levers may experience my difficulty. How does the twisting grip serve in sy traffic with a really quiet engine? Can the erienced tell by the feel of the grip whether they risking an engine stoppage or not?

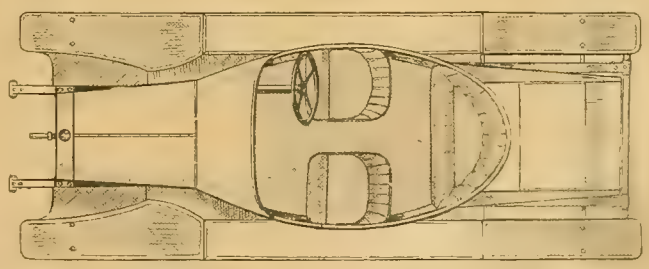
A Clyno Oiling Refinement.

Much as we all admired the widely-copied ingenuity the Connaught two-stroke oiling system (lubricant ng mixed with the petrol by the aid of a measure ched to the tank), we all failed to foresee the er advance on this notion appearing in the Clyno tweight. The oil tank is fitted with the usual np, but the feed pipe from the pump goes into the rol tank, and one or more pumpfuls of oil are in- ted into the petrol tank, according to the amount petrol inserted at a refill. This is a cleaner dodge, l obviates the nuisance of a lost measure. My only stion would be whether the oil and petrol can be sted to mix homogeneously; doubtless Frank Smith proved the idea pretty searchingly, and, of course, rol must slosh about considerably in the tank as the chine is running.

Body Room on Cycle Cars.

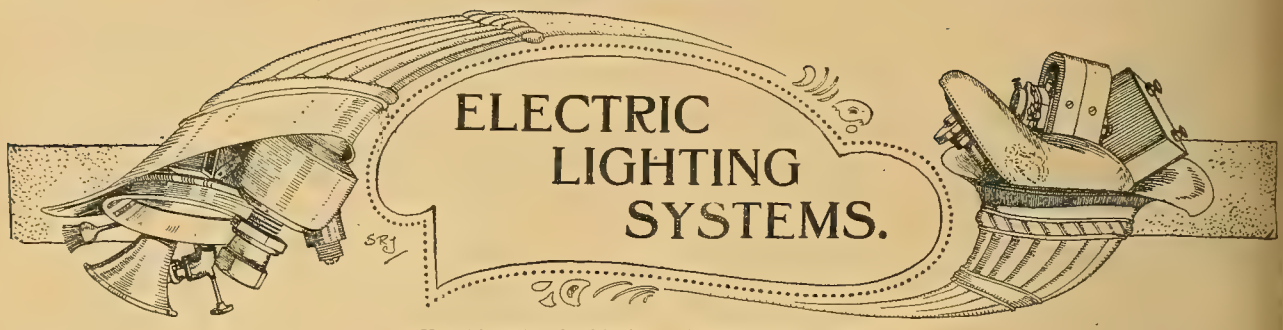
The cramped accommodation of many cycle car bodies is a defect which impulsive purchasers will not realise until it is too late. The Olympia exhibits showed great divergences in this respect. In some instances there was no tailboard whatever, and a tiny two-seated body, into which large passengers would apparently have to be insinuated with a gigantic shoe horn, was the sole provision; even running boards, to which bags can always be strapped, were occasionally missing. At the other extreme one found a roomy body, wide, substantial running boards, and a flat tail board capable of carrying two small suit cases or a medium-sized trunk. Any touring vehicle requires quite a quantity of room; rugs, extra coats, spare tins of oil and petrol, a bulky jack and pump, a hat box, and other minor items must often be squeezed in somewhere. If a machine is only wanted for a trip to the golf links, space must be found for a couple of cumbrous caddie bags, and a pair or two of spiked shoes. While I should heartily deprecate the regular





The three-seater design of Mulliner body, praised by "Ixion."

carrying of a third passenger, I think it should be possible to tuck in an additional passenger on occasional short trips, such as a three-mile trip to a football field and the like. On a car one can take a side door off the hinges, or leave the door open, and let the extra man sit on the floor boards with his feet on the step; but this is not possible on the average cycle car. For all these reasons I was interested in Mulliner's design for a three-seated cycle car. As the sketch shows, its plan resembles a foot-print. The heel is the bonnet; two passengers are accommodated across the widest part of the sole; and a third is bestowed in the blunt toe, thus giving the coachwork a stumpy streamline contour, which is neat without being clumsy. The dickey seat could easily be made to lift out, so that the well could be used as a luggage boot on long runs. It may be objected that such complete provision renders the cycle car design too cumbrous; but is there any real future for a vehicle so restricted in its accommodation that any small parcel has to be carried on the passenger's knees?



ELECTRIC LIGHTING SYSTEMS.

BY WILFRED G. ASTON. FIRST INSTALMENT.

IT is conceivable that the Motor Cycle Show which has just been concluded at Olympia will take its place in the history of the movement as that which saw the most notable and general development in cycle cars. On the other hand, it may be that the popularity and advent of the two-stroke engine will set it down as something out of the ordinary run. But to the writer's mind, it is more probable that it will live in history as being the Show at which electric lighting, as part of the equipment for motor cycles, first made its permanent mark. There is nothing new whatever in the idea of applying a dynamo installation for supplying the necessary light on a motor cycle, and, indeed, it but follows the direction which has been already laid down for it by its predecessor, the motor car. Not only so, but the writer recalls very vividly being shown by its very proud inventor, the manufacturer, a complete dynamo electric lighting installation, which was made something like eleven years ago for mounting on a motor cycle. The fact that it worked, although somewhat spasmodically, was taken to imply inevitable future success of the system. And if this hardy pioneer had had the good fortune to live and walk round the Motor Cycle Show just held, there is no doubt that his breast would have swelled with pride at the thought that he had so clearly prophesied a definite future development.

Nothing New.

Two or three years ago there appeared from the pen of the present writer an article in *The Motor Cycle* in which several small dynamos for motor cycle electric lighting work were described and illustrated. It may then seem rather strange that the past Olympia Exhibition is held to represent such a big jump forward in progress, seeing that it has produced nothing in the electric lighting line that can be justly regarded as absolutely new. The difference, however, is simply this. In past years such accessories as self-contained electric lighting sets have been regarded by manufacturers of motor cycles as appurtenances which might appeal to a few riders, and, therefore, might be left for them to pick and choose for themselves. At present, however, a different state of affairs exists, for no less than two leading motor cycle constructors have gone so far as definitely to adopt such lighting installations on, at any rate, some of their models. In other words, electric lighting for the first time has obtained the approval and satisfaction of motor cycle makers. From now onwards its future is absolutely assured, although, of course, it may not be subject to such rapid developments as have taken place with car lighting installations.

In the first place, it must be remembered that those who buy motor cycles have not quite so much spare cash, and have, therefore, to consider pounds, shillings and pence rather more carefully than buyers of luxuriously appointed motor cars. Secondly, there is rather less need for a self-contained equipment, which must be necessarily heavy and rather expensive to produce, in connection with the motor cycle, for it is really not very largely used at night except in cross-country work, where acetylene illumination has very few disadvantages. More than that, it is not necessary, as in the case of a car, to keep the side lamps going when the vehicle is stationary in order to comply with the law, because, in most cases, a bicycle can be pushed up an entry or leant against some convenient tree or wall. Both these considerations lead one to suppose that much water must flow under the bridges before we shall reach a time when no motor cycle can justly be regarded as being complete without its dynamo outfit. Hence, when it is said that electric lighting has come to stay, it must not be imagined that the writer means to convey that it will be absolutely *de rigueur* next year to the exclusion of all other forms of illuminant.

The Convenience Point of View.

As a matter of fact, acetylene lamps are considerably more convenient on motor cycles than they are on cars for long lengths of tubing are not required, and a single generator only is generally employed with a single lamp. Furthermore, the acetylene outfit is, as a rule, exceedingly light and simple to look after and, in contradistinction to the types of acetylene installation fitted on cars, the generator is generally within convenient reach of the rider, so that it can be easily regulated from the saddle.

Before proceeding to describe the installations which were exhibited at the Olympia Show—and this is the principal function of this article—it will be as well, perhaps, to consider the advantages electric lighting possesses over acetylene, bearing in mind that it is, at present at any rate, essentially heavier, requires more room, and is more expensive. First of all, one has a very much more efficient form of light, for which the reason is, perhaps, not so obvious as might be thought. Elementary optics teach us that for the best and most efficient projection of light, the source of such light should be as nearly as possible a mathematical point. This, of couse, is absolutely impossible in the case of an acetylene flame, which occupies considerable volume. It is, therefore, impossible to construct any form of reflecting mirror, which can give a high efficiency, for the fact that the flame is of large

lectric Lighting Systems.—

ize results in many of the rays being grossly dispersed. y using a short focus lens the best of results can be btained; still, a good deal of efficiency is lost, and it ust not be forgotten that the shorter the focus the ore likelihood is there of the lens mirror reflector being eriously damaged by the heat of the flame. Secondly, ith electricity one has an illuminant which can be rned off and on at will without getting out of the iddle.

A Tip.

This advantage is, in point of fact, very much ss notable in the case of a motor cycle than in a r where for the driver to get out of the car involves im in disturbing other passengers. Parenthetically, o, I may remark that acetylene lamps can very sily be lit without getting off a motor cycle, as yone may find out who happens to carry one of ose little pocket petrol cigarette lighters with him. this case all one has to do is to turn on the ater, open the front door of the lamp, and, making guess at the right position, let the lid of the lighter ap open when the familiar smell shows that there a sufficiency of acetylene available. Even the inperienced will obtain success after two or three ots with this method.

A third advantage is that there is no need for plenishment of fuel or water, and consequently there is no need from one season's end to another to mess one's hands, or run the risk of setting out on a journey with an empty generator. Fourthly, there is the benefit that a tail lamp, such as the law requires with sidecars, can be very easily fitted up without involving any complications to speak of. A perfectly safe and sure inspection lamp can speedily be fixed up, and can be used without the slightest danger of causing petrol fires. Lastly, there is this benefit, that, owing to the lighter construction which can be employed in an electric head lamp, there is less "moment of inertia" or flywheel action on the handle-bars, so that there is no additional tendency to wobble or roll in ruts of muddy roads.

Absence of Flicker.

I have already referred to the efficiency of the illumination. This is ascribable as well to the optical arrangement of the lamp as to the fact that the body of the lamp can be made practically airtight, so that the mirror does not tarnish, and, furthermore, to the fact that the constancy of current absolutely prevents any flickering as the result of road or engine vibration, or from boisterous and gusty winds. It is, in fact, not untrue to say that an unsteady, powerful light is not to be preferred to a perfectly steady light of less than half the penetration.

In the next issue of this journal the different electric lighting systems for motor cycles will be described and illustrated.

A BIT OF A PUZZLE.

N the old days it was not an uncommon event to encounter a defective motor cycle, the particular nature of whose malady utterly baffled detection the owner, if not by his more or less expert quaintances. Nowadays, owing to the more curate knowledge as expressed in the machines emselves as well as in the fertile brains of those o have to diagnose their diseases, it is seldom that fault can evade elucidation for any length of time; t the writer confesses to having been floored for considerable period by the following case, though solved it in the end quite satisfactorily.

The data are as follow: A new motor bicycle th a power unit comprising a 2½-h.p. single-linder engine, chain-driven magneto with fixed timing hind the cylinder, and carburetter behind that. brication was by external hand pump with transrent barrel. All the parts of the power plant were first-class popular make; the road wheels were free d the cycle work generally in perfect order.

The tank was charged with petrol and oil of good ality.

The Carburetter was Cleaned.

When the machine was started, the power imediately fell off, and in a few yards the firing ceased. urther attempts were equally unsuccessful, so it was ae to begin investigations. The sparking plug was anged, the high-tension terminal removed, and the ntact end of carbon pencil and contact ring aned. But these changes made no difference to the sult. The valve timing was then checked and und to be correct.

Down a fair incline the machine ran comparatively ll and fired regularly, which was something. The carburetter was now examined and carefully cleaned, but with the same result. It may be taken for granted that a trial trip was made after each altered condition and that the machine always behaved as on the first occasion—a few half-hearted explosions gradually growing feebler and expiring altogether, in about a score of yards. Larger jets were then tried.

The Exhaust Box Examined.

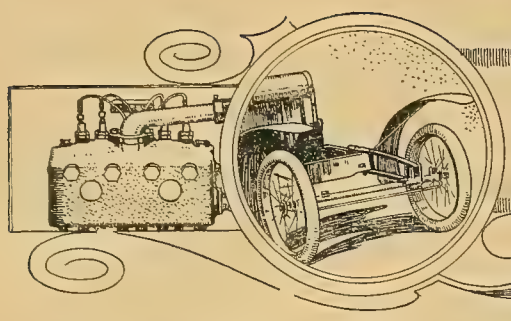
Really it was getting beyond a joke. The symptoms indicated that the engine was either starved or that its exhaust was bunged up. Off came the exhaust box first. Nothing in it at all beyond the bolt which held the cut-out against the perforated end—not even a baffle plate, and the exhaust pipe itself was perfectly free. The cylinder was now removed and the passages found to be quite innocent of any impediment. The parts were replaced and the valve timing tested once again, this time with a wire let down the compression tap.

Sometimes after an overhaul a machine will go all right, although the fault has escaped detection, the defect having been remedied unconsciously. It is an unsatisfactory ending in a way, though one would rather this happen than that the machine should not recover at all. But it was no good! Whatever could be the matter?

One more possible point remained. This was tested and the machine sailed away in excellent fashion.

DOUGLAS LEECHMAN.

[Our readers are invited to solve this problem if possible For the six most correct answers we offer a copy of one of our handbooks "Motor Cycles and How to Manage Them," "Hints and Tips for Motor Cyclists,'. or "Tracing Troubles." The correct solution will be published a fortnight hence.—Ed.]



Passenger Machines at Olympia.

By B. H. DAVIES.

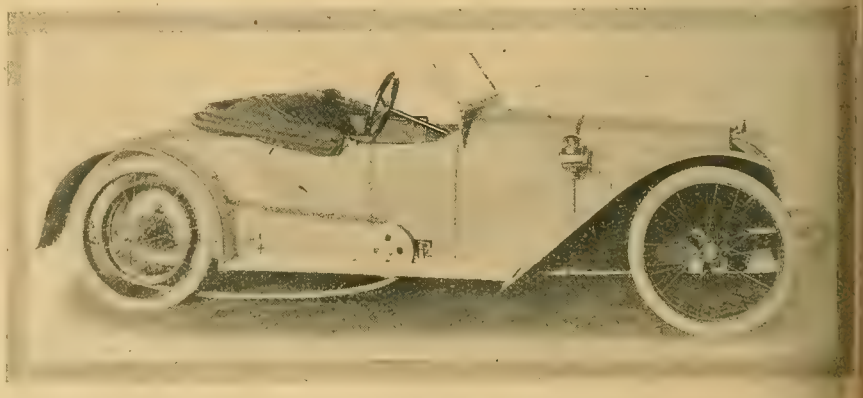
I AM not going to say anything about the sidecar outfits. If you refer to our advertising columns, you will find there just exactly what I should say if I had the pen of an "ad." writer, for the simple truth is that the general quality was extraordinarily high. Here and there one could pass some small criticism on the ground of appearance or inaccessibility; but, on the whole, the modern sidecar outfit is simply impervious to fault-finding; and it is very hard to see where any radical innovation of merit or any urgently needed alteration can be found.

In the cycle car field we are not quite so forward. The Show was an unparalleled advance on last year. Some of the worst freaks which disfigured last year's exhibitions had disappeared unwept, unhonoured, and unsung—at least by this journal. The staunch old 'uns, which existed and ran before the term "cycle car" and all the controversies and reminiscences it suggests came into being, were there in all their glory, the G.W.K. and A.C. Sociable practically unaltered, the Morgan no longer childless, but proudly rearing its head amidst its grandchildren, several of whom have already outgrown their proud parent—that yellow Grand Prix Morgan inspired many a dream last week beneath waistcoat and blouses alike. Finally, the debutantes mostly deserved a warm welcome. Not all. There was one machine wrestling with two hefty enthusiasts who desired to test the clutch leverage. They got the pedal out when I and a big Leander oarsman held the machine for them, for, previously, the sole effect of pressure on the pedal of the clutch was to shove the machine off its stand and across the gangway. Having reluctantly come out, the clutch resolutely refused to go in until the machine was scotched, and a fourteen stone man danced the tango on the pedal. The rest of this machine was about up to sample—we will let it pass at that. There were machines with no universal joints in lengthy propeller-shafts, and others equally destitute in respect of short shafts, which is even worse, because the angularities are greater. There were machines with both engines and gears bolted direct to the frames—a fault the heinousness of which can be realised if we try to picture a man playing rugger in full-length trousers of tin. There were brakes which would be inefficient on a toy perambulator, and other varieties which I spare you.

But the general run of the cycle cars was admirable. They ranged from the "fire-extinguisher" Carden (an ideal winter mount for a man who lives in the level Midlands, has had three sideslips in the last week, and is getting fat) to the bigger A.C. and the Chater-Lea, which, by some miracle, contrive to squeeze a full light car de luxe specification, embodied in staunch stuff and sound workmanship, within the cycle car definition. I prefer to dwell chiefly on the vehicles which approximate more closely to accepted motor cycle lines, and in doing so I will omit our older friends, like the G.W.K. and the Morgan, because we have all tried them through a friendship that is growing hoary now, and we know we can trust them.

The Simple Type of Cycle Car.

Consider, for example, such an example as Mr. de Peyrecave's new Depford. It is a kind of glorified Zenith on four wheels, for its gears range from 4 to 16 to 1. It has a very simple gear box, supplemented by a movable back axle, which tightens or slackens the long side belts against spring pulleys, each having one loose flange. One cannot think of a cheaper or more ideal gear for the genuine cycle car—using the word in oblivion of formal definitions. The body is big enough to hold a pair of rugger internationals. The springing is so carried out that the car merely gives when a big man jumps on it—some of its rivals leap off their carpet with every tiny part cocking its ears, and a "Who frew dat brick?" expression. As a sample of the detail refinements, one may mention the pedal lubricator, which prevents the driver from having to writhe round the wheel to get at the dash. Its one visible defect is that the belts, which run behind the body panels, are a trifle inaccessible; but, after all, big belts running over spring pulleys of large diameter, should need very little attention, and almost anything is better than having two long lines of splash-



The latest model 8 h.p. Adamson, which is fitted with water-cooled engine, belt drive, and underslung chassis.

The Douglas

MOTOR CYCLES AT THE OLYMPIA SHOW

ATTRACTED CONSIDERABLE ATTENTION,

BUT

THE DOUGLAS IS NOT MERELY A MACHINE TO CATCH THE EYE

IT IS

A MACHINE FOR RESULTS.

THE PUBLIC SCHOOLS M.C.C. MEETING, BROOKLANDS, NOV. 29th.

350 c.c. (SOLO).—Flying kilometre.

	m.p.h.	
A. Nicholson, Bradfield (2¾ Douglas) ...	50.84	**1st.**
P. C. Douglas, Marlborough (2¾ Douglas) ...	48.42	**2nd.**
M. Cremetti, Harrow (2¾ Douglas)	48.40	**3rd.**

SIDECAR CLASS.—Under 600 c.c

M. Cremetti, Harrow (2¾ Douglas)	40.81	**1st.**

"The Public Schools M.C.C. held a successful meeting at Brooklands on Saturday last, the 29th ult. . . . . Douglas machines were much in evidence and ran splendidly." —*The Motor Cycle.*

WRITE FOR ILLUSTRATED BOOKLET OF 1914 MODELS.

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The capacity of the engine is 636 c.c. and the power output is equivalent to the average 6-7 Twin. It is a SIMPLE SIDECAR SINGLE and will do what is required without the complication and weight of multi-cylinders, and at much lower cost of maintenance.

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COUNT THE "WON'T GO" Motor Cycles on the road and you won't find a solitary

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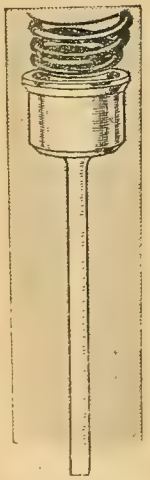
amongst them (a disabled Motosacoche is as rare as a dead donkey), and now that their exhaust valves are **AIR COOLED**



Air-cooled Exhaust Valve.

THEY ARE EVEN BETTER

they have **MORE POWER,** and their **ACCELERATION IS EXTRAORDINARY** they can't **DRY UP,** and the $3\frac{1}{2}$ h.p. twin, with and without sidecar, can "slip it across" machines of greater power with the greatest ease—and can keep on doing it—there is **NO OVERHEAT.** Send us a p.c. and we will send you particulars with pleasure free of all cost to you,

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Passenger Machines at Olympia.—

stains right across the coachwork, as happens with so many belt-driven cycle cars.

The Crouch, which was not to be found within the Show, was performing very prettily outside, running more quietly and neatly than many others in the trial yard; but, of course, trial yards are not freak hills in a Six Days, and we mustn't stretch the evidence too far.

The Crescent showed how to inter-couple a foot and hand throttle in a light and inexpensive manner. Its throttle is operated by a Bowden wire from a steering wheel lever, and the stop of this wire is mounted on a link joined to the accelerator pedal, quite a good notion.

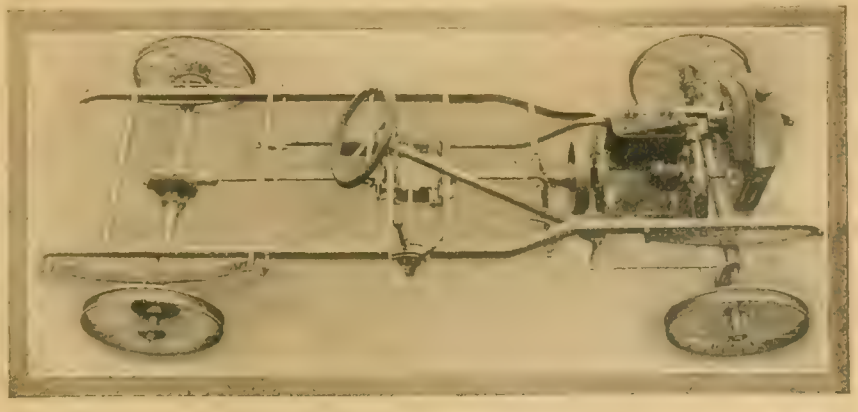
The Dew interested me much. It employs the front half of the Crestmobile drive—some of the old brigade will remember this pre-historic car with its twin friction-clutched chain and sprocket drive. "Concentrated essence of simplicity" best describes this very charming chassis, for there is nothing on it which a clever puncture-repair boy couldn't tinker up if it went wrong, and that is part of the cycle car ideal. The adjustment of the front chains is a heap better than most cycle devices. The engine is hung in slots cut through vertical cradle plates, against which big nuts lock it by friction; in front there is a winder-bolt attached to the apex of the chassis, and having loosened the friction nuts, you just apply a spanner and wind the engine to or fro as if you were changing a leaf in a dining table. The alignment is automatic and secure. One pedal controls both gears and the clutches, viz., up, top gear; half down, free engine; right down, low gear. No wonder the machine is cheap.

Good and Bad Points in Design.

Some of the water-cooling work was shockingly carried out, especially in respect of the lower pipe from radiator to engine. This should obviously be broad, straight, and horizontal. In many cases narrow pipes rose steeply *via* several kinks and twists. Presumably the chassis was designed, and many parts made or procured before an engine was selected; and then the selected engine didn't fit. There will be great trouble with some of the Show machines if the point is not rapidly remedied; I leave buyers to watch it for themselves. The spigot bearing of the clutch also requires more attention. Some had no provision of any sort for lubrication, except for such odd drops as might leak out from the engine. Others had half-inch greasers fixed to the top end of a 4in. length of ¼in. copper tube; the fact that very little grease could possibly be inserted through such a device does not particularly matter, for it would fall off within a hundred miles. Some had capacious greasers properly mounted. In some cases the teeth of the gears were narrower and the diameter of the pinions was smaller than the corresponding parts of certain motor bicycle counter-shaft gear boxes; *verb. sap.*, one cycle car had a very slender propeller-shaft 5ft. in length devoid of any flexible joint. I should be afraid of this crumpling under a sudden shock which embodied much angularity; another had a very short stiff shaft equally deficient of provision for flying. I am sure this would make a very harsh drive. Very few machines appeared to have compensated rear brakes, but the simplicity with which the Buckingham cables ran over their horizontal pulleys was excellent, whilst the Chater-Lea had a proper car swingle-bar type compensator. By the way, the Chater-Lea had its accelerator pedal mounted outside the brake pedal, and on a level with it—a design that, on the whole, I prefer to ordinary car practice, inasmuch as you don't have to crinkle your knee, and it is easier to find.

The Luggage Carrying Difficulty.

In some cases there was not enough mudguarding to keep the coachwork clean, or to prevent clobs of dirt being freely flung all over the passengers' faces or the screen—a particularly unpleasant choice of evils. There was only one bad point common to practically all the cycle cars in the Show, namely, absence of luggage accommodation. I admit that some of the three-wheelers may be provided with big carriers or grids astern, and that a vehicle like the G.W.K. may have a flat tailboard on which a small trunk can be strapped. But there is a sad absence of odd corners where a small handbag or a golf bag or other small impedimenta can be stowed away without any strapping. I went round the Show with a keen golfer, whose thoughts had been turned forcibly cycle carwards by a bad sideslip with his bicycle. He decided he would rather stick to his bicycle and risk another skid with the clubs round his neck, for there was not a single body staged in which there was reasonable accommodation for two men and their small baggage, unless such baggage was strapped on the tail or the running boards, or tucked into the folds of the hood. I admit I do not see how this problem is to be solved, unless a little well can be fixed under the hood, running the full width of the body, and measuring, perhaps, 9in. wide and a foot deep. Next year's cycle cars should be a splendid assortment; a little of the rubbish is dying hard, but it is nearly all gone now, and the number of the genuine brand is rapidly increasing.



Chassis of the four-cylinder water-cooled Chater-Lea cycle car. The overhead worm drive, three-speed and reverse gear box, and well-designed steering will be noticed.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Do Sidecars Skid?

Sir,—Noting your correspondence on above subject, I think it might prove interesting to relate my experience with a 3½ h.p. Bradbury and sidecar with passenger. Recently we were passing through a small Cheshire town main street, when the machine suddenly skidded most violently, mounting the pavement and crashing into a shop window on the sidecar side of machine. Fortunately we were proceeding slowly on middle gear at the time and were able to pull up very quickly on the slight incline of the road and avoided anything worse than a bent bracket. It should be stated that the road was very greasy and had a high crown, an objectionable feature of many rural macadam roads.

JNO. W. NEWALL.

Number Plates.

Sir,—The announcement in your issue of 20th November, that six motor cyclists were prosecuted at Auckland because their number plates did not comply with the law, is most disquieting.

I visited a large number of stands at Olympia, and was unable to find a single machine on which both number plates were large enough to take two letters and four numbers of the minimum legal size, and with the minimum legal spacing. In most cases neither plate was large enough.

Further, I believe the law requires that the number plates must be upright, whereas in some instances—including a new two-stroke lightweight, manufactured by a well-known firm—the back plate was inclined at a considerable angle.

Those motor cyclists, who do not know what the legal requirements are, will find them clearly stated on page 281 of "Motor Cycles and How to Manage Them."

ARNOLD SOUTHALL.

Electric Lighting Outfits.

Sir,—As so much interest is being taken at present in electric lighting for motor cycles, may I be permitted to give my ideas on the subject?

In the first place, I have used a simple but effective electric outfit for the last season, to wit, a pair of Cox-Walker twin head lights, which I run off a 16 a.h. 4 volt accumulator. These are comparatively cheap, the weight on the handle-bars is small, and the light in my opinion is far superior to acetylene, being a better colour. One lamp is enough for ordinary purposes, and the battery will give sixteen hours' light with one; the second is useful when an extra good light is wanted, and as a reserve in case of damage. At first I had trouble with two broken filaments, but this seems to be abnormal.

But for an ideal equipment a more elaborate outfit is wanted, and this is my specification:

Dynamo driven off engine, giving four to five volts at all speeds above 20 m.p.h., output eight amps., if required.

Two 4 volt 8 a.h. accumulators, 4 volt 16 c.p. head light, only run direct off dynamo, never by accumulators. Set of four 2 volt 2 c.p. lamps, normally run by accumulators, in two pairs in series, *i.e.*, right hand side light and tail light in series off one accumulator, left hand side light (which would be fixed on the sidecar when that is used, when it is not used it would be paired with the other like the Cox-Walker twins) and top tube lamp (for speedometer, watch, and route card or map case, and detachable as an inspection lamp) in series off the other accumulator.

No automatic arrangement is required to charge the accumulators off the dynamo, but a switch is to be provided by means of which this can be done, the dynamo then running the small lights as well, making up the total output of eight amps. I assume the efficiency of the lamps to be 1 watt per c.p., but I daresay it is lower with the stout filaments required). An automatic cut-out of course is essential for changing.

I do not consider it at all desirable to provide electric starting for the engine, nor to interfere with the magneto ignition. An electric horn would be a good addition, however, worked off the accumulators.

A few points in the design of the outfit may be mentioned. Brackets for the lamps should be brazed to the machine, and the lamps readily attached and detached. The big head light should come off, leaving its electrical connections behind in the bracket, but the small lights come off with flexibles attached. The tail light to be of a design lately suggested in *The Motor Cycle*, using a transparent number plate with a red disc.

There may be some unusual points about this specification, but there are reasons for them all.

P.A.L.

Sidecar or Solo.

Sir,—Every authority seems to be in agreement that almost the top-notch of efficiency in motor cycle design has now been reached, and fields of exploration and exploitation are narrowed to small limits. And this is probably true if the favour enjoyed by the solo machine continues. But will it continue?

I am convinced that the motor cycle, solo, has seen its day, and that the combination of motor cycle and sidecar is yet far from its zenith.

For your years I enjoyed the speed, convenience, flexibility and adaptability of the single mount, and look back with pleasure to outings totalling thousands of miles a-wheel. But over that period, although but one or two minor spills impaired the enjoyment, I recall the many hair-raising moments when the precarious features of the solo make me wonder if it were worth the risk when one realises the comparative perfect safety of the present day combination.

I am now an irreclaimable sidecar driver, and I doubt whether any new feature possible as a big improvement for the single and not for the "double" would drag me back to straddle a solo. I find perfect safety under all conditions of weather, traffic and road condition as against trouble spelt with a big T or contant gulps of thankfulness for having literally "squeezed through" difficult positions by sheer knowledge gained from the years of push cycle training. Sociability, unknown hitherto, has opened out fresh pleasures. The small extra cost of my high-powered twin Indian has been proved money well spent. I will engage to give a good account of myself even against the best singles under adverse conditions without suffering the danger the single would meet, to surmount a good hill with "life and go" throughout, and to get a clear 70 miles to the gallon. What else is required?

If all road solo riders, who have never experienced the delights of the combination would become initiates in the year 1914, the popularity of the single track machine for the man who rides for pleasure would end like a pricked bubble.

C. R. WADMAN.

[There are many expressions of opinion in the above letter with which we do not agree, but on the principle of giving all sides a hearing, publish Mr. Wadman's views.—ED.]

You made me love you!

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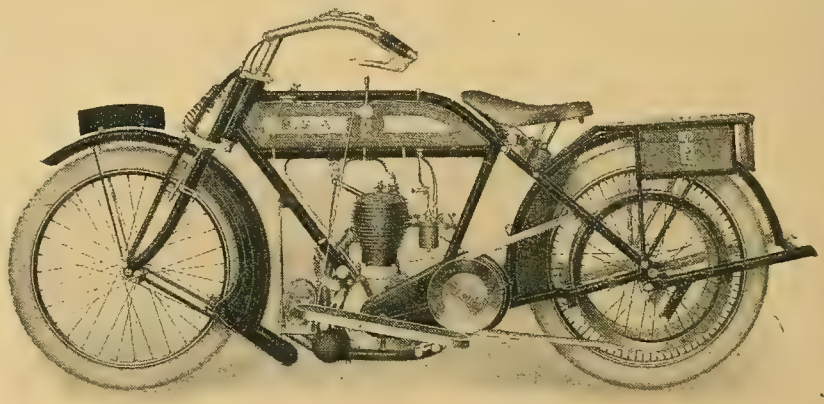


B.S.A
MOTOR BICYCLES

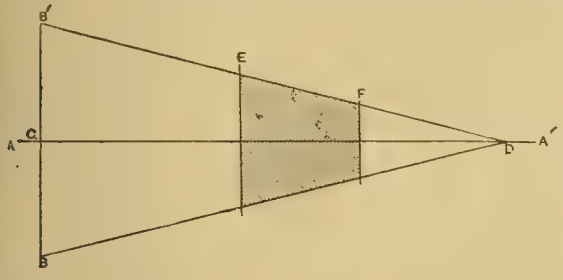
Write for 1914 Catalogue.

THE BIRMINGHAM SMALL ARMS COMPANY LIMITED,
13, SMALL HEATH, BIRMINGHAM.

A Motor Cyclist's advice: "Always use B.S.A. Cylinder Oil for your Engine."

A Pulley Gauge.

Sir,—The owner of a belt-driven machine will sometimes find it useful to have a pulley gauge to test the angle for wear, check accuracy of re-turning, etc. The angle can be set out in about thirty seconds, thus: Double a piece of writing paper down the line AA_1, prick a hole through the double thickness at BB_1 any distance from the centre



How to make a 28° belt pulley gauge.

line or fold. Now open the paper and join BB_1, cutting AA_1 at C. On AA_1 mark off CD double of BB_1. Join BD and B_1D. BDB_1 will then be, as nearly as possible, an angle of 28°. Draw lines EF perpendicular to AA_1 in such a position as to give a gauge suitable for the pulley in question. This is shown stippled in the drawing, and can be cut out of sheet brass or copper.

PERSEPHONE.

Speedometer Drive.

Sir,—I notice that lately you have praised the Hendee Manufacturing Co. for supplying their 1914 Indians complete with rear driven speedometers. Driving to Plymouth the other day the back wheel of my Indian sidecar combination had a very busy time on hills, often revolving about six times in making a foot of progress, and I fancy that had my speedometer been fitted to the back wheel, it would have told me that the hills, which I ascended at a careful four miles per hour, were mounted at a gallant forty to fifty miles per hour. I hardly like to suggest it, but it seems to me that to drive at all, even under ideal conditions, a back wheel must slip to some extent. This slip may be mainly theoretical, but even at its lowest its effect could be seen in a year's mileage, while under the conditions induced by the normal British climate its effect must be considerable, and the Odometer readings of a single trip will show a big error. How this would affect the speedometer reading I dare not suggest, but perhaps some of your readers who are higher mathematicians could give us their opinions?

By the way, had "Ixion" been with me on the journey to and from Plymouth, I think he would have decided definitely that a sidecar combination, though perfectly aligned, can, and does, skid. WHEEL SLIP.

An Appreciation.

Sir,—As I have been a reader of your paper, off and on, for nearly ten years, may I be permitted to express my appreciation of your contributor "Ixion," and all his works. I am minded to do this by a somewhat pathetic little paragraph in your issue of October 9th (page 1316). When the English mail arrrives and brings with it *The Motor Cycle* amongst other home papers, yours is the first to be opened, and after reading the leaderettes, I somehow naturally turn to "Ixion's" weekly article, with the sure knowledge of finding in it something interesting, instructive, and well written. His seemingly never ending flow of sound commonsense, which, week after week, he has contributed for I don't know how many years, is, to me, astounding. And how very seldom does it happen that he is caught napping, but when it does happen—is he not always the first to admit he is wrong? How many luxuries and even necessities, which are incorporated in the modern motor cycle owe their existence to a suggestion of "Ixion's." How many battles royal he has fought with the trade on behalf of the common or garden rider. Modern riders can only realise what they owe to him by reading back numbers of *The Motor Cycle*, and very interesting reading they make too. One cannot but admire the fine way in which he seems to write "straight from the shoulder," and one can almost see him sitting in front of his cycle, after a long ride, and making note of anything that strikes him as being not quite perfect.

Long may "Ixion" and his contributions continue!

In conclusion, may I congratulate you on the success of your paper, and on your special overseas supplement, which contained any amount of useful information.

Kaipoogalla, Pundaloya. A CEYLON RIDER.

Large Wheels for the Colonies.

Sir,—Often one sees a paragraph in motor cycle papers that English machines are all that are needed for Canadian roads. While not disparaging the English motor cycle I think 28in. wheels with large tyres are necessary. Not for the reason persons in the trade generally think, that is engine clearance but for bowling over the rough surface. Any schoolboy knows that a small ball will not roll anything like so easily as a large one. I am looking forward to the time when English makers cater for the Canadian market. Perhaps the enclosed pictures will be of interest. These are typical sand roads which are quite common.

Toronto, Ont. Canada. A. W. HAMPSON.

The Effect of Benzole on Valves.

Sir,—I notice with interest a letter in last week's issue with regard to the effect of benzole on tanks.

My mount is a 1913 2½ h.p. two-speed Singer, in which I have been using benzole. I give my experience, and would like to know if any of your readers have had a similar one.

In September, both my valves were new. I began using benzole early in October, and after using about four gallons,

The difficulties of touring in Canada by motor cycle. Illustrations accompanying letter from A. W. Hampson.

I found my engine was losing compression, and requiring the low gear on hills, which it usually negotiated on top.

I dismounted the engine for the purpose of grinding in my valves, when I found the inlet valve in perfect condition, but the exhaust so badly burnt that it was hopeless to think of grinding it in, and a new one was necessary. It was a marvel to me how the engine was pulling at all, considering the state of the exhaust valve.

This I ascribed to the benzole, as it never occurred in my experience of petrol. I may say that, except for starting, I rarely use my exhaust lifter, and if I do it is always with the gas shut off, on a slope, to cool the engine.

I also found a much greater deposit of carbon on the piston head, after benzole than after petrol.

I have lately been trying a mixture of equal quantities of petrol and benzole, which gives me an increased mileage, very smooth running, and great flexibility; its effect on the exhaust valve I have not yet had time to notice, but the compression remains excellent.

With regard to the increased carbon deposit after benzole, I may say that it was not due to over-lubrication, as I have never sooted my plug; nor was it due to too strong a mixture—the engine was getting as much air as it would take without misfiring.

F. W. WAGNER.

Rear Lights.

Sir,—As there is so much discussion about rear lights in your excellent paper, the following may be of interest.

Recently in Croydon I noticed a red light approaching. The vehicle turned out to be a covered horse van, and the only light was so arranged that the red disc was pointing in a forward direction, while the light itself was illuminating the inside of the van. Very nice for the driver, no doubt, but a bit rough on other road users.

LUCIFER.

Sir,—I wish to inform you and also your readers that I wrote to the Local Government Board on the above vexed question, urging them to take some immediate and rational action in the matter, and I also took the liberty of enclosing a cutting of "Ixion's" strictures, and "J.B.'s" letter on the subject, from your issue of the 13th November.

I have received a reply to the effect that "the Local Government Board directs the secretary to acknowledge receipt of my letter of the 14th inst." and—nothing more!

Let us hope that the missive caught some official eye, before being finally cast into oblivion, or the w.p.b.

A.W.H.

Exceeding the Limit.

Sir,—The letter of Mr. Loughborough is entertaining, but if he lives, as the writer has, to be a motorist for over sixteen years, to have driven over 140,000 miles, and never to have been the cause direct or indirect of injury to anyone, to have picked up six people at different times, insensible, or groaning on the road, and to have relieved them and saved their lives, he may yet be stopped on a perfectly straight deserted road and be heavily fined by J.P.'s, whose own cars exceed the limit every time (as everyone else does) they go out. In a country where every poor worker is content to be on a par with a ticket-of-leave convict (with his insurance card) what else can be expected?

G. T. LANGRIDGE.

Two-stroke v. Four-stroke.

Sir,—I note that in your reply to a querist on page 1651 of your issue of December 4th, you remark that "to all intents and purposes the four-stroke engine puts forth as much power as an equal two-stroke."

This, allow me to say, is entirely contrary to my own experiences with each type. I have at present a two-stroke machine fitted with an engine of the single cylinder pattern, the bore and stroke being 73×70 mm. and the cylinder capacity 292 c.c.

With this machine I am constantly making trips in and around London, and oftentimes far afield, with a coach-built sidecar attached, and a nine or ten stone passenger. If there is anyone owning a four-stroke of equal size who would care to put the matter to the test, taking the same load and using the same gear ratios, I think I can promise to beat him handsomely on all points, and especially as regards hill-climbing. Standard machines in every particular to be used by both parties.

CHAS. S. LAKE

Petrol Gauges.

Sir,—I have been much interested in the correspondence in your columns with reference to petrol gauges. I am afraid I cannot agree with "Ixion's" remarks as to the sunk-in type of gauge being unreadable from the saddle, as my present mount, a 3½ Premier, is fitted with this type of gauge, and I can easily read it from the saddle by leaning slightly sideways. This type of gauge is also absolutely accurate, and I think most people who have had the opportunity of comparing this type with others on the market would not hesitate in the choice. It easily scores over the glass filler cap, as it is a question of guessing at night time with these so-called gauges owing to the fact that it is necessary to illuminate the interior of the tank, a by no means easy task on a windy night.

As for losing the needle valve through leaving it loose, I can only say that it would take a terrific jolt to jolt it four or five inches off its seating and right out of the gauge. It is, of course, possible to get a false reading by neglecting to loosen the needle when reading it, but I am afraid we cannot hope to get everything automatic, and if a man is sufficiently absent-minded to forget this point, he would probably forget to look at the gauge at all. In any case, the needle can be left loose if necessary, when the gauge will always record the depth of spirit in the tank.

S. P. SMITH.

The Motor Cycle in the Army.

Sir,—I feel, as one of the first officers to be given a commission in the Royal Engineers Special Reserve (motor cyclist section), that one who knows something regarding motor cycle matters in the Army should not let your correspondents' letter go unchallenged.

Dealing with fact (1). A motor cyclist's pay is in excess of 12s. *per diem*, when he receives his allowance of 8s. *per diem* for the motor cycle. (All motor cyclists do.)

Fact (2). Do your seven motor cyclists expect to be put to bed and tucked up for the night, and can they have any conception of what war is really like? One of the first duties of a soldier is to exercise a certain amount of common-sense. By using one's eyes and looking round, shelter can always be found for one's machine.

Fact (3). If they understood their regulations properly they would know that if a machine were damaged, application to the right quarter could cause that damage to be made good. Again, if they were but aware of it, in the case of accident a soldier's wife, sons and daughters (till the age of 16 years) receive an allowance. Orphans are looked after by "Service Institutions."

As an officer on duty on Irish Command Manœuvres and English Army Exercises, with a number of motor cyclists under my charge, I never encountered a single case of accident. Irish roads are notorious, and the weather was very bad.

The veiled contempt for the University O.T.C. men is most unfair. An officer on the Umpire Staff informed me that they did excellent work, and never shirked unpleasant night work. More than can be said of some of the Territorials. I would recommend motor cyclists, who desire to do military work, to join the Reserve, as the advantages are greater. They certainly would stand a better chance of seeing active service. The scheme is new, and naturally not devoid of minor flaws—these in the course of time will be eliminated.

R.E.S.R.

Two-stroke Lubrication.

Sir,—With regard to your letter in the issue of November 27th on the subject of "two-stroke lubrication" I should be glad to hear from Mr. Davison how Mr. Garrard found it possible to lubricate his four-stroke engine by the method employed on the Connaught and others.

The idea of mixing oil and petrol to assist piston lubrication is almost as old as the petrol motor, and has been employed for years by many owners. I myself always mix a little oil with the petrol when I have a new machine. On the other hand, if there is any way of lubricating the big ends and crankshaft bearings of a four cycle engine by this method I should be glad to hear of it, as it would considerably simplify lubrication troubles on standard machines.

I do not wish Mr. Davison to imagine that I am criticising, for I am really seeking useful information; but until some explanation is given, it may be as well to point out to

novices that in the usual type of two-stroke engine the oily vapour is drawn into the crankcase, where much of the oil separates on coming into contact with the hot engine parts, and thence is splashed much in the usual way, a small amount being passed to the piston head *via* transfer ports. In the four-stroke engine the mixture is drawn into the cylinder head where it also separates, and even that part which is not burned is unable to pass the piston rings and so reach the crank case TWO-STROKE.

Reckless Driving.

Sir,—I am much interested by the two letters appearing in *The Motor Cycle* of December 4th, signed by Mr. T. D. Thomas and "Fair Play," especially as I have lately had an experience very similar to theirs.

A few days ago I was riding my motor cycle down the Bath Road near Marlborough. The roads were exceedingly greasy, and I had considerable difficulty in "keeping up" at all. A large Minerva approached, and not only did it refuse to leave the centre of the road, but actually swerved into my side. The machine I was riding had wide T.T. bars, and so close did the car come to me that I was forced to snatch my hand from the off handle-bar, so sure was I that I should be fouled by the car's wing. This action deposited me in the ditch, and prevented my noting the car's number. R. A. H. WHATTON.

Sir,—With reference to Mr. T. D. Thomas's letter of last week about the meeting of motor cars on the road, I would like to suggest a little idea which I always adopt in meeting cars on the road. When you see a car coming, ride in the centre of the road (this, of course, is when there is only one car) until within a reasonable distance, then gradually turn to your proper driving side. You will find that the driver of the car is obliged to do the same, leaving plenty of room for you to pass. A great many cyclists when they see a car a good distance away immediately pull right into the side, and, of course, the driver of the car at once takes advantage of this. OWEN BLACKWELL.

Sir,—I am sorry to see my letter has drawn such a reply as that of "Fair Play." I have no intention of replying on those lines. No doubt motor cyclists sometimes suffer at the hands of unscrupulous drivers of cars. As a driver of a medium-sized car I have encountered such, but for the few of these I have met dozens of motor cyclists, on fast *solo* machines, taking absurd risks with other traffic, and, while they form a small proportion of the enormous number of motor cyclists, they are sufficiently numerous, and especially (I repeat) on the Portsmouth Road on a Sunday, within thirty miles of London.

The solo motor cycle is much the fastest vehicle on the road, being able to pass almost all cars, and it is only of a certain class of "nut" on a solo machine that I complain. The "utter astonishment" of "Fair Play" that I could ever have been a motor cyclist shows how utterly he has misunderstood my letter. I should have a motor cycle as well as a car, only I cannot afford both, for I still consider there is a zest in motor cycling (in fine weather) that car driving does not afford.

Surely it is possible to complain of the abuse of these high-speed machines by a few "nuts" without being charged with carping at the whole genus of motor cyclists. The great majority ride their machines like sensible people, but it is really a commonplace that the enormous potentialities for speed of the modern solo machine, and the ease with which (compared to a car) it can be got into racing trim, have led a certain type of silly rider to emulate Brooklands achievements on the road, to the annoyance of other people. To complain of this (and this is all that I do) is, I hold, perfectly reasonable. CAR-OWNER-DRIVER.

A Problem of the Future.

Sir,—Your comments in your issue of December 4th on the features of the 1913 Show, are, as usual, interesting, and I should like to support your view as to the need for real mudguarding. The point which most impressed me at the Show was the childishly ineffective mudguarding which most machines still adopt. In this respect there seems to have been very little improvement since last year, though correspondents have repeatedly urged the point in your paper. The excellent practice of fitting black celluloid-covered handles was only very sparingly adopted, and the belt-guard to protect the engine from mud thrown forward by the belt, and to protect the belt itself from road mud, was almost unknown.

I also noticed that little progress has apparently been made towards the ideal frequently preached in your columns of a "ready for the road motor bicycle," complete with lamp, horn, etc., at an inclusive price. Surely makers would find it worth while to turn out cycles complete, and so save their customers the annoyance of having to spend a good many pounds with the accessory firms in lamps, effective mudguarding devices, nail-catchers, etc., all of which ought to have been provided at the outset. This principle has been adopted with marked success by many makers of cars, light cars, and cycle cars.

It also seemed to me that the accommodation for the tools and spares which a careful amateur rider must carry, especially on tour, was very deficient on practically all machines. In spite of all we are told, motor bicycles are *not* yet perfect, and *do* go wrong at times, and sufficient room ought to be provided for the needful spares, etc. Why is the tank-top tool-box not fitted more frequently in addition to the panniers? It is very convenient for the tools in most frequent use, and for such other things as cannot be accommodated in the panniers, and the makers could find room for it amongst the numerous other tank-top fittings if they wished to do so. G.T.Y.

Sir,—In the last issue of *The Motor Cycle* you invite readers' opinions on the subject of motor cycle design, pointing out, and I think very rightly, some of the several drawbacks to the motor bicycle, one, and almost the principal one, being the lack of protection provided from the weather. With almost every vehicle other than the motor bicycle such protection is possible, and, with all the ingenuity displayed in the construction of the motor bicycle, it still lacks this essential feature which leads one to the natural conclusion that, with the motor bicycle in its present form, such protection from the weather is impracticable, and that its pleasurable enjoyment is only possible in fine weather. What with the possibility of a side-slip and getting covered with mud, many riders put their motor bicycles away for the winter months.

Perhaps in one's early youth one can put up with these drawbacks, but as one gets on in years one owns a car, for probably the very drawback above mentioned. The question of price is not of much count when one can buy a more or less reliable second-hand car for very little more than the cost of a motor bicycle and sidecar. Now, to my mind, all this points to the possibility of solving the difficulty by putting a little torpedo body on three wheels, with the engine either in front or at the rear.

With a body of some kind to sit in and proper mudguards the difficulty of keeping the mud off one's clothing is solved, so also is the question of side-slip. That such a contrivance is possible at much the same price as a good motor bicycle I feel sure, and the pleasure engendered in driving such a vehicle is infinitely greater than sitting on a motor bicycle and having the mud plastered over one's garments, and, by-the-by, one can keep one's feet warm, which has a lot to do with the pleasure of motoring.

LEONARD JONES.

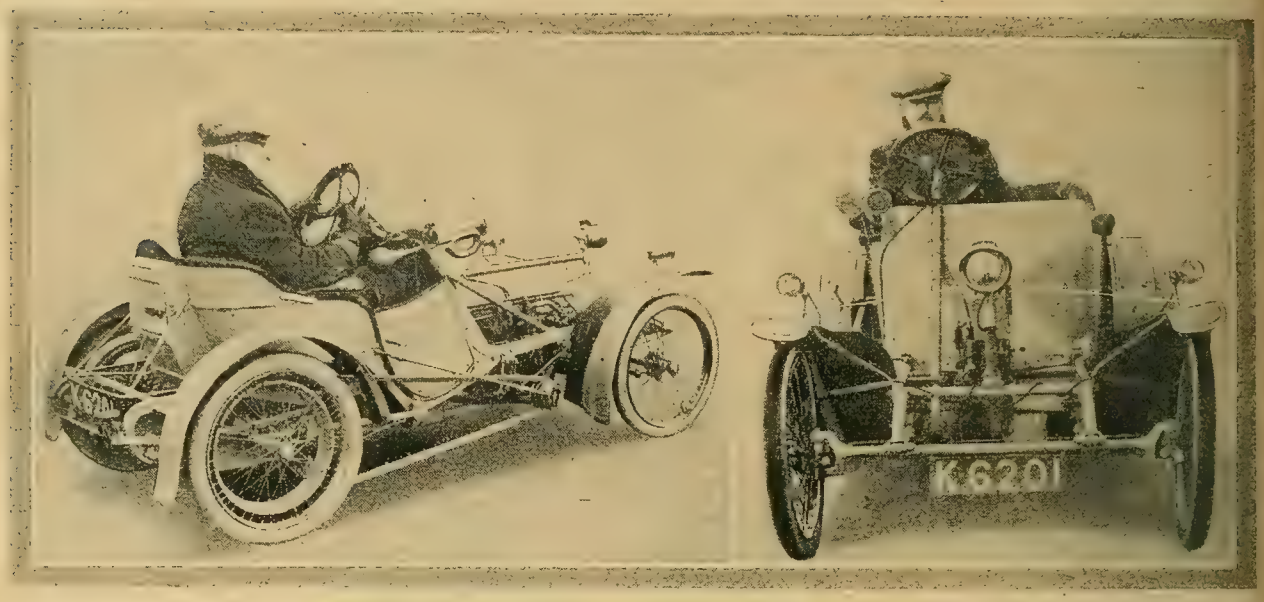
A Statistical Curiosity.

Sir,—The figures which you give in your issue of December 4th of the attendance at Olympia on each of the six days of the Show week reveal a very curious repetition. Taking each day's attendance as a percentage of the total week's attendance, you get the following result:

	1912.	1913.
Monday	11.6%	11.6%
Tuesday	13.7%	13.7%
Wednesday	20.9%	22.4%
Thursday	19.5%	19.2%
Friday	12.9%	13.1%
Saturday	21.4%	20.0%
	100.0%	100.0%

This correspondence is not, of course, a mere coincidence. Very likely the figures for 1911 would give approximately the same result (I have not got them), and the figures for 1914 will be the same again. But why? C.D.S.

A HOME-MADE CYCLE CAR.

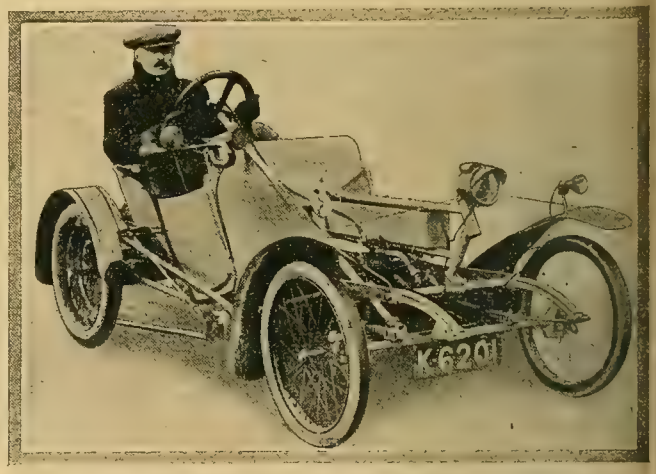


AN INTERESTING CONVERSION IN THE FORM OF A FOUR-WHEELER.
Side view showing single-belt drive to right hand side rear wheel, also N.S.U. gear. Front view. Observe method of springing, front axle, etc.

A CYCLE car has been constructed by one of our readers near Liverpool from parts of a 7 h.p. N.S.U. and sidecar. The complete power unit was fixed in a pressed steel frame, with semi-elliptic springs, by means of cross tubes and wood blocks clamped solid. The coachbuilt sidecar body was split in the middle and widened to make a two-seater body. A scuttle dash was constructed of sheet iron attached to a wooden frame. The tanks were fitted in such a way that the oil pump was situated under the dash.

As regards the transmission, a Chater-Lea plate clutch was fitted and operated by pedal or outside lever. The N.S.U. two-speed gear has been retained and fitted to the counter-shaft, power being transmitted by belt. Engine starting is effected by winding a flat belt round a pulley provided for the purpose. Both back wheels carry belt rims, though only one wheel is driven; both rims, however, are fitted with brakes. Steering is by reel and cable. The wheelbase is 6ft. 6in., track 3ft. 10in., overall length 9ft., extreme width 4ft. 5½in., weight 5½ cwts., while the cycle car is capable of a speed of 33 m.p.h., and petrol consumption works out at 46 m.p.g. The high gear ratio is 5 to 1 and the low gear 7½ to 1, and 26in. × 2½in tyres are fitted

It is most interesting to note that nearly every part of the sidecar combination has been used in the construction of this cycle car—certainly every part that was possible.



Three-quarter front view of Mr. H. Porter's cycle car, showing engine position, steering column, motor cycle tank, and belt drive.

THE PROGRESS OF WATER COOLING.

About twelve months ago prophets were quite confidently predicting that a great increase in water-cooled motor cycle engines would be experienced, especially for passenger-carrying work. As a matter of fact the last Olympia Show revealed that very little headway had been made. The old adherents of this system still stuck to their guns, notably the Williamson, Green-Precision, and the Scott, while an interesting new-comer is the 3½ h.p. water-cooled Humber. This state of affairs is rather surprising, for there is no doubt that a great deal of hard slogging and low gear work can be done on quite small engines under heavy load when water-cooling is employed. But the reason for the prevalence of air-cooling is probably due to other causes than fear of leakage in the radiators. Cylinder casting is now such a fine art that overheating is not to be feared, the only danger being valve breakage occasionally, but this is a minor trouble. And lubrication systems, despite abuse from the ultra-critical, are nowadays very good.

A TWIN-SEATED SIDECAR.

ALTHOUGH not absolutely novel (as we illustrated a double-seated sidecar machine in *The Motor Cycle* of 1903), the accompanying photographs of an Italian production, which is at present at the depot of Messrs. Robertsons, 157, Great Portland Street, W., will be of interest. The bodies are made of sheet steel, and present a pleasing appearance. There is no reason whatever why a motor bicycle should not be converted into a twin or double-seated sidecar on the lines of the photograph, except for the one fact that it makes it a four-wheeled vehicle, and therefore subject to motor car taxation. We cannot say that we have had much riding experience with a double-seated sidecar, although we illustrated it once as stated. We only drove it for a very short distance, and it is so long ago that we cannot remember any particular vices it had. There is no reason, however, why it should not steer quite safely and well if the passengers' weights are fairly evenly balanced. Naturally, a powerful motor bicycle is necessary to pull a double weight, but there are numerous motor bicycles on the market which are quite capable of pulling the weight of two passengers in addition to the driver. In the present case the double-seated sidecar is shown attached to an Enfield 6 h.p. motor cycle, a machine which is constructed especially for sidecar work.

A novel twin-bodied sidecar to be seen at Robertson's Motor Agency.

THE A.R. ROTARY ENGINE.

A Variable Stroke Engine of Unusual Design.

THE A.R. engine, which we had demonstrated to us recently, is a very unconventional one in design, and is claimed to be highly suitable for cycle cars. Of course, it will be in a considerably smaller form than that in which we saw it the other day. The engine is of the rotary type, and consists of two pairs of cylinders mounted on independent shafts, connected by a universal joint. The engine is a two-stroke one and the pistons are stepped, the lower portion of the cylinder acting as a compression chamber. After the gas has been compressed in one cylinder it descends through the transfer ports to the combustion chamber of the cylinder beneath it. The cylinder on the top is always the one which is firing. The gas is brought from the carburetter through an inlet pipe to a chamber at the top of each pair of cylinders, whence it reaches these through the inlet ports.

The chief peculiarity of the engine is the fact that the angle between the planes of each pair of cylinders may be varied through certain limits, the variation being effected by means of a small hydraulic pump, shown on the left of the illustration.

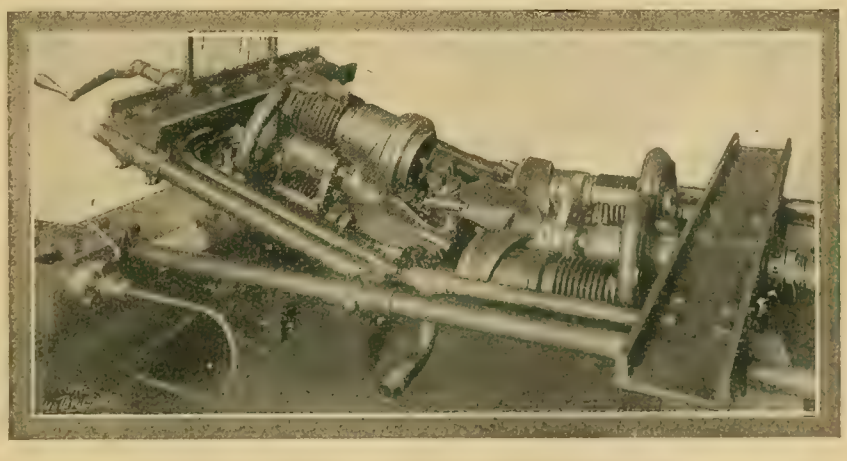
The bore of the engine is 3in., and the stroke may be varied by altering the aforesaid angle from 2in. to 4in.

The lubrication is effected by leading the oil into the shafts on which the cylinders revolve, whence it is conveyed by ducts to the various moving parts by means of centrifugal force.

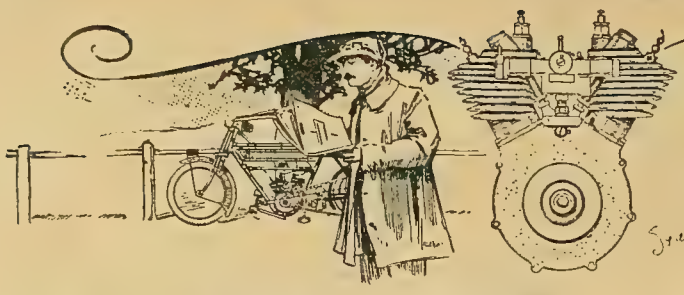
We understand that the engine will also be manufactured on the four-cycle principle. When it was demonstrated to us it was suspended by means of ropes from the ceiling of a garage, and when running appeared to vibrate very little indeed.

At its present stage it has not yet been fitted into a vehicle of any kind.

Enquiries respecting this engine should be addressed to Mr. A. R. Davenport, 68, St. James's Street, S.W.



An experimental rotary engine which has a variable-length stroke.



Testing Flexibility and Acceleration Powers.

QUITE a welcome change from the ordinary run of reliability trials was the closed event of the Sutton Coldfield and Mid-Warwickshire A.C., held on Saturday last in dismal weather, rain falling continuously.

The course was kept secret until the start, which was timed for 11.30 a.m. The route arranged was four times round a circuit of twenty-one miles, though police interference caused it to be slightly curtailed.

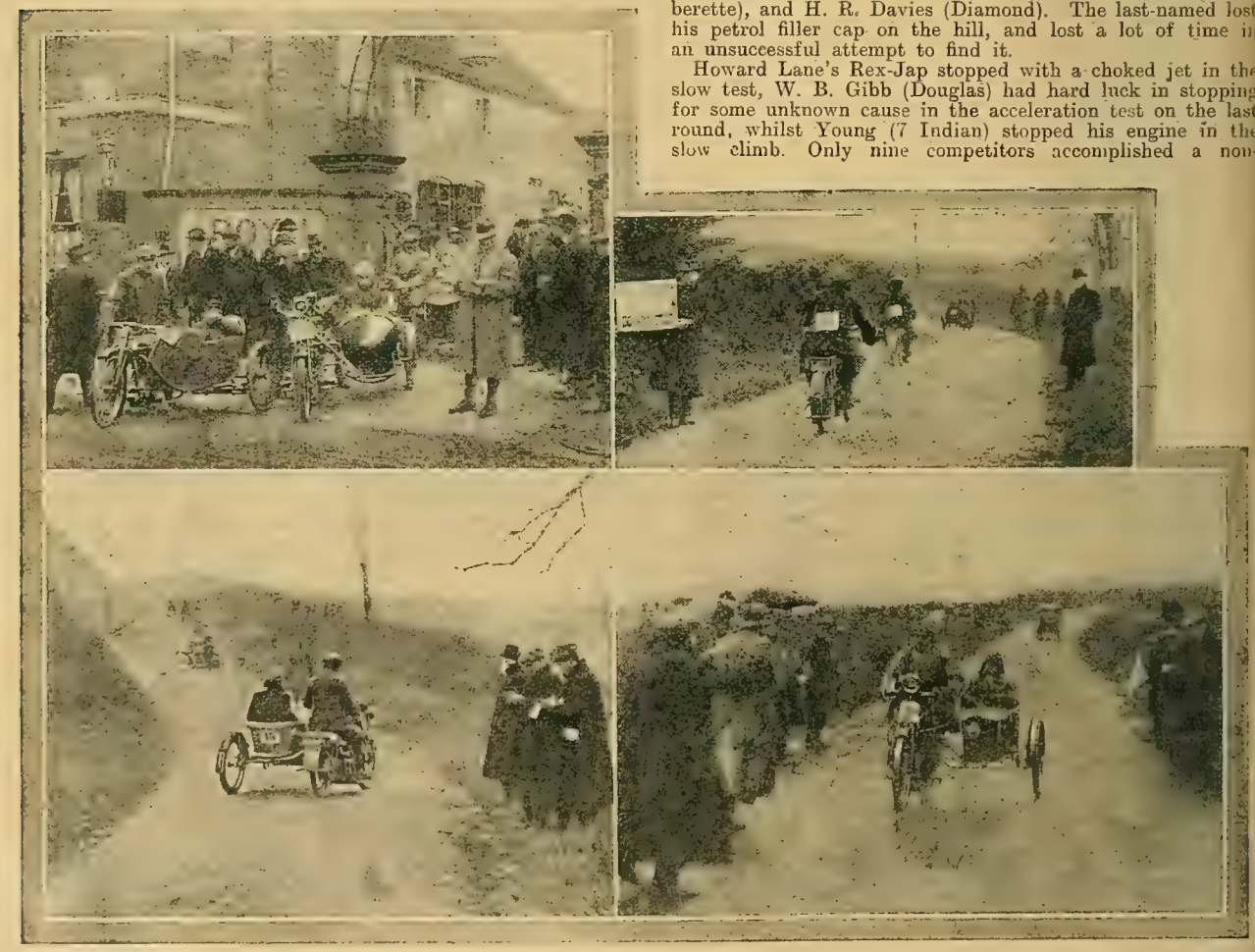
The tests, apart from the test of reliability, were confined to one hill, having a gradient of about 1 in 10, and here on the different circuits, the following desirable points were tested:

(1.) Slow hill-climbing.
(2.) Fast hill-climbing.
(3.) Stopping and re-starting.
(4.) Acceleration

Now, seeing that each test was carried out on the run, and precisely the same adjustments were perforce in operation (except, of course, any variation of conditions controllable from the saddle), the results were most interesting.

There was a rather high percentage of failures, but they were mostly due to taking liberties with the engine, such as travelling at a crawl up hill in the slow test. Busby (3½ h.p. Sunbeam) and Pollock and Dixon (twin James) were outstanding figures in this test, whilst Mrs. Riley handled her Enfield sidecar with great skill, being only equalled by H. T. Miller on a Crescent cycle car. There were other splendid examples of expert handling of machines, and it may be mentioned that it required a considerable amount of skill to perform the several different tests at the first time of asking without blemish. Reg. Holloway on a smart Grand Prix Morgan, its beautiful orange finish bespattered with mud, showed up well each time, as also did Woodhouse (7 h.p. Quadrant sc.), J. S. Watson (6 h.p. Sunbeam sc.), D. M. Brown (Rover), M. Anderson (Humberette), and H. R. Davies (Diamond). The last-named lost his petrol filler cap on the hill, and lost a lot of time in an unsuccessful attempt to find it.

Howard Lane's Rex-Jap stopped with a choked jet in the slow test, W. B. Gibb (Douglas) had hard luck in stopping for some unknown cause in the acceleration test on the last round, whilst Young (7 Indian) stopped his engine in the slow climb. Only nine competitors accomplished a non-



(1) SCENE AT THE START. In the foreground are T. Silver (Quadrant sidecar) and H. Lane on the 1914 8 h.p. Rex-Jap sidecar, followed by J. Stevens (3½ h.p. James sidecar).

(2) The first test. The first portion of the hill was covered as slowly as possible and the last part at full speed.

(3) Zigzagging up the hill in the slow test.

(4) J. Stevens (3½ h.p. James sidecar) in the stopping and restarting test.

The Official Results issued by the Sutton Coldfield Club provisionally.

Rider and Machine.	Flexibility. slow.	fast.	diff.	Position.	Slow.	Position.	Stopping and Starting.	Position.	Acceleration.	Position.	Remarks.
	secs.				secs.		secs.		secs.		
H. R. Lane (8 Rex-Jap sc.)	26	15	= 11	—	Stop	—	24	3	18	6	Carburetter needle stuck; four stops.
T. Silver (3½ Quadrant sc.)	27	15	12	16	56	19	—	—	—	—	Retired end of second circuit.
T. Stevens (3½ James sc.)	54	23	= 31	7	142	3	31	8	17	5	Non-stop to time.
J. H. Young (7 Indian solo)	15	15	= 0	20	Stop	—	40	11	21	8	Two stops
A. C. Mackenzie (3½ Rudge)	32	17	15	15	57	18	—	—	—	—	Off course; retired third circuit.
T. Jenks (6 A.J.S. sc.)	14	15	= 1	21	104	9	37	10	20	7	Off course
T. Pollock (3½ James)	48	10	= 38	4	100	11	28	6	11	2	Puncture
E. Walker (1¾ Precision Junior)	44	20	24	10	—	—	—	—	—	—	Retired end of first circuit
H. G. Dixon (3½ James)	42	13	29	9	101	10	26	4	16	4	Non-stop; on time
J. Woodhouse (8 Quadrant sc.)	68	15	= 53	2	130	6	27	5	15	3	Non-stop; on time
V. Busby (3½ Sunbeam)	45	11	34	5	115	7	22	2	13	1	Non-stop; on time
J. S. Watson (6 Sunbeam sc.)	89	13	76	1	132	4	26	4	17	5	One stop, plug trouble; on time: someone loosened terminals.
D. M. Brown (3½ Rover)	31	12	= 19	12	74	15	21	1	14	2	Non-stop; on time.
W. Gibb (2¾ Douglas)	34	13	= 21	11	75	14	27	5	Stop	—	One stop, acceleration test.
M. Anderson (8-10 Humberette)	29	18	= 11	17	65	17	32	9	21	8	Non-stop; on time.
P. W. Hill (5-6 A.C.)	34	30	= 4	18	196	1	—	—	—	—	Off course; puncture.
E. E. Elwell (8 Matchless sc.)	18	14	= 4	18	—	—	—	—	—	—	Retired first circuit; off course.
B. W. Lee (3½ B.S.A.)	30	14	= 16	14	66	16	31	8	16	4	Non-stop; on time.
Mrs. M. L. Riley (6 Royal Enfield sc.)	57	18	= 39	3	131	5	30	7	29	9	Stopped within one mile finish; broke inlet valve; finished under power.
R. W. Lovegrove (3½ Ivy-Precision)	45	15	= 30	8	99	12	26	4	Stop	—	Ignored stopping test; stopped acceleration test.
H. T. Miller (8-10 Crescent)	55	22	= 33	6	165	2	45	12	35	10	Non-stop; on time.
J. H. H. Veasey (2½ Levis)	15	12	= 3	19	Stop	—	28	6	20	7	Stopped slow test.
H. R. Davies (2¾ Diamond)	Stop			—	113	8	Stop	—	—	—	Retired third circuit.
R. Holloway (8 Morgan c.c.)	30	12	= 18	13	80	13	27	5	16	4	Non-stop; on time.

stop run throughout, and performed each special test satisfactorily.

It says much for the enthusiasm of the officials and time-keepers that they turned out on such a day, for there was no shelter on the test hill, and the trial lasted over four hours.

It will be noticed from the table of results that only nine succeeded in finishing with clean sheets. The hill on which the tests took place had a maximum gradient of 1 in 8. For the flexibility test competitors had to travel their slowest over the first stretch of 75 yards and then accelerate over the second part, which was of the same length but steeper. For the stopping and starting test machines were started at the bottom, stopped in the middle and immediately sent on to the top. The acceleration test took place over the last part of the hill and competitors were started with engines running. Watson's performance in the flexibility trial was a particularly fine one, and Hill's A.C. showed up wonderfully in the slow climb. The fastest time in the speed test was made by V. Busby, on a 1914 model 3½ h.p. Sunbeam, and he wins the Sutton Cup.

The Results in Order of Merit.

Rider and Machine.	Marks on Tests. Flexibility	Slow.	Stop and Start.	Acceleration	Total
1. V. Busby (3½ Sunbeam)	2	4	2	1	9
2. J. Woodhouse (8 Quadrant sc.)	1	3	4½	3	11½
3. D. M. Brown (3½ Rover)	6	6	1	2	15
4. H. G. Dixon (3½ twin James)	5	5	3	5	18
5. T. Stevens (¼ James sc.)	4	2	6½	7	19½
6. H. T. Miller (8-10 Crescent c.c.)	3	1	9	9	22
7. R. Holloway (8 Morgan c.c.)	7	7	4½	5	23½
8. B. W. Lee (3½ B.S.A.)	8	8	6½	5	27½
9. M. Anderson (8 Humberette c.c.)	9	9	8	8	34

Results subject to further investigation in the case of three of the above competitors.

N.W. Automobile Association and the A.C.U.

THE Executive of the new North-Western Automobile Association held their first meeting on December 6th, in Liverpool. Mr. F. Whitehouse (Oldham) presided over a representative gathering.

The Hon. Secretary said that he had unofficially attended whilst at the Olympia Show a meeting of the Auto Cycle Union officials, and as a result of this meeting the secretary of the A.C.U., Mr. Loughborough, was with them this evening, in order to place before them the attitude to be taken up by the A.C.U. with regard to the new Association.

At the outset, Mr. Loughborough stated that the A.C.U. had not yet definitely settled its new policy which would commence in 1914. He said that the financial aspect had yet to be considered, but he would give them a brief outline of their intentions, from which they would easily see the advantages which would follow their amalgamation. The A.C.U. had now only a Midland centre, although it had formerly had local centres, and it was impossible to guarantee the existence of a centre unless a paid secretary was maintained. The formation of local centres was under consideration. These centres, although, of course, conforming to A.C.U. rules, would be self-governing in local matters, and all clubs affiliated to the local centre would also have to be affiliated to the A.C.U. through their centre, perhaps on the basis of 6d. per head, with additional charges for those members who were desirous of having more than the ordinary affiliated club privileges. They were anxious to form a centre in the North-western counties, which would take in the whole North-western area between Newcastle and the Midlands.

It was the A.C.U.'s intention to give the organising secretary a salary, and he would have to look after other departments of the A.C.U. business, such as police matters, etc., in addition to attending to the directions of the local committee. Mr. Loughborough also said he was not prepared to put this scheme in writing until everything had been settled, but he suggested that the N.W.A.A. should keep in close touch with the A.C.U. until the scheme was formally brought forward.

Mr. Carty pointed out that the N.W.A.A. had already commenced working, and could hardly wait three months for the A.C.U. scheme. He also wished to know—as they would probably fix up competitions at once—whether riders competing in these events would be barred from A.C.U. competitions.

In reply, Mr. Loughborough intimated that the A.C.U. could hardly expect the N.W.A.A. to suspend business in the meantime, seeing that they had not yet had the opportunity of refusing to amalgamate with the A.C.U., and that, as they desired their co-operation, it would not be to the A.C.U.'s interests to victimise members of the N.W.A.A.

A unanimous vote of thanks was accorded to Mr. Loughborough for his kindness in coming to address them, and the Committee then confirmed the appointment of Mr. S. W. Carty as secretary of the Association, and also appointed him treasurer.

The Committee decided to hold a club team competition on February 8th, each team to consist of three solo and three passenger motor cycles for each club competing.

LONDON-EXETER-LONDON.

Over Two Hundred Entries for the Strenuous M.C.C. Christmas Run.

THE largest number of entries ever received by the Committee of the Motor Cycling Club for any of the closed events promoted by that club has been received for this run. The start will take place at 8 p.m. on Boxing Day from the Bridge House Hotel, Staines, where competitors must report not later than 5.30 p.m. in order to have their numbers allotted and fastened to their machines. It is expected that 230 competitors will have to be despatched, and as they will be sent off in pairs at one minute intervals, there will be something of interest for the spectators from 5.30 till about 10 p.m.

With such a huge number of riders, it is needless to say that the rule prohibiting cut-outs will be most rigidly enforced, and offenders in this respect will be disqualified.

On the map which we publish are printed the times at which the riders may be expected to arrive at the principal places *en route*. There will be a check at Salisbury on the out and home journey of one hour, and one and a half hours will be spent at Exeter.

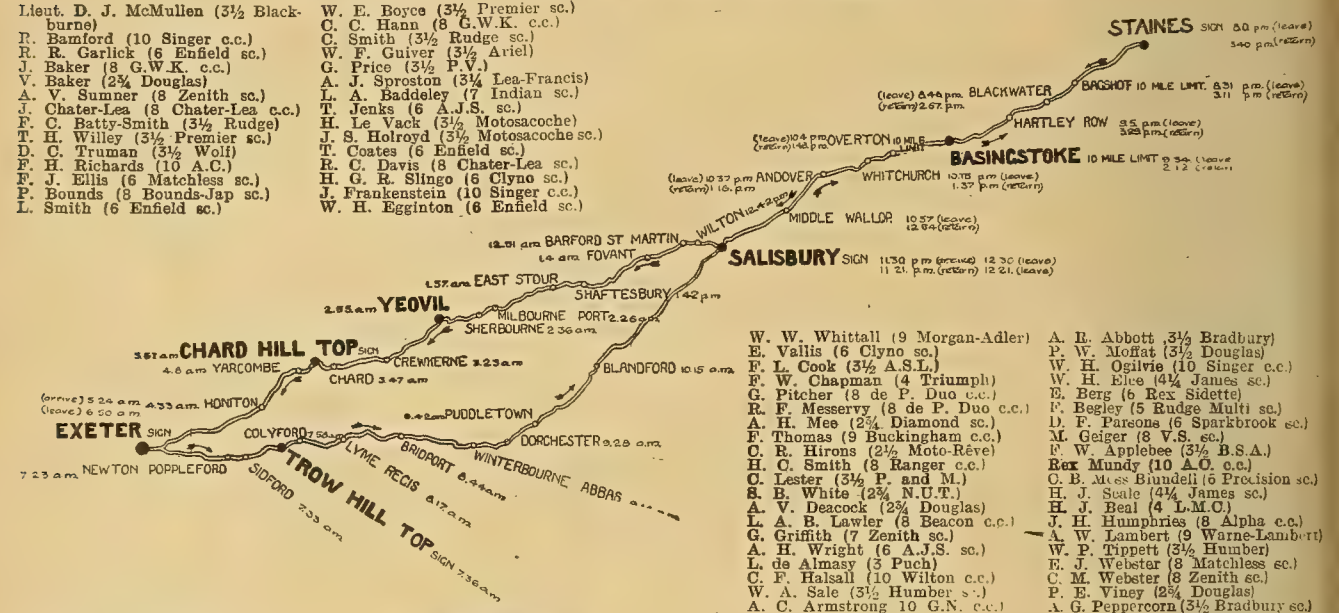
To gain a gold medal competitors must not vary more than fifteen minutes either way at each control, and must climb Chard Hill and Trow Hill without stopping, and those who carry passengers must not shed them, nor must the passengers assist in any way to propel the machine. Great care is being exercised by the M.C.C. to arrow the course thoroughly, and the two test hills will have illuminated signs at the base marked N.S.

Entries have now closed. There are a dozen more entries to be considered by the M.C.C. committee and after being passed the entry will reach 230. Last year's total was 163. This year's London-Exeter run has proved the largest competition run by the M.C.C., open to members only. As a comparison, this year's London-Edinburgh run received 200 entries.

We have already published a number of entries. The following are the latest to enter, bringing the total to approximately 230 :

List of Entries, Map of Route, and Times of Arrival.

Lieut. D. J. McMullen (3½ Blackburne)
R. Bamford (10 Singer c.c.)
R. R. Garlick (6 Enfield sc.)
J. Baker (8 G.W.K. c.c.)
V. Baker (2¾ Douglas)
A. V. Sumner (8 Zenith sc.)
J. Chater-Lea (8 Chater-Lea c.c.)
F. C. Batty-Smith (3½ Rudge)
T. H. Willey (3½ Premier sc.)
D. C. Truman (3½ Wolf)
F. H. Richards (10 A.C.)
F. J. Ellis (6 Matchless sc.)
P. Bounds (8 Bounds-Jap sc.)
L. Smith (6 Enfield sc.)
W. E. Boyce (3½ Premier sc.)
C. C. Hann (8 G.W.K. c.c.)
C. Smith (3½ Rudge sc.)
W. F. Guiver (3½ Ariel)
G. Price (3½ P.V.)
A. J. Sproston (3¼ Lea-Francis)
L. A. Baddeley (7 Indian sc.)
T. Jenks (6 A.J.S. sc.)
L. Le Vack (3½ Motosacoche)
J. S. Holroyd (3½ Motosacoche sc.)
T. Coates (6 Enfield sc.)
R. C. Davis (8 Chater-Lea sc.)
H. G. R. Slingo (6 Clyno sc.)
J. Frankenstein (10 Singer c.c.)
W. H. Egginton (6 Enfield sc.)


STAINES SIGN 5.0 p.m. (leave) 5.40 p.m. (return)
(leave) 6.44 p.m. (return) 2.67 p.m.
BLACKWATER
BAGSHOT 10 MILE LIMIT. 6.31 p.m. (leave) 3.11 p.m. (return)
HARTLEY ROW 8.5 p.m. (leave) 3.28 p.m. (return)
(leave) 10.4 p.m. (return) 4.42 p.m.
OVERTON 10 MILE LIMIT
BASINGSTOKE 10 MILE LIMIT 9.34 (leave) 2.12 (return)
(leave) 10.37 p.m. (return) 1.6. p.m.
ANDOVER
WHITCHURCH 10.15 p.m. (leave) 1.37 p.m. (return)
(leave) 12.42 p.m.
MIDDLE WALLOP 10.57 (leave) 12.54 (return)
WILTON
12.01 a.m. BARFORD ST MARTIN
1.4 a.m. FOVANT
SALISBURY SIGN 11.30 p.m. (arrive) 12.30 (leave) 11.21. p.m. (return) 12.21. (leave)
1.37 a.m. EAST STOUR
SHAFTESBURY 1.42 p.m.
2.55 a.m. YEOVIL
MILBOURNE PORT 2.26 a.m.
SHERBORNE 2.36 a.m.
3.51 a.m. CHARD HILL TOP SIGN
4.6 a.m. YARCOMBE
CREWKERNE 3.23 a.m.
CHARD 3.47 a.m.
BLANDFORD 10.15 a.m.
(arrive) 5.24 a.m. 4.33 a.m. HONITON
(leave) 6.50 a.m.
8.42 a.m. PUDDLETOWN
EXETER SIGN
COLYFORD 7.58 a.m.
DORCHESTER 9.29 a.m.
BRIDPORT 8.44 a.m.
LYME REGIS 8.17 a.m.
WINTERBOURNE ABBAS
7.23 a.m. NEWTON POPPLEFORD
SIDFORD 7.33 a.m.
TROW HILL TOP SIGN 7.36 a.m.

W. W. Whittall (9 Morgan-Adler)
E. Vallis (6 Clyno sc.)
F. L. Cook (3½ A.S.L.)
F. W. Chapman (4 Triumph)
G. Pitcher (8 de P. Duo c.c.)
R. F. Messervy (8 de P. Duo c.c.)
A. H. Mee (2¾ Diamond sc.)
F. Thomas (9 Buckingham c.c.)
C. R. Hirons (2½ Moto-Rêve)
H. C. Smith (8 Ranger c.c.)
C. Lester (3½ P. and M.)
S. B. White (2¾ N.U.T.)
A. V. Deacock (2¾ Douglas)
L. A. B. Lawler (8 Beacon c.c.)
G. Griffith (7 Zenith sc.)
A. H. Wright (6 A.J.S. sc.)
L. de Almasy (3 Puch)
C. F. Halsall (10 Wilton c.c.)
W. A. Sale (3½ Humber sc.)
A. C. Armstrong 10 G.N. c.c.)
H. Greaves (6 Enfield sc.)
D. Iron (3 Enfield)
A. M. Arter (12-14 Marshall Arter c.c.)
E. Arter (12-14 Marshall-Arter c.c.)
E. P. Greenhill (8 G.W.K. c.c.)
D. J. S. Chapman (3½ N.S.U.)
S. T. Tessier (8 Bat sc.)
F. W. Southern (3½ Sunbeam sc.)
H. F. Edwards (3½ B.S.A.)
R. B. Clark (3½ Torpedo sc.)
A. E. Abbott (3½ Bradbury)
P. W. Moffat (3½ Douglas)
W. H. Ogilvie (10 Singer c.c.)
W. H. Elce (4¼ James sc.)
E. Berg (6 Rex Sidette)
F. Begley (5 Rudge Multi sc.)
D. F. Parsons (6 Sparkbrook sc.)
M. Geiger (8 V.S. sc.)
F. W. Applebee (3½ B.S.A.)
Rex Mundy (10 A.O. c.c.)
C. B. Moss Biundell (6 Precision sc.)
H. J. Seale (4¼ James sc.)
H. J. Beal (4 L.M.C.)
J. H. Humphries (8 Alpha c.c.)
A. W. Lambert (9 Warne-Lambert)
W. P. Tippett (3½ Humber)
E. J. Webster (8 Matchless sc.)
C. M. Webster (8 Zenith sc.)
P. E. Viney (2¾ Douglas)
A. G. Peppercorn (3½ Bradbury sc.)
A. W. Brittain (3½ Bradbury)
G. R. Fletcher (3½ Douglas sc.)
H. P. Mills (3½ Blackburne sc.)
A. J. Dixon (3½ Singer)
A. W. Jacon (6 Rex sc.)
J. B. LeGrand (6 Rex Sidette)
M. DeCordove (12-14 Marshall-Arter c.c.)
W. E. Cooke (6 A.S.L. sc.)
N. O. Soresby (——)
G. Pettit (——)

H. E. Parker (6 Bradbury sc.)
C. Percival (7 Matchless sc.)
F. L. Bassett (3½ Triumph sc.)
P. B. Phillips (2¾ Douglas)
F. G. Ball (2¾ Douglas)
E. Atkins (3½ Nestor)
D. Bradbury (4 Norton sc.)
C. P. S. Abrams (4 Swallow)
C. C. Higgens (3 Puch)
H. F. S. Morgan (8 Morgan c.c.)
J. Robertson-Brown (8 Henderson sc.)
S. Wright (8 Humberette)
K. K. Scheve (3½ Rudge)
B. Betts (6 Lincoln Elk sc.)
C. Starace (6 N.S.U. sc.)
M. Heinzel (6 N.S.U. sc.)
H. P. Beasley (6 A.J.S. sc.)
L. W. Fox (6 Montgomery Duette)
P. H. Lovegrove (3½ Rudge)
G. Drew (3½ Premier sc.)
R. T. Leach (3½ Zenith-Green sc.)
G. Brough (3½ Brough)
G. E. Cuffe (3½ Premier)
A. M. C. Scott (3½ Premier)
S. G. Marshall (10 Mathis Babylette)
H. W. Sidley (14 Puch)
A. S. Phillips (8 Chater-Lea c.c.)
S. R. Axiord (8 D.E.W. c.c.)
G. Rowden (6 A.C. c.c.)
W. Cooper (8 Humberette c.c.)
C. Pearson (8 Williamson sc.)
H. G. Bell (5 F.N.)
M. C. Breese (3½ B.S.A.)
J. Applevard (8 Williamson sc.)
A. O. Gilby (3½ Sunbeam)
A. Bray (14 Foy Steele)
E. T. Hart (2¾ A.J.S.)
W. W. Burnham (? Ford)

Max Heinzel with the 2 h.p. N.S.U on which he recently beat the three hour record in class A. at Brooklands, covering in that time a distance of 135 miles 1,101 yards. The engine is only 190 c.c. so that its average of 45¼ m.p.h. is all the more remarkable.

RESULTS OF THE GOMETZ-LE-CHATEL HILL-CLIMB.

The above annual hill-climb was held at the beginning of the week, when an Alcyon rider beat the record for the hill, averaging 104 kilometres an hour. The results were :

CLASS 1.—250 c.c.

Vulliamy (Nabor) ... ... 34⅕s.

CLASS 2.—350 c.c.

Lehmann (Alcyon) ... ... 27⅗s.

CLASS 3.—500 c.c.

Decaup (Alcyon sidecar) ... ... 21s.

CLASS 6.—350 c.c.

Lehmann (Alcyon) ... ... 65⅘s.

CLASS 7.—500 c.c.

Touchet (——) ... ... 43⅕s.

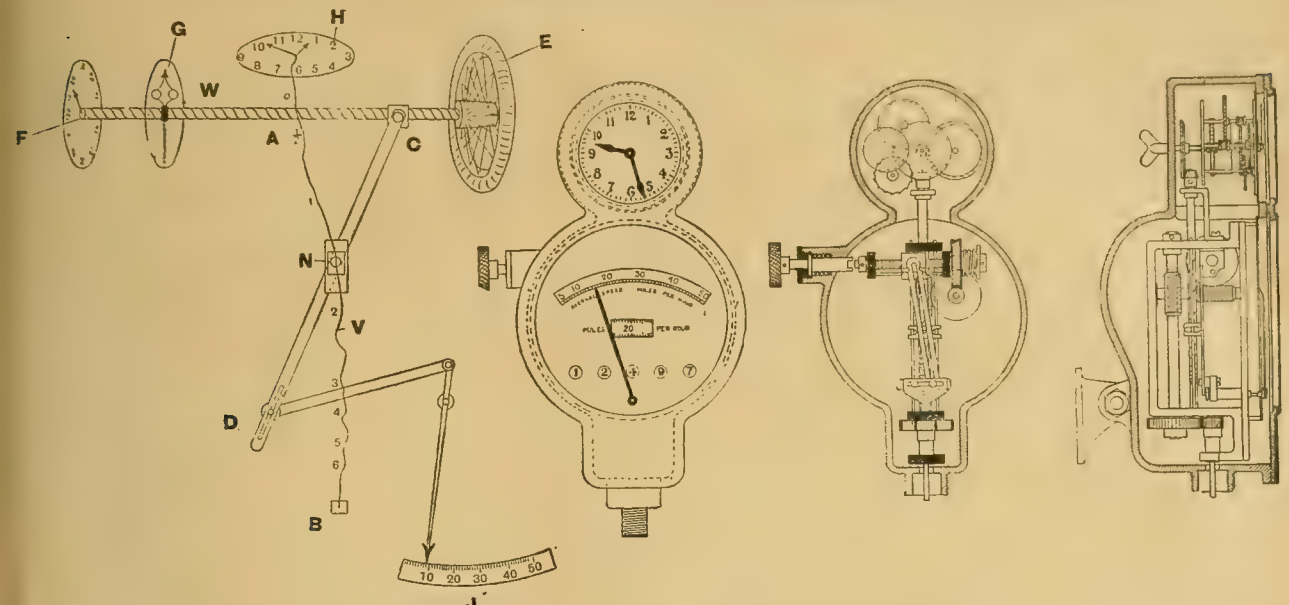
CLASS 8.—750 c.c.

Jouvé (Lurquin-Coudert) ... ... 81⅖s.

In the cycle car class, Bonville (Bedelia) won in 41⅖s.

THE AVEROMETER.

Dr. Low's Latest Device for Registering the Average Speed Accomplished.



Diagrammatic sketch of Dr. Low's Averometer. Diagrammatic travel of nut on worm rod

A.B.C.D. Leg of divisional compass.
W. Worm rod.
N. Nut on worm rod W.
A.N. Diagrammatical movement of nut N on worm rod.
F. Distance recorder.
G. Speedometer.
H. Watch dial.
E. Road wheel.
J. Averometer.

(1) Elevation of complete instrument showing watch dial, Averometer dial, miles per hour, maximum speedometer opening, and distance recorder.
(2) Part sectional elevation of the apparatus.
(3) Part sectional side view of Dr. Low's Averometer.

DR. LOW is now known to our readers as a fertile inventor of clever devices in connection with motor vehicles of all types. His latest achievement is an instrument termed the "Averometer," which registers the average speed accomplished over a given distance. As a check on trials competitors this instrument should prove invaluable, as the release, which may be operated every six hours or so, can be locked and sealed. Below we give extracts from the inventor's description of his novel device.

"The Averometer has to give the average speed from the time of starting at any moment the dial may be inspected, *i.e.*, to divide the distance covered at that instant by the total time. This may sound simple, but I have given more work to this device than almost any other.

"In its first form the division was accomplished by the subtraction of the logarithm of time from the logarithm of distance, the instrument indicating the difference between two ordinates on curves plotted to give the logarithms of time and distance. Another method which suggested itself was to have a small but long cylinder, in which the piston was slowly moved out by a clock at a uniform speed and into this cylinder a pump worked by the road wheels was to pump air, a gauge on the cylinder was to be graduated in average speed; this method was found scarcely practicable.

Energy Storers.

Another scheme tested was an apparatus so simple as to appear obvious. Behind an ordinary dial were placed two "energy storers" in the shape of two plain clock springs, which were fastened respectively at one end to a spindle rotated uniformly, representing time and to a spindle rotated by a positive worm drive from the front wheel. The other ends of the springs were connected direct to opposite ends of the needle, which was supported by a balance spring.

"At the end of every ten hours or so, by touching a button (which could be locked by the owner) both springs were released and the instrument commenced to register afresh. The great disadvantage of this and of any storing apparatus such as a water lever and pump integrator is that a balance is needed, introducing the complication of a third spring or of a specially calibrated dial marked in time divisions.

"The final solution of the problem is shown pictorially herewith. We all know the divisional compass, and we have got to divide total distance up to any point by total time since the start of the run, or the moment when the registration begins. In the Low "Averometer," as shown in the diagrammatic sketch, which represents a road wheel of a cycle or car driving the worm rod W, A B and C D are the legs of a divisional compass which is so arranged that the end of one leg is moved out at a regular speed by the worm rod W. The divisor of time depends on the position of the nut N on the worm V. Clearly, if A C represent the distance travelled, then B D is the average speed or distance A C divided by time A N on the worm. It is obvious that A B cannot move at a regular angular velocity, or cannot be connected to equal this motion plainly, unless both arms of the "compass" are operated. This is simplified by fixing one arm and moving the other only, and the consequent angularity is corrected by a slot mechanism, as shown in the diagram, so arranged that the inaccuracy of each motion is opposite in effect.

"As a matter of fact, just as the division on a proportional compass are unequal, so the worm is proportionate, and its pitch at the top is so steep that the instrument does not indicate for about the first fifteen minutes, a point which is of no importance.

"The Averometer can be made to indicate averages right up to the end of a trip, including all the time spent behind slower traffic or in necessary stops. The instrument always points inexorably to average speed, and tells us how fast we must needs go to maintain a definite pace.

"If necessary one can throw the mechanism out of action when stopping so that running time alone is counted. Other details are, a clutch to turn back the distance to zero, a correction for time, and a clock, so that on one instrument are shown the actual distance, time of day, average speed, and by a simple addition, speed in miles per hour.

"Now I claim that no speedometer can be so simple in construction as this average indicator, as its working is quite *positive* without the aid of a governor, also that a trial of motor cycles or cars with sealed Averometers fitted is quite simple, for the instrument would "observe" all the stops, and "hand in" the result at the end of the day."

TIME TO LIGHT LAMPS.

Dec.	11	... ...	4.49 p.m.
,,	13	... ...	4.49 ,,
,,	15	... ...	4.49 ,,
,,	17	... ...	4.49 ,,

The Bournemouth Club's Trial.

A circular course of 105 miles will be covered in the Bournemouth and District M.C.C.'s open trial on Wednesday, Jan. 7th. In order to reassure those who unfortunately went wrong in the last event, the club's preliminary announcement states, "Guaranteed arrowed and marshalled route. No freak hills. Good surfaced roads."

The Mudguarding Question.

Our leaderette of last week on "mudguarding"—the problem of the future—has created a good deal of discussion. This week we publish a selection of letters received in reply to the article.

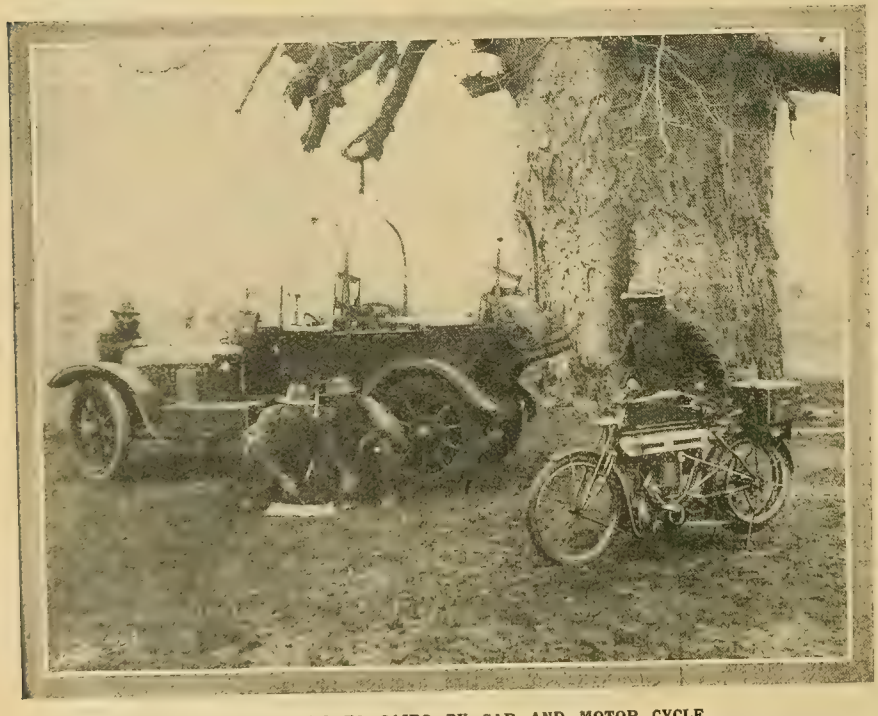
A suggestion has been made that a prize be offered in reliability trials for the cleanest machine, but we fear this would hardly be practicable, seeing that in a trial on main roads with so many competitors, much of the mud splashed on to a machine comes from the wheels of passing motors.

Liverpool Open Trial.

The first open trial of 1914 for motor cycles, sidecars, and cycle cars will be held on Jan. 3rd by the Liverpool A.C.C. The trial will be run over easy roads and under simple conditions, with the object of rendering it suitable for novices and new vehicles. The route will be from Liverpool to Carlisle and back, over the main road. Entries close on the 27th inst., and the trial will be cancelled unless at least thirty-five are received by the secretary, Mr. S. W. Phillpott, 1, Oakdale Road, Mossley Hill, Liverpool.

The Late Mr. Arthur Drew.

We much regret to record the death of Mr. Arthur Drew, of Birmingham, designer of the Druid spring fork, which took place on Friday last. Mr. Drew has been in failing health for some considerable time past, and a year or two ago undertook a long sea voyage, visiting South Africa. We well recollect Mr. Drew first calling at our offices in May, 1906, and exhibiting with pride his first Druid spring fork as fitted to a 3½ h.p. Singer. In his most sanguine moments we doubt if Mr. Drew imagined that his invention was destined to be so universally adopted on motor cycles as has turned out to be the case.



FROM THE CAPE TO CAIRO BY CAR AND MOTOR CYCLE.
The illustration shows an Argyll car and 3½ h.p. three-speed Triumph which are taking part in this long distance run. The occupants are studying a map. The photograph was taken in Southern Rhodesia.

SPECIAL FEATURES:

NOVELTY IN RELIABILITY TRIALS.
ELECTRIC LIGHTING SYSTEMS
(First Instalment.)
THE SIGNPOSTING SCHEME.

A Motor Tragedy.

It is our unpleasant duty to record that Mr. Francis Wilde, assistant secretary of the A.A. and M.U., died at the Middlesex Hospital, on Sunday afternoon, as the result of injuries sustained in a motor car accident in Marylebone Road early on Sunday morning.

The Late Mr. Percy Lambert.

It was suggested in *The Autocar* of November 29th that a memorial should be instituted to the late Mr. Percy Lambert, which would take the form of the endowment of a bed in the Weybridge Cottage Hospital. Mr. Lambert's prowess as a motor cyclist may be well remembered by those who have followed the movement from its inception, and we can think of no better way of perpetuating his memory than by subscribing to this fund. The Weybridge Cottage Hospital is of particular interest to motor cyclists and is well worthy of their support. Subscriptions addressed to the Editor of *The Motor Cycle* will be sent to the proper quarter.

The Motor Cycle in Central Africa.

The Kelsey expedition from the Cape to Cairo, which is now in progress, on a 25-50 h.p. Argyll car, specially fitted up for the undertaking, is making use of a motor cycle as its tender. The machine in question is a 3½ h.p. Triumph, and the duties of the rider are to go ahead, inspect the routes, and prepare the inhabitants for the arrival of its larger brother, bearing the members of the expedition. It is interesting to note that the motor cycle is evidently as go anywhere a machine as the four-wheeler.

Rear Lights.

The L.G.B. Rear Lighting Order (now in draft) will, we understand, be issued this week. The motoring associations, *i.e.*, the A.C.U., R.A.C., and A.A., are not expected to complete their investigations and send in their replies to the Local Government Board until this issue is in our readers' hands. It is, however, most unlikely that the present terms, particulars of which we gave last week, and forecasted exclusively three weeks ago, will be altered. It provides that solo motor bicycles need not exhibit rear red lights, but, in future, two-track machines such as sidecars, and three-wheeled runabouts must carry a red warning light after dark

A. W. Bentley, at the finish of his End-to-end ride, June, 1908.

The Late Mr. A. W. Bentley.

It is with very great regret that we have to announce the death of Mr. Arthur W. Bentley, who, about five years ago, was a very keen motor cyclist of whom a great deal was heard in the motor cycle world. Mr. Bentley, whom no-one thought seriously ill of tonsillitis, passed away peacefully in his sleep a few days ago at Stanmore, where he was living with his brother, Mr. Horace Bentley.

It was in the second week in June, 1908, that he broke the Land's End to John-o'-Groat's record, which previous to that date was held by Harold Williamson. This record poor Bentley lowered by 7 hrs. 8 mins. after a very fine ride. This was on a 3½ h.p. Triumph. In the following year, in company with his brother, Horace Bentley, he broke the End-to-end sidecar record on a 6 h.p Rex, bettering Olsson's performance by 6 hrs. 7 mins., despite unfavourable weather. It is interesting to note that on the occasion of this record ride they were accompanied from Warrington by the late Arthur Moorhouse, who also checked them at Bridgwater. Mr. Bentley was a favourite with all who knew him, a real sportsman, and a genuine amateur. He was a fine, well-set up young fellow, very handsome, and though his face had a certain pallor he was always in the pink of condition.

Poet, Boxer, and Motor Cyclist.

M. Maurice Maeterlinck, the Belgian poet and dramatist, is a man of sport as well as a man of letters, and is tremendously keen on boxing. He has been a motor cyclist for some years, and now rides a powerful twin machine and is said to be fond of speed work. He is evidently a fine example of *mens sana in corpore sano.*

Record Entry for Christmas Trial.

Over 200 entries have been received for the M.C.C. winter run from London to Exeter and back—an easy record.

The Car Race in June.

Many of our readers will, no doubt, visit the Isle of Man to see the International Tourist Trophy Race for cars. The entries at ordinary fees closed on the 1st inst. with a total of twenty-three cars, thirteen of which are British, but it is expected that other cars will be entered before the closing date.

Taxation in France.

A driving licence in France costs two francs only, and when once issued it lasts for the whole of the owner's lifetime. The French Minister of Finance is not so keen on motor taxation as our own Chancellor, as a licence for an 85×120 mm. engined car is only 40 francs per annum. The same car in England costs £2 2s. per annum, and the driving licence 5s. each year. £2 2s. equals nearly 53 francs. Motor bicycles are also taxed at very much lower rates and are not subjected to anything like the same absurd restrictions.

Petrol Prices.

As a substitute for petrol the Irish are said to be pinning their faith to fuel distilled from peat. The daily papers last week published paragraphs intimating that the retail price of petrol would be increased 3d. per gallon very shortly. The constant increase in the price of petrol is a menace to the British motor industry, and if steps are not taken to provide adequate supplies of other fuel British labour and the market in motors will suffer the consequences in due course. At the moment we are quite happy with a mixture of benzole and petrol, or all benzole; in fact, we think that we get better results from it than when using petrol alone

A Trial in the Wet.

The weather conditions in the Midlands last week-end were most uncomfortable, but the Sutton Coldfield A.C. carried to a successful issue a reliability trial for which thirty-four entries were received. Several new models made their *début* in this event, including an 8 h.p. Rex-Jap three-speed chain driven machine and a 1½ h.p. Precision Junior.

The Bristol Motor Cycle Club also held a trial despite the continuous rain.

FUTURE EVENTS.

Dec. 26-27.—Motor Cycling Club Winter Run from London to Exeter and Back.
" 26-27.—Bristol M.C.C. Open 24 hour Trial to Land's End and Back.
" 27.—Birmingham M.C.C. Reliability Trial to York.

1914.

Jan. 3.—Liverpool A.C.C. Open One Day Trial.
" 7.—Bournemouth. M.C.C. Open One Day Trial.
" 14.—A.C.U. Annual Dinner.

Mar. 7.—A.C.U. Spring One Day Trial.

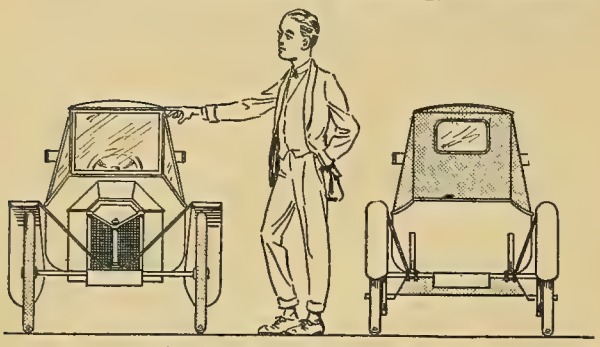
Routes for the Holidays.

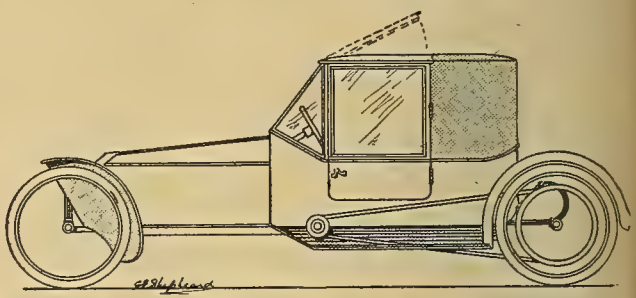
The number of route queries which we are receiving is immense, due, we presume, to the close proximity of the Christmas holidays, when many motor cyclists visit their friends and relations by means of motor cycles. Given fairly good weather and highways not covered with snow, there is nothing more enjoyable at Christmas time than travelling by road. All trains are crowded, and if the distance be not too far and the company congenial, a motor cycle and sidecar provide a most pleasurable way of visiting relations at the one time of the year when all are desirous of meeting.

THE SUTTON COLDFIELD A.C MEMBERS' RELIABILITY TRIAL.
Mrs. Riley (6 h.p. Enfield sidecar), T. Pollock (James), and H. T. Miller (8 h.p Crescent) climbing the test hill.

CYCLE CAR COMFORT.

How Tandem Seating, Protection, and Conversation may be Combined.





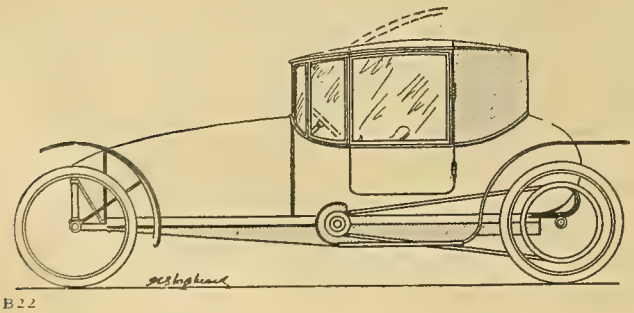
IT is generally agreed that, if price and light weight are to be the determining factors in cycle car design, the tandem seated variety is easily the most simple solution of the problem. But unfortunately there is a very serious drawback attached to all models of this description as yet placed on the market, for conversation between the driver and the passenger cannot be carried on unless shouting be indulged in or a telephone installed. Mechanically, this arrangement of disposing of the load has everything to recommend it, as it enables light weight and consequently a cheap transmission and small tyres to be used. A narrow frame also can be used which makes the mounting of the engine and cross bars to carry the gears or counter-shaft an easy and simple matter; also the narrower the track the less the necessity of the differential, and, as belts are deputed in this class of vehicle to perform the work of that expensive fitment, less work for the belts to do, and consequent longer life.

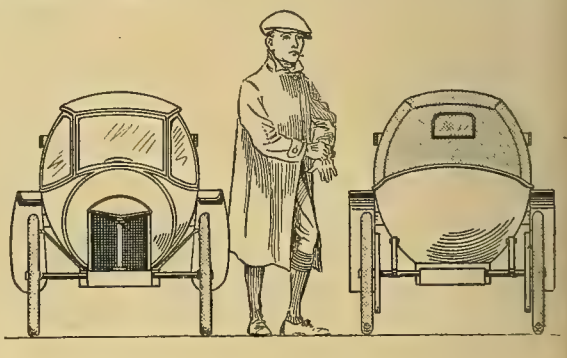
Convenience of a Sounding Board.

Now the whole secret of retaining a conversational atmosphere is to have a top of some sort to act as a sounding board. With a canopy the occupants can converse in normal tones, but a canopy alone is both unsightly and exceedingly draughty, and gives a very half and half look to the vehicle. Under an Indian sky such an arrangement may be admirable, but in our more rigorous climate it would meet with a poor reception. Why not, therefore, "go the whole hog" and make a totally enclosed body capable of being partly opened at will? With this point of view in mind our artist has sketched a series of designs, the application of which to vehicles of this class would undoubtedly go far to remove any existing drawbacks which may attach to the tandem seater. These show two varieties of a similar type, and the design, it will be acknowledged, is very taking and has great possibilities. With the use of aluminium a very rigid and exceedingly light *carrosserie* can be made, and the height kept down to about five feet. A hinged roof, which being no higher from the ground than the driver's chest, can be easily opened and closed, and would give an easy access to the interior; the curved sides, in conjunction with a rounder stern, would reduce wind resistance to a minimum. Once inside perfect protection could be afforded against the weather, while excellent ventilation could be secured by leaving the half roof open. The driver's legs would, of course, be sheltered under the long bonnet. It would be easy to add refinements such as complete suspension of the chassis on C springs at the rear, in which case such a vehicle should prove one of the most comfortable on the road. It would also be exceedingly easy to clean, owing to the very smooth exterior presented to the hose pipe. It would, of course, be necessary to provide means of opening wholly or in part the front window, in order to drive in wet weather, but probably a sliding glass panel, as used on many cars, would solve this difficulty.

Extra Wind Pressure Negligible.

A good many owners of this type of runabout might fear that the extra frontage presented to the wind would throw a load upon an air-cooled engine that would be highly deleterious to its running. They need have little fear, however, for if the shape of the rear panel be convex there is little suction. Brooklands has proved that it is the shape of the back of a car, and not so much the front, that that must be considered when avoiding back suction, and luckily for designers of streamline bodies, appearance and speed go hand in hand.





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The A.A. & M.U. Signposting Scheme.

Some Suggestions for a Complete Road Indication Scheme.

ONE cannot but commend the Automobile Association in their latest endeavour to simplify motoring by the suggested erection of easily read and properly placed direction posts. There are, however, many items which are likely to cause the A.A. considerable thought. Naturally, nobody undertakes a big scheme of this kind without having thought the matter out beforehand, and the A.A. doubtless have the scheme well cut and dried.

One of the suggestions is to erect very large signs at such a distance from a corner or cross roads as to obviate the necessity for the use of the present warning signs. The present warning signs are, in many instances, situated badly, so far as motorists are concerned—that is, they are obscure, too close to the corner, and mostly situated on main roads, the cross-roads being left unprotected; *i.e.*, anyone driving on what is admitted to be an inferior class of road to the main route would find that on approaching the corner there would be nothing to denote that he was about to cross a trunk artery, swarming with swiftly moving traffic. He therefore may plunge ahead, often with disastrous results. The warning signs are placed on main roads in the majority of cases to warn drivers that other traffic is likely to cross their path in a few yards. That is really what it amounts to, and on any road except motor roads it would be absurd. Speaking after many years' motoring experience, we do not want the roads in this kingdom converted into tracks for speed cars; neither do we want an elaborate system of signalling or signposting so that driving a motor cycle or car would become very much the same as driving a locomotive—full speed ahead, and then slow down or stop only when one sees the signal. Motoring is a pastime, and should be enjoyed as such; to control it by arbitrary signposts and signals would be robbing it of half its pleasures. No one will object, however, to reasonably sized and well placed signposts, particularly if they be of the type which give first of all the minor places through which one is about to pass, and then the important town for which one is making.

Suggestions for Signposting.

As an example of how this signposting might be done, but very likely the A.A. and M.U. have some very much better scheme up their sleeve, we would suggest that, starting from large cities like London, Manchester, Birmingham, or Liverpool, there should be a central post from which all the arms should radiate, *i.e.*, the signpost should be in the form of a star in the centre of the city. It should have a sufficient number of arms fixed at various heights to denote the main roads to all the important centres—north, south, east, and west. This is, however, an obvious arrangement. The trouble will be to divide up the country into sections, so that one centre will, so to speak, govern the other.

For example, if one were in Liverpool and wanted to get to Birmingham, one would enquire the way to the central signpost. There an arm would be found directing to Birmingham, and a number of other places would be mentioned through which the route passed. These places could be noted; probably there would be about five or six, each having other central signposts.

The first place reached *en route* would be Chester, the road being comparatively easy to find, but it would be possible to mention on the first signpost three or four of the minor places passed through. Arrived at Chester the central signpost would be again sought, and the road followed to Nantwich, by Tarporley, and so on, the centres being, say, Chester, Nantwich, Stone, Rugeley, and Lichfield.

Suggestions for Main Road Signs.

Another suggestion is to paint the names of the various main roads on the vertical post of the sign, such as Birmingham-London, Manchester-Glasgow, etc. If it could be arranged it would be an excellent idea, in our opinion, to allow colours to denote the various roads. Certainly, it would be rather difficult to ring the changes of the colours sufficiently to get an adequate number of hues to denote all the main trunk roads in the kingdom for which grants have been made by the Road Board, but it would be possible so to paint the telegraph poles that one would know whether one was on the Great North Road or the Holyhead Road. Different schemes of colouring could be used when the number of the ordinary colours was exhausted, and a little coloured indication card would show at a glance the road one was travelling on.

As to whether there should be any elaboration of the signpost scheme in the form of illuminated signs is a matter for the future, but we really see no reason why many signposts should not be illuminated at night. True, they would be legible by the light of the average car lamp, but a motor cyclist would have to carry a tilting head light if he were readily to read the top arm of a very high post.

It was mentioned a few days ago that the Continental signposting, though excellent in its way, was not ideal, and we can confirm this opinion. The signs in France are metal plates with embossed letters picked out in white with a smoky blue background. They are rather difficult to read at any speed, and somewhat bewildering to those who have not studied them. This is where the average British road engineer will score over the Continental organiser; for example, France has had a splendid system of signposting and road making for years past, but it has not done very much lately to improve its roads. Most of the French *Routes Nationales* were constructed for military purposes, but, with the introduction of the railway, they were, to some extent, neglected, although the *Routes Départementales* were considerably improved. The signs were designed for comparatively slow moving traffic, and would be very much better if they were larger. The A.A. and M.U. have, of course, taken a note out of the Continental handbook, and will not make any such error. There are already signs in existence in this country erected by the A.A., M.U., R.A.C., A.C.U., etc., which are very much on the lines of those which will probably be used if the A.A. scheme meets with the approval of motorists and the general public. We do not think, however, that the organisers are expecting to receive very much support from the public—cyclists, pedestrians, and other road users—though it seems hardly fair that the cost should be borne entirely by motorists alone.

As an example of bad road signposting, it would be extremely difficult to find a county more devoid of signposts—and those of the most misleading type—than Devonshire. The writer was down there this summer, and had to travel from Plymouth across Devonshire to Bideford. All was plain sailing until Okehampton was reached. The road from this point across to Bideford was most wretchedly signposted; in fact, so difficult was the road to find that, although it was traversed slowly and every precaution taken to read the signposts, and consult a good road map and book, many mistakes were made, and finally the wrong road was followed. Of course, we do not pillory Devon as absolutely the worst example; there are probably others which are quite as bad.

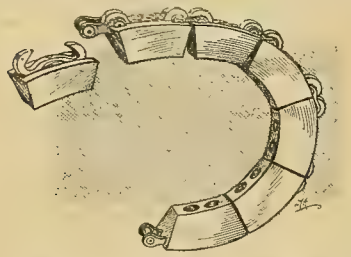
The Spirit of Adventure.

The organisers, in their endeavour to simplify motoring for their members, must not overlook the fact that they can do too much for motorists—that is to say, they can make things so simple that there is nothing to do but to sit back and steer. When this stage of the pastime is reached there will be less inducement to follow it. It is that certain element, however small, of adventure that the motorist feels when he turns his front wheels into the wilds of Scotland, or the mountain roads of Wales, that gives road travelling its charm.

Therefore, those who have the scheme in hand, should go warily and not attempt too much at first.

CHAIN BELTS.

A chain belt fitted with V rubber blocks which has been marketed for a year or two by Messrs. Haslam and Co., Goodson Road, Fulham, S.W., is known as the Haslam chain belt. The links

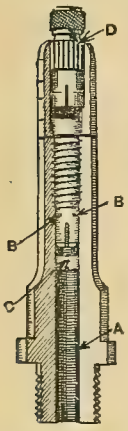


A novel type of chain-belt by Haslam and Co.

of the chain are laid along the top of the V blocks and attached to the rubber by screws, which are in their turn threaded through washers counter-sunk into the underside of the V blocks.

AN AUTOMATIC VAPORISER.

The "Vapo" Patent Atomiser is a device which takes the place of the ordinary jet in the carburetter and can be fitted to any type of spray carburetter. It is claimed that it completely transforms the running of the engine and increases the efficiency of the carburetter from fifteen per cent. to thirty per cent. It will be seen on reference to the sectional sketch that the jet is so made that it splits up the fuel into very fine particles and automatically governs the fuel supply in such a manner that the mixture tends to weaken or strengthen as the engine speed increases or decreases. The fuel flows up through the body of the central tube A and through holes B, the area of which is controlled by screw C. Thence fuel passes up and around the fluted spraying nozzle D. The fuel remains normally at the level of the spirit in float chamber, but as the quantity reaching the nozzle D is controlled by screw C, which is situate below this level, the level at the nozzle falls gradually as the engine revs. increase, because more spirit is induced from the nozzle than can enter past the screw C. As the depression decreases the spirit rises in proportion and so on. The price of this device is somewhat expensive as compared with the cost of a motor cycle carburetter. It is marketed by Brown Bros., Ltd., 15, Newman Street, Oxford Street, W.



We shall be testing one of these atomisers in a motor cycle carburetter very shortly.

In the issue of *The Motor Cycle* dated November 27th, the dimensions of the Pope motor cycle engine were given as 76 mm. × 89 mm. This should be 84½ mm. × 89 mm.

THE ISOCHRONOUS SPEEDOMETER.

We have frequently alluded in *The Motor Cycle* to the Bonniksen Isochronous speedometer. This is one of the most ingenious and, it may be said, most accurate devices on the market, and not only does it register speed, total mileage, and trip, but also acceleration. The two large hands are both engaged in this work. Let us suppose that a motor cycle is running at 20 m.p.h. One of the hands moves round from zero to 20 m.p.h., remains there for five seconds and then proceeds to zero, while the other hand takes up the work. If the speed is constant at 20 m.p.h. the second hand goes to the same spot as the first, but if the speed has increased or decreased the hand registers such differ-

New design Bonniksen speedometer.

ence from the former hand's registration also for five seconds. It will thus be seen that within a very fairly accurate radius the acceleration and deceleration speed is recorded. The latest Bonniksen has been improved. On the face are two smaller dials, the one on the right registering the separate miles up to ten. When ten have been recorded the left-hand dial records one movement, which is equal to ten miles, and the right-hand one recommences its duty of recording the next ten miles.

The old patterns of the Bonniksen Isochronous speedometer may have the trip mileage recorder fitted at a cost of twenty shillings. The instrument is extraordinarily accurate. It is manufactured by Mr. B. Bonniksen, 16, Norfolk Street, Coventry.

BRITISH IMPORTS AND EXPORTS.

From the undermentioned figures, culled from Board of Trade returns, an idea will be gained of the vast increase both in imports and exports of motor cycles for November and the eleven complete months of the present year:

IMPORTS.

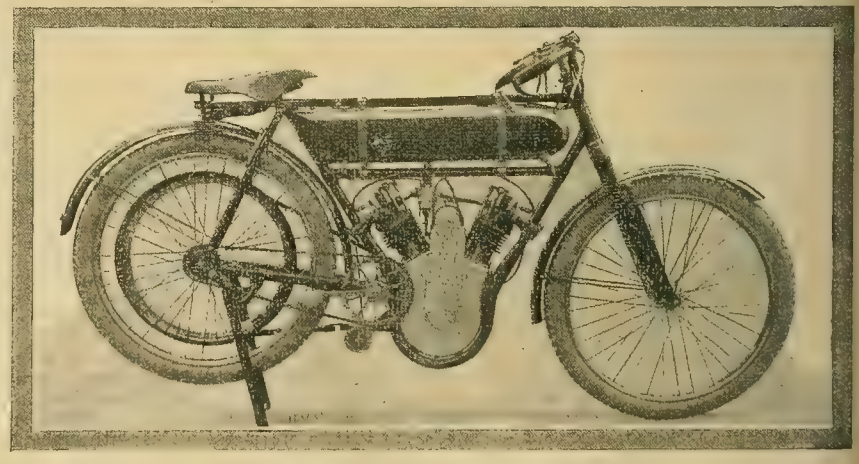
Month ended November 30th.	1911. £	1912. £	1913. £
Motor cycles ...	2,216	2,180	2,205
Parts thereof ...	7,177	12,248	25,711
Total ...	£9,393	14,428	27,916
Eleven months ended November 30th.			
Motor cycles ...	39,955	40,436	55,092
Parts thereof ...	62,024	147,110	186,558
Total ...	£101,979	187,546	241,650

EXPORTS.

Month ended November 30th.			
Motor cycles ...	46,113	60,581	64,373
Parts thereof ...	11,367	19,299	23,176
Total ...	£57,480	79,880	87,549
Eleven months ended November 30th.			
Motor cycles ...	244,406	481,379	676,786
Parts thereof ...	67,935	170,566	231,407
Total ...	£312,341	651,945	908,193

THE 1914 ALCYON MODELS.

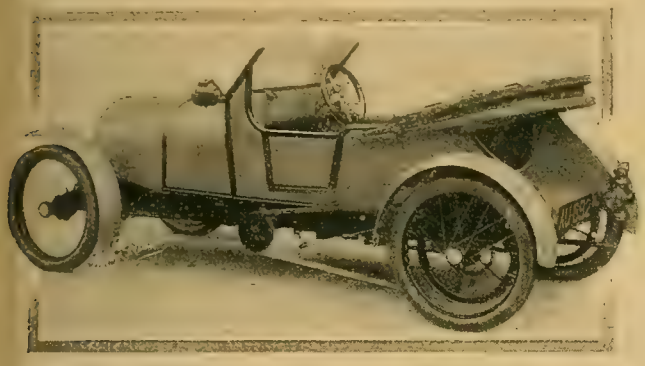
The Alcyon, which is manufactured at 30, Avenue de Noailles, Lyon, has for some years been one of the more noteworthy of the motor cycles produced in France to French designs, and the latest models are quite attractive mounts, though, outwardly some features seem a little strange to English eyes. But the motor itself is admirable, and, indeed, the Alcyon has always been a good power producer for its size, for the early machines had only small engines. Now, however, a 5 h.p. twin with a two-speed counter-shaft gear and chain drive is manufactured, also a 5 h.p. belt driven single gear twin made on sporting lines.



The latest twin-cylinder Alcyon—a popular French mount

THE STAG CYCLE CAR.

ON page 1150, September 4th, we reproduced illustrations and published a description of the Stag engine for cycle cars. The makers, the Stag Co., Ltd., Sherwood, Nottingham, are placing on the market a simple type of cycle car at a reasonable price. These cycle cars will be made in their own factory, which is capable of dealing with quantities. The engine is a 5-6 h.p. single-cylinder air-cooled model of 90 mm. bore by 120 mm. stroke =763 c.c., and is specially designed for cycle cars, being provided with a unique cooling arrangement which makes use of the large diameter flywheel inside



Threequarter rear view of the Stag.

an aluminium case to act as a high speed blower or fan. The engine revolves in the direction in which the vehicle runs, and the first drive is by chain to a clutch on a Jardine three-speed and reverse gear box providing ratios of 4½, 7, and 13½ to 1 forward with a reverse of 13½ to 1.

From the gear box to the counter-shaft the transmission is by chain, the final drive from counter-shaft to road wheels being by two large V belts running over 7in. pulleys to 16in. belt rims on the wheels.

The hand brake is by contracting bands operating on drums on the rear wheels, and the pedal brake is a contracting band on the counter-shaft.

The clutch is operated by the left foot, thus giving the orthodox control of a standard motor car.

The steering is by bobbin and double cables, and the back springing is by quarter-elliptic leaf springs provided with radius rods. Transverse springing is employed at the front with radius rods running to a central point on the chassis.

The wheelbase is 7ft. 4in. and the track 3ft. 6in., both axles being 1¼in. steel tube, while the front has ball steering heads and solid swivel axles.

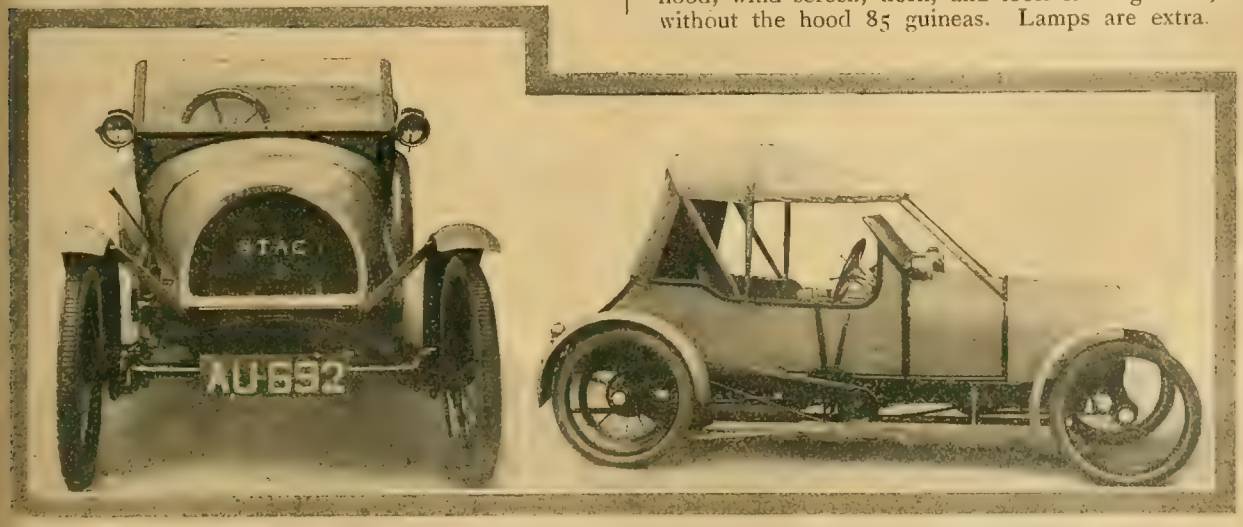
The control of the Senspray carburetter and Bosch waterproof magneto is brought up on to the steering wheel, as is also the control lever of the half-compression cam, which can be used to run the engine very slowly when standing and also to relieve compression when starting. If the vehicle be started on a down grade, there is no necessity to crank the engine, as by the use of the half-compression cam and letting in the clutch gently the engine can be started quite readily.

The seating is arranged so that the driver is a few inches in front of the passenger, providing plenty of elbow room and comfort for both. At the rear of the driver's seat is a locker which reaches half-way to the back of the seat. This is constructed to hold a two gallon tin of petrol and a half gallon tin of oil, leaving also room for other articles inside and on the lid. In addition, each spring-cushioned seat can be lifted up, when a space will be found underneath for tools, spares, etc.

The sides of the body are nicely upholstered inside, and at the rear is a cupboard for carrying the spare wheel. It is only necessary to lift this wheel out when wanted, as there are no straps to unfasten. Behind the wheel is a good flat space for luggage.

The tank inside the dash is readily accessible for filling, and the sight feed pump and petrol tap conveniently placed for the driver's hand.

The complete vehicle includes five detachable wheels, Avon 26in. × 2½in. Sunstone tyres, wide dome guards, and undershield. The weight is 5¼ cwts., and the petrol consumption is said to be low. The price with hood, wind screen, horn, and tools is 88 guineas; or without the hood 85 guineas. Lamps are extra.

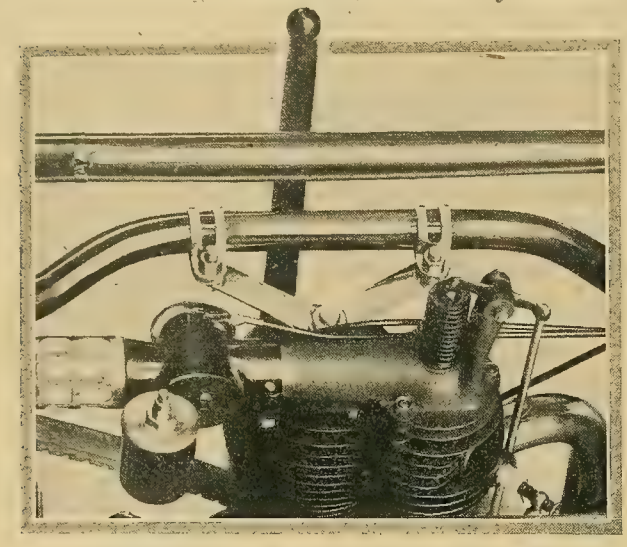


Front view showing dummy radiator and transverse leaf springing

Side view Observe the clean lines and long belt drive

A RUDGE REFINEMENT.

We illustrate herewith the steadying braces now supplied to support the cylinders of the 750 c.c Rudge. They are fixed to the curved bottom rail of the frame by detachable



Steadying braces to reduce vibration on the long stroke Rudge.

clips. The supports are said to reduce vibration to a minimum, and another advantage is that they can easily be fitted to existing machines by the owners.

RESULTS OF THE ROBBIALAC COMPETITION

The Winners of the Ten Clyno Motor Cycles.

In connection with the Robbialac competition, introduced and run by the County Chemical Co., Ltd., we are now in a position to place before our readers the names and addresses of the fortunate ten, each of whom receives a Clyno motor bicycle costing £75.

That the competition has been a huge success goes without saying, the work of staging the many hundreds of excellent entries being in itself a stupendous task. The judging was undertaken by the Editors of *The Motor Cycle* and the *Cycle Trader*, and the greatest care was taken to see that the best work, and only the best work, which at the same time was also the unaided work of the competitor, won.

The organisers of the competition have taken great care to eliminate the professional element, and each of the winners has been called upon to hand in a signed and witnessed declaration proving his amateur status.

The names and addresses of the fortunate ten, who by this time are in possession of their valuable prizes, are:

J. Lewis, 40, Aubrey Road, Small Heath, Birmingham.
W. H. Evans, 45, Albert Street, Queen's Park, London, W.
E. J. Clarke, 292, High Road, Leytonstone, Essex.
W. W. Westlake, The Pharmacy, Church Road, Ashford, Middlesex.
T. Mead, 98, Robertson Road, Eastville, Bristol.
E. D. Phillipson, c/o Mr. Cousins, 58, Beresford Street, Skelton, Stoke-on-Trent.
Thomas C. Clissold, 6, Poplar Terrace, St. Mary's Cray, Essex.
D. Hugget, Ringmer, Sussex.
F. Parsons, 27, High Road, Lee, London, S.E.
K. Beard-Brown, 96, Park Road, St. James's, Northampton.

CLUB NEWS.

Bristol M.C.C.

A half-day trial took place on the 6th inst. in very bad weather. There were eleven starters, and the results were as follows: 1, W. H. Shaw (6 A.J.S. sc.); 2, P. Mathews (3½ Rudge-Multi); 3, M. Slatter (Swift c.c.).

Tyldesley and District M.C.C.

The annual dinner and distribution of prizes took place at headquarters, Leigh, on the 3rd inst., when about sixty members and friends spent a very enjoyable evening, the president, Mr. A. Hobson, presiding.

Purley and District M.C.C.

At the annual general meeting held on the 3rd inst. the whole of the officers were re-elected. At the concert which followed there was the very good attendance of forty-six. The hon. sec. is Mr. Sydney H. Taylor, Wallington, Surrey.

The Public Schools M.C.C. (London).

Mr. Clive Preen, 17, Basinghall Street, E.C., has been elected honorary secretary of this club. The annual general meeting will take place on February 5th, 1914. The annual dinner will take place to-morrow evening (the 12th inst.) at the Waldorf Hotel at 7.30.

The Motor Cycling Club.

A very interesting pamphlet has been issued by the M.C.C., giving a list of the various cups presented by the club and their winners—and a very handsome collection of trophies has been put for competition during 1913. A complete list of prizes and awards gained in M.C.C. club competitions this year is also given in tabulated form.

Coatbridge and District M.C.C

A club, as above, has just been formed. Officers: President, Mr. Robert Spittal; captain, Mr. A. B. Whitton; hon. sec. and treasurer, Mr. William Henderson Jardine (Hendersyde, Coatbridge)

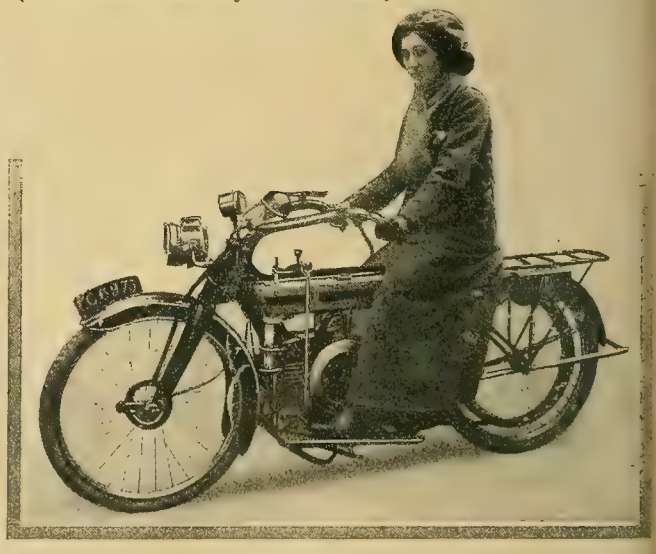
A fault-finding competition is arranged to be held in the headquarters of the club, 16, Ross Street, on Tuesday, December 16th, at 7.30 p.m.

Burton-on-Trent and District M.C.C.

A lecture on variable gears was delivered before the members of this club on the 1st inst. by Mr. T. F. Hunt, of Messrs. Sturmey-Archer Gears, Ltd.

Cardiff and District M.C.C.

A meeting of about fifty motor cyclists took place at the Albert Hotel, Cardiff, on Wednesday, 3rd December, when it was unanimously decided to form a club with the above title. Mr. E. E. Chapman, 64, Crwys Road, Cardiff, was of Messrs. Sturmey-Archer Gears, Ltd.



A BUSINESS GIRL'S MOUNT.

Miss C. Moss, of Greenwich, and her Model R Douglas. She is in business in the West End, and almost daily irrespective of the weather rides to and fro, preferring her Douglas to travelling by motor 'bus or rail.

Club News.—

Proposed Ladies' M.C.C.

A meeting will be held at the R.A.C. in a room lent by the A.C.U. some time near the beginning of January. All ladies who are interested are invited to attend. The hon. sec. is Miss Mary Ellis, 35, Portland Place, London, W.

Eastern Province M.C.C. (South Africa).

A reliability trial recently took place from Port Elizabeth to Grahamstown and back. Considering the state of the roads and the high temperature, the loss of marks due to mechanical troubles was exceedingly small. Thirteen riders completed the run; of these the following made non-stops: 1, W. Wilson (3½ h.p. New Hudson), marks lost 8½; 2, R. C. Inggs (3½ Humber sc.), marks lost 28.

Bristol B. and M.C.

The annual general meeting of this club was held on November 12th, a large company being present. Mr. E. J. Prosser was re-elected president, Mr. F. Bevan motor captain, and Mr. A. S. Richards, 11, Cornwallis Crescent, Clifton, hon. secretary.

The annual supper will be held on Saturday, December 13th, at Maxwell's Restaurant, Bristol, when the prizes and medals won during the past season will be presented.

The Cyclecar Club.

The annual general meeting took place at the Connaught Rooms on the evening of the 3rd inst. Mr. Glynn Rowden was in the chair. The Treasurer reported that the club had cash in hand to the amount of £70 14s. 7d. Some discussion took place as to whether members' entry fees should be placed to the reserve fund, and after some discussion, in which Mr. de Peyrecave and Mr. Bonnet took part, it was decided to recommend that a certain sum of money should be placed to the reserve fund annually. The next item on the agenda was the election of officers for 1914, and it was announced that a gentleman well known in automobile circles would be invited to take the presidency. Messrs. W. G. McMinnies, Glynn Rowden, and Dr. A. M. Low, were elected vice-presidents. Mr. A. C. Armstrong was elected honorary secretary, Mr. A. P. Bradley assistant honorary secretary, Mr. A. W. Torkington treasurer, and Mr. F. Thomas captain. The committee for 1914 was composed as follows: Messrs. Lionel Martin, A. B. Phillips, L. de Peyrecave, C. E. Bonnet, A. W. Lambert, E. M. P. Boileau, G. N. Higgs, F. Bale, and H. Selwyn. A new rule was passed, empowering the committee to form branches of the Cycle Car Club. The latter was discussed at some length, and it was eventually decided that these branches should be run under similar rules to the main body, subject to such revision as may be permitted by the committee of the club.

Malvern and District M.C.C.

A hill-climb was held recently, with the following results:

CLASS I.—Up to 350 c.c. on Time. Any machine.
1. J. H. Marsden (2¾ Douglas) ... ... 14s.
2. E. C. Heis (2¾ Douglas) ... ... 15⅕s.
3. F. G. Cutler (2¾ Douglas) ... ... 15⅗s.

CLASS II.—Up to 500 c.c. on Time. Standard touring machines.
1. J. Harrison (3½ Triumph) ... ... 11s.
2. B. Bladder (3½ Rudge Multi) ... ... 13s.
3. W. Walker (3½ Triumph) ... ... 15s.

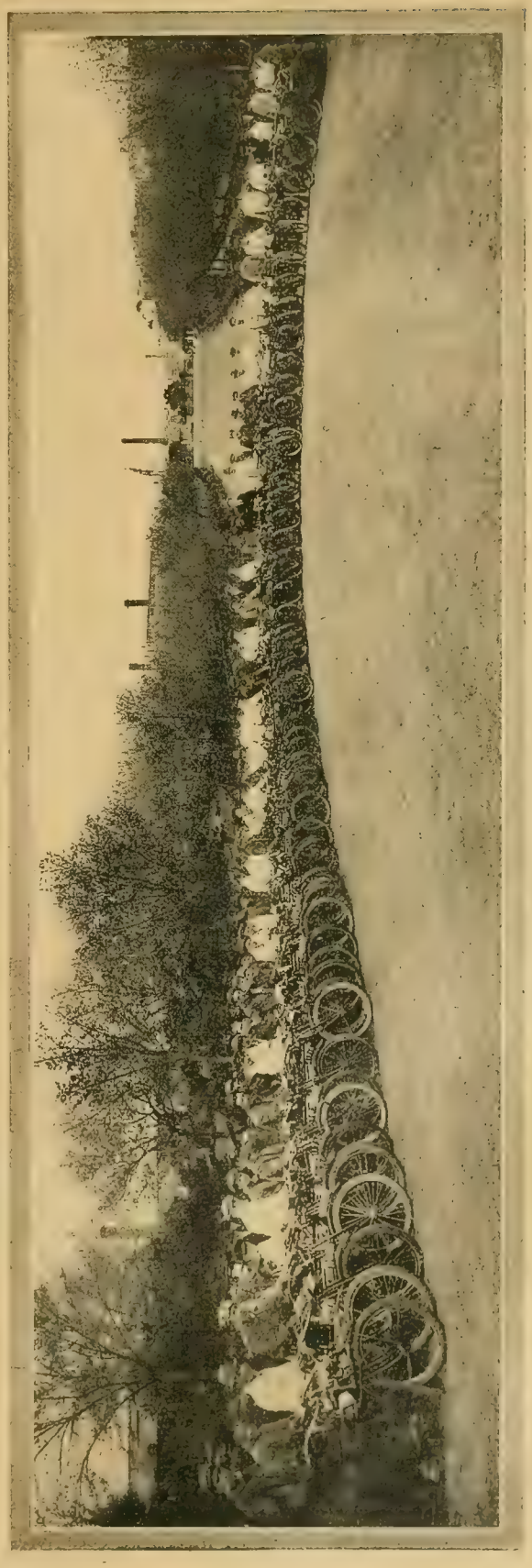
CLASS III.—Up to 500 c.c. on Time. Any machine
1. E. Surman (3½ Alldays) ... ... 10⅖s.
2. J. Harrison (3½ Triumph) ... ... 11s.
3. R. Drew (3½ Triumph) ... ... 12⅕s.

CLASS IV.—Up to 1,000 c.c. on Time. Any machine.
1. H. J. S. Greatwick (6 Wright) ... ... 9⅖s.
2. J. Harrison (3½ Triumph) ... ... 10⅖s.
R. E. Surman (3½ Alldays) ... ... 10⅖s.

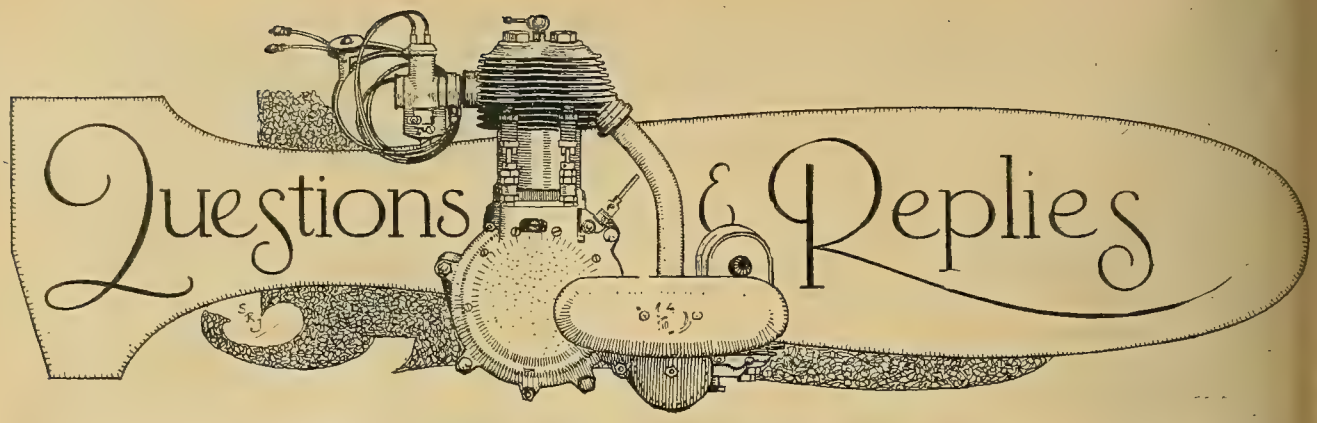
CLASS V.—Up to 1,000 c.c. on Formula. Any machine.
1. B. Bladder (3½ Rudge Multi)
2. H. J. S. Greatwick (6 Wright)
3. J. Nickson (3½ Rudge Multi)

CLASS VI.—Up to 1,000 c.c. on Formula. Sidecars and cycle cars.
1. H. J. S. Greatwick (6 Wright sc.)
2. E. C. Heis (8 Morgan cycle car)
3. R. D. Oliver (8 Morgan cycle car)

The Motor Cycle formula was used.



THE MOTOR CYCLE IN AUSTRALIA.
A big group of motor cyclists of Melbourne and neighbourhood. A large proportion of the machines shown are of British manufacture.



Questions & Replies

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Rear Lights.

Will you kindly tell me whether it is necessary, in view of the recent ruling, to have the rear number illuminated so long as one has the front one illuminated?—H.F.F.

It is not *necessary* to illuminate the rear number plate, but you can do so if you wish, in which case no illumination is required on the front plate. The question was not definitely settled on going to press, but the draft regulation of the Local Government Board makes it unnecessary for the present to provide a rear red light on a single track machine, but this is necessary when a sidecar is attached.

Machine out of "Tune."

I am the owner of a 1913 three-speed 3½ h.p. machine, which I bought late in June last, and, although I have scarcely ridden 800 miles on it yet it seems to have lost a lot of its freshness. At a speed of fifteen to twenty miles an hour it goes all right, but at low speeds it makes a most peculiar noise which ceases when I cut down the air a bit. This noise is not so loud as the "clacking" of the valves on the tappets, and it has not any "metallic" sound about it which would indicate "knocking." The inside of the cylinder, from what I could see when the valve caps are removed, is pretty dirty, for, being a complete novice when I bought the machine, I over-oiled it of course. (1.) Would you advise me to take down the cylinder and clean it? I have read up a good deal about dismantling the cylinder; the only thing that I am afraid of is the taking off and replacing the rings on the piston. (2.) Is there any particular position on the piston for them, or can I replace them "any way"? (3.) I cannot keep the exhaust valve clean from burnt oil. No matter how often I take it out and clean it it gets dirty again very quickly. I oil the machine only very sparingly now, still the oil comes out, and the putting on of a new valve spring has not made any improvement.—B.O'C.

As far as we can see the only trouble with your machine is lack of "tune." We should strongly advise you to take down the engine, clean off the carbon deposit, and re-adjust the tappets. Clean deposit from underside of piston and from behind piston rings. (1.) The peculiar sound you refer to is probably due to the fact that the carbon deposit in the cylinder becomes partially incandescent; that, of course, causes pre-ignition, which means that the charge is fired before the piston reaches the top of the stroke. (2.) As regards the piston rings, these are easily removed by placing strips of tin under them and sliding the rim off over these strips; they can be put on in the same way. It is necessary to see that the slots in the rings are not in line, as this would cause lack of compression.

A MOTOR CYCLIST AVIATOR.

Hubert C. G. Allen, late of Coventry, for many years a motor cyclist, and owning Rex, Clyno, and Humber machines, has forsaken motor cycling for aviation. He now has a 35 h.p. Bleriot monoplane with three-cylinder Anzani engine and a hangar at Hendon.

(3.) We should recommend you also to grind in the valves, taking out pits, and giving the seat a bright surface, with a final polish up with a little petrol.

The Question of Insurance.

I should be glad of your advice on the question of insurance of my motor cycle and sidecar. I notice from various insurance prospectuses that rates for practically equal risks vary enormously. Can I safely take advantage of the low rates quoted by some companies?—A.B.

Your best plan is to compare the prospectuses of various insurance companies. Do not go by the cheapest but by the one which gives best value for money. Insist upon having full particulars and make careful investigation as to the settlement of claims, and any restrictions that are not mentioned in the prospectus. Then, if you find the cheaper policy includes everything you require, by all means insure under it. The really important thing to remember is to be fully covered against third party risks.

Removing Small Piston Rings.

Can you tell me how to remove piston rings without breaking them? I am riding a F.N. four-cylinder, and in removing the rings I broke five. I tried strips of tin as advised in "Motor Cycles and how to Manage Them," but the rings went before I got the three strips under them. I then tried one strip opposite the slots, and raised the slot ends one by one with an old knife, but with little success. Is there any way of removing carbon from back of rings without removing them?—F.S.F.

No. You cannot remove carbon deposit from the grooves without taking out the piston rings. Personally, we always use strips of tin for the purpose of removing the rings. Possibly with your small pistons three hairpins might be more suitable, or perhaps a special tool for the purpose as advertised in our columns. This is similar to a pair of pliers, specially made to expand the ring without breaking it.

DUNLOP

ALWAYS LEADS AT OLYMPIA

Notwithstanding the claims made by other tyre manufacturers, there were

MORE MOTOR CYCLES

fitted with

DUNLOP TYRES

than any other make.

Also there were

MORE MOTOR CYCLES

fitted with

DUNLOP BELTS

than any other make.

First in 1888; foremost ever since.

When ordering tyres or belts, specify Dunlop, the most popular.

THE DUNLOP RUBBER CO., Ltd.,

Aston Cross, BIRMINGHAM. Alma Street, COVENTRY.

BRANCHES: London, Nottingham, Manchester, Newcastle, Bristol, Leeds, Liverpool, Glasgow, Dublin, Belfast.

NEW RECORDS

established by the famous N.S.U.

On November 20th, Lieut. R. N. Stewart, riding a two-cyl. N.S.U. (54½ x 75 mm.=349 c.c.), established new records in Class B for the following distances and times:

350 miles .. .. 8h. 32m. 4⅘s.=41.01 m.p.h.
8 hours .. .. .. 328 miles 184 yards=41.00 m.p.h.
9 hours .. .. .. 369 miles 1,454 yards=41.09 m.p.h.

Of this performance, "The Motor Cycle," November 27th, says: "This ride was noteworthy, as it was a genuine amateur attemp to verify Stewart's ability to ride nine hours at Brooklands to settle a sporting bet made by Stewart with his fellow officers in his regiment. He had no trade assistance whatever, and had his own orderly and servant to assist him. He ran most consistently from start to finish, and would doubtless have done much better but for the very high wind which prevailed all through the ride."

MODELS FOR 1914—ALL TWINS.

3½ h.p. Twin-cylinder, 498 c.c., 2-speed gear and free engine, belt drive.

6-7 h.p. Twin-cylinder, 830 c.c., chain drive, three-speed countershaft gear, 26 x 3in. tyres.

7-9 h.p. Twin-cylinder, 996 c.c., chain drive, three-speed countershaft gear, 28 x 3in. tyres.

THE N.S.U. MOTOR CO., LTD., Offices and Showrooms: 186, Great Portland Street, London, W. Goods and Repairs: 83-85, Bolsover Street, London, W.

Northampton to Eastbourne.

I shall be obliged if you will kindly forward me the best route to Eastbourne without passing within fifteen miles of London. —M.F.

Your best route would be as follows: Northampton, Newport Pagnell, Woburn, Dunstable, St. Albans, Watford, Rickmansworth, Uxbridge, Staines, Chertsey, Guildford, Horsham, Cowfold, Partridge Green, Hurstpierpoint, Hassocks, Ditchling, Lewes, Polegate, Eastbourne.

Oil Escaping from Engine-shaft Gear.

I possess a 3½ h.p. N.S.U. with free engine and two speed gear, which I bought second-hand from a commercial traveller, who apparently troubled little about the machine as long as it would run. I may say I overhauled the engine and found it to be in fair condition. The tool marks are still showing on the piston rings, which I understand were fitted about last February. Owing to a smash the engine was sent to the makers, where a new crank case was fitted, new piston and rings, and it was re-bushed. I found on examination both top and bottom a full $\frac{1}{32}$in. slack, the small end having $\frac{1}{16}$in. side play. The pulley shaft is tight but has side play of $\frac{1}{8}$in. As you are doubtless aware, the left hand engine shaft to which the two speed gear is fixed is hollow. And in a description of the N.S.U. two speed gear I have seen it stated that "the gear is lubricated by means of the engine release valve on this hollow spindle." Before starting the engine on the stand when I reassembled it, I injected three or four pumps full of oil into the crank case, and after the engine had been running for a little while the oil was sprayed in a considerable quantity over the whole engine and was apparently partly exhausting through the two speed gear. The engine appeared to me to be abnormally hot, including the crank case, and I am under the impression that the oil in the crank case becomes heated and is sent through the hollow shaft of the engine on the down stroke (of the engine). I am desirous of learning what quantity of oil should be pumped into the crank case, and the normal level of same. As regards the running of the engine it picks up very quickly and runs without any fuss, with the exception of throwing the oil about. I may also state I did not touch the two speed gear in any way—which works very well. If you can kindly let me know your opinion on the oil trouble, seeing the engine has only recently been re-bushed, and in what way I can remedy the matter, and whether the excessive heat is anything to trouble about, I shall be obliged.—S.A.J.

Provided your engine does not lose power through overheating and runs satisfactorily there is no need to worry about the temperature of the oil. We should recommend you to consult the makers of your machine, and perhaps they will be able to supply you with another type of crank case release, which would cure your trouble in the matter of oil escape.

High v. Low Gear for Starting.

I had an argument recently with a friend, and should esteem it a favour if you would give me your opinion. My friend told me that his machine, a 1912 free engine Triumph, was very difficult to start by the pedals, and he said he thought that it was owing to his gear being too high. I told him that that would make starting easier than if his gear was too low, my contention being that, though more revolutions of the engine would be obtained with a low gear, it would require a greater effort, whereas the reverse would be the case with a higher gear, and would make for easier starting.—E.J.W.

The higher the gear, the more easily can the machine be pushed over compression when cold or gummed up. Once warm, the difference is less noticeable. Your statements expsess our own opinion in the matter.

READER'S REPLY.

A Curious Complaint.

In your issue of the 27th ult., one of your readers describes "a curious complaint" that his machine has. I have an engine of the same make and power: 5-6 h.p. twin Rex, which troubled me in exactly the same way, and I traced the cause to the petrol pipe, not tank as you have suggested. The pipe has a twist in it in a vertical direction. The cure was to alter this bend to a horizontal one, or in such a way that no air lock can form.—E. J. Cope.

Having had a similar experience to "E.M.'s" (page 1619) with my 1912 Rudge Multi and sidecar, I venture to suggest that if he used tappet adjusters he would cure his trouble. Mine was due to an adjuster having worn down, and consequently the exhaust gases could not escape, and the stoppages were due apparently to overheating and loss of power, as only a little gas entered the engine. On another occasion loss of power was due to a broken rocker roller in the exhaust valve, and consequently the tappet did not receive the full lift of the cam.—Rudge Rider.

EXPERIENCES WANTED.

"C.I.D." (St. Andrews). — Reliability and foolproofness of Rex two-speed hub.

"L.C.R." (Norfolk).—Brampton gear and Mabon clutch for 3½ h.p. Premier, 1911 pattern fixed engine. Reliability.

"J.R." (Tonbridge).—4¼ h.p. Lincoln Elk with sidecar. Reliability, consumption, and efficiency of two speed gear.

"H.M.B." (Westcliffe).—3½ h.p. Blackburne. Reliability and general efficiency.

"D.P.W.M." (Armagh). — Hutchinson tyres on 3½ h.p. Rudge and sidecar.

"G.B." (London).—3½ h.p. Alldays Matchless, three-speed counter-shaft chain drive. Power with sidecar, hill-climbing and general efficiency.

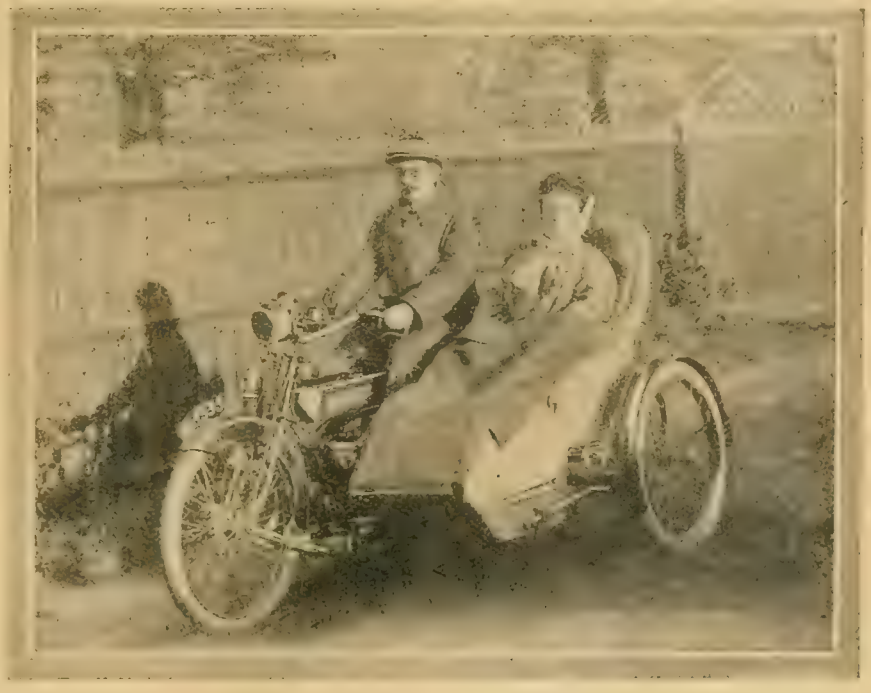
"B.L. 2674" (Wimbledon).— K model 1912 Douglas with sidecar. Rom steel-studded cover.

"J.C.B." (Liverpool).—1913 Forward, 2¾ h.p. T.T. Reliability, efficiency, consumption, etc.

"P.H." (Glasgow).—Two-stroke Scott, especially reliability of gear and cooling system. Twin Matchless, 6 or 8 h.p. Power of each for sidecar work.

"W.F." (London).—1913 A.C. Sociable. Average miles per hour over give and take roads, petrol consumption, life of back tyre, and skidding.

"H.V.B."—Enfield 6 h.p. Reliability of slip arrangement of sprockets on engine-shaft; clutches, chains, carbonising of cylinders, and general running.

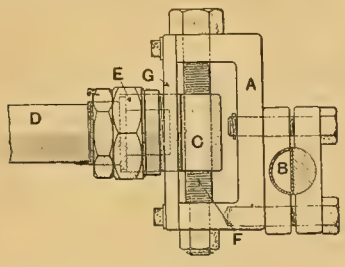


SIDECARRING WITH A 3 H.P. MACHINE.

J. Hart Smith on his 3 h.p. Enfield sidecar outfit. Though the 3 h.p. Enfield is not recommended for sidecar work by the makers, Mr. Hart Smith has successfully covered several thousand miles with a sidecar without trouble.

An Improved Sidecar Clip.

This clip allows the sidecar to be adjusted both as regards height and wheel alignment. The jaws A are more or less permanently clipped to the motor cycle chain stay, which is represented at B, and the part C is attached to a member D of the sidecar, which may be its axle tube. The parts D and C are coupled together by a quickly detachable coupling nut E. The part C can be vertically adjusted along the spindle F, and can be swung about the axis of that spindle, being prevented from accidental movement of this nature by means of a plate G. It will be noticed that the jaws A and B are unequal in length, so that by reversing this part two different heights of axle D can be coped with, apart from the adjustment provided by the screwed spindle F. By this means the same parts can be used for 26in. or 28in. wheels.—W. Montgomery, No. 24,482, 1912.

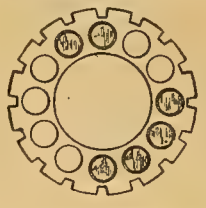


PATENTS

BY ERIC W. WALFORD, F.C.I.P.A.

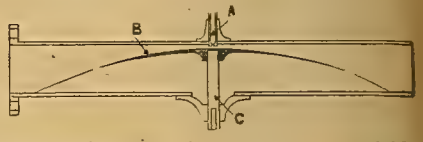
A Clutch Plate Improvement.

A difficulty experienced with plate clutches is that there has to be fairly considerable movement of the operating member to separate the plates, and to obviate this is the feature of this invention. The alternate plates are made somewhat thicker than usual, and are formed with holes, in each of which is a loose circular block slightly thicker than the plate. The blocks take the pressure and the perforated plates serve merely as carriers. Such an arrangement possesses the additional advantages of improved lubrication and cheapness of renewal, as the blocks alone have to be replaced.—Triumph Cycle Co., Ltd., and C. W. Hathaway, No. 25,668, 1912.



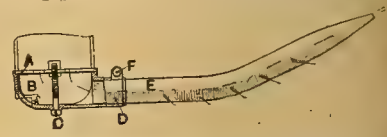
A Simple Variable Choke Tube Carburetter

The jet nozzle A projects horizontally into a square pipe which forms the spraying chamber of the carburetter. In this is arranged a bow spring B, the same width as the square pipe, and this is attached to a sliding stem C. It will be clear that the spring tends to take up the position illustrated, in which the passage over the jet nozzle is small. By moving the stem and spring the passage is increased and in this way a variable choke tube effect is obtained.—V. March, No. 22,780, 1912.



A Silencer Conversion Device.

Long exhaust pipes are now becoming the rule, and the illustration shows a neat construction for effecting the conversion of an ordinary silencer, provided with a "cut out." The end A has the ordinary "cut out" removed, and in its place is screwed a dome B, the stud C fitting the ordinary "cut out" stud hole.



The dome is formed with a split lug D into which is inserted the extension pipe E, which is then secured by the stud F.—W. F. Newsome and R. R. R. Fletcher, No. 7,185, 1913.

A Sturdy Two-stroke.

In our Show Report we referred to the Veloce as a 2 h.p., whereas this is actually rated at 2½ h.p., and, we are informed, develops on the brake about 3.6.

Hub Gears at Olympia.

We are informed by the Sturmey-Archer Gears, Ltd., that there were eighty-nine motor cycles in the Show last week fitted with Sturmey-Archer hubs.

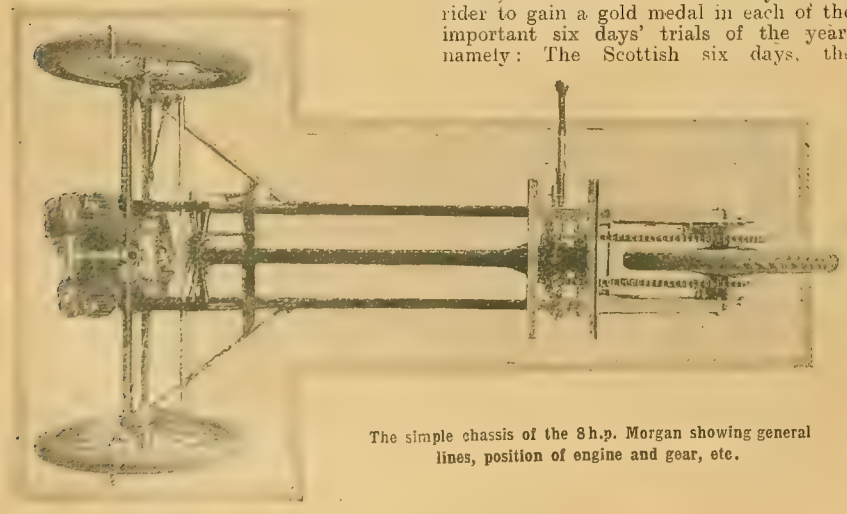
A North London Garage.

Messrs. Mills Motors, Ltd., sole district agents for Premier, Indian, Rover, Bradbury, Royal Enfield, Zenith, etc., have re-opened at 4, Woodside Parade, North Finchley.

SPARKLETS

A Fine Sidecar Record.

One of the most successful riders during the past season on a 3½ h.p. Bradbury and sidecar is Hugh Gibson of the Bradbury Company. This rider has a long list of gold and other medals to his credit, and claims to be the only sidecar rider to gain a gold medal in each of the important six days' trials of the year, namely: The Scottish six days, the English A.C.U. six days, and Irish end-to-end. The total mileage of the three events was 2,140 miles, and in the Scottish and English six days, Gibson's sidecar was the only single cylinder sidecar machine to finish. It is interesting to note that Gibson used Dunlop tyres and belts in all the important events in 1913.



The simple chassis of the 8 h.p. Morgan showing general lines, position of engine and gear, etc.

Accessories.

A new firm specialising in tap work and accessories for motor cycles, including electrical equipment, is Wood and Lamplugh, Ltd., King's Road, Tyseley, Birmingham.

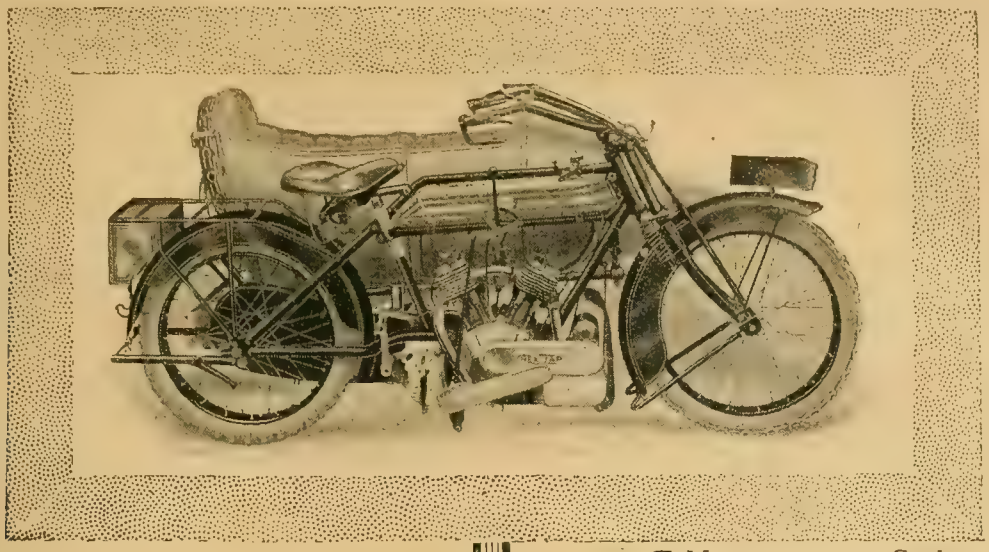
Morgans in France.

The Morgan Motor Co., Worcester Road, Malvern, inform us that they took orders for over 700 three-wheelers at the Show. 150 were ordered by their French agents, and two have been entered for the Paris-Nice Trial. The firm hope shortly to complete large extensions to their works, having purchased a site of 2½ acres at Malvern Link. Among their contracts is a large order from Switzerland, in addition to the French one mentioned above. They are also represented by 50 agents in Great Britain and Ireland.

Catalogues Received.

The Service Co., Ltd., 289-293, High Holborn, issue an excellent list of second-hand motor cycles, cycle cars, and sidecars which they have in stock.

"About the Rudge Multi" is the title of a new booklet, attractively illustrated, issued by Rudge-Whitworth, Ltd. It records in an absorbing and convincing manner the progress of the Rudge during 1913. Copies may be obtained free upon application to the works.



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¶ May we post you Catalogue with full particulars and illustrations?

Sole Manufacturers:

THE Premier Motor Co. Ltd.

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£2 : 2 : 0

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£2 : 2 : 0

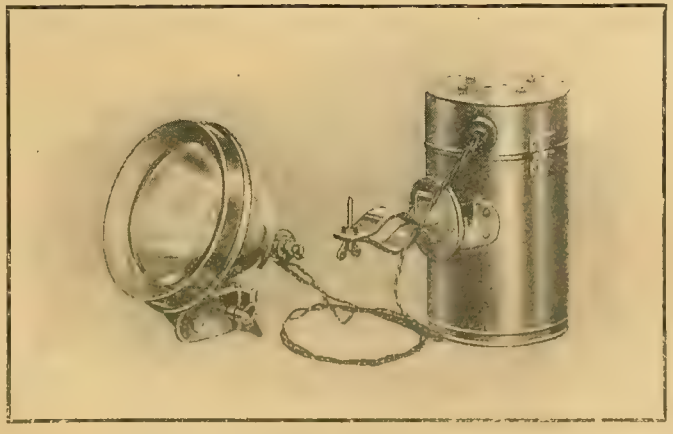
for Motor Cycles, Sidecars, Cycle Cars, Motor Cars.

8-10 hours' continuous Light.

Re-charged on the road in a few seconds.

Simple, safe, and reliable.

Upkeep nominal.



Every Battery fully guaranteed.

Sidecar Lighting specially catered for

THE "NO TROUBLE" LAMP.

Price complete, £2 : 2 : 0.

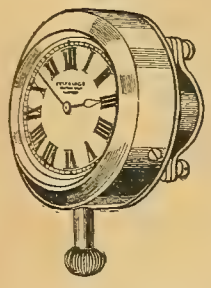
£2 : 2 : 0

Write, call, or phone for illustrated list to—

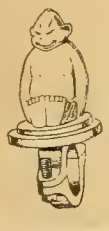
WESTON'S, 104, Wool Exchange, London, E.C.

£2 : 2 : 0

SELFRIDGE'S



30 Hour Motor Cycle WATCH AND CASE (as sketch), lever movement. Dust and weatherproof. With guarantee .. .. **9/6.**

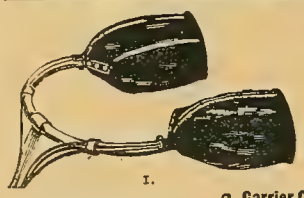


BILLIKEN MASCOT (as sketch), will fit ⅞ and 1in. bar, nickel finish **5/6.**

Letter Orders promptly filled.

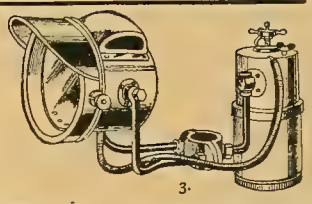
THERE are only a few days now in which to do your Christmas shopping.

Realising the short time left in which to purchase, we have collected together a number of accessories most suitable as Christmas gifts for your motor cycling friends, a few of which are illustrated below.



1.

1. **Motor Cyclists' Hand Muffs,** self-supporting and flexible. Cover all levers, but do not interfere with free access to them. In Tan waterproof leather, lined fur, a pair **22/6**; in best Black waterproof lined Tamo, a pair **15/6**; in Black waterproof lined Grey Cloth, a pair, **9/6.**



3.

2. **Carrier Cushion** for fitting over carrier, to provide a comfortable seat for a passenger. Made of leather, with Japanned top, and filled with Doe Hair. Size 15 × 7½in., and complete with four straps. Each **4/6.**

2.

3. **The "Sovereign" Motor Cycle Lamp Set** (as sketch)—Lamp, Generator, and Bracket. Special price, complete, **20/-**

We pay carriage throughout the British Isles.

SELFRIDGE & CO., LTD., Oxford Street, W.

Heart-shaped Motor Cycle Watch (as sketch), in dust-proof case .. .. **10/6.**

Spare Belt and Tube Case (as sketch), in solid leather, 6¾in. diameter, 3½in. depth, ... **6/9.**

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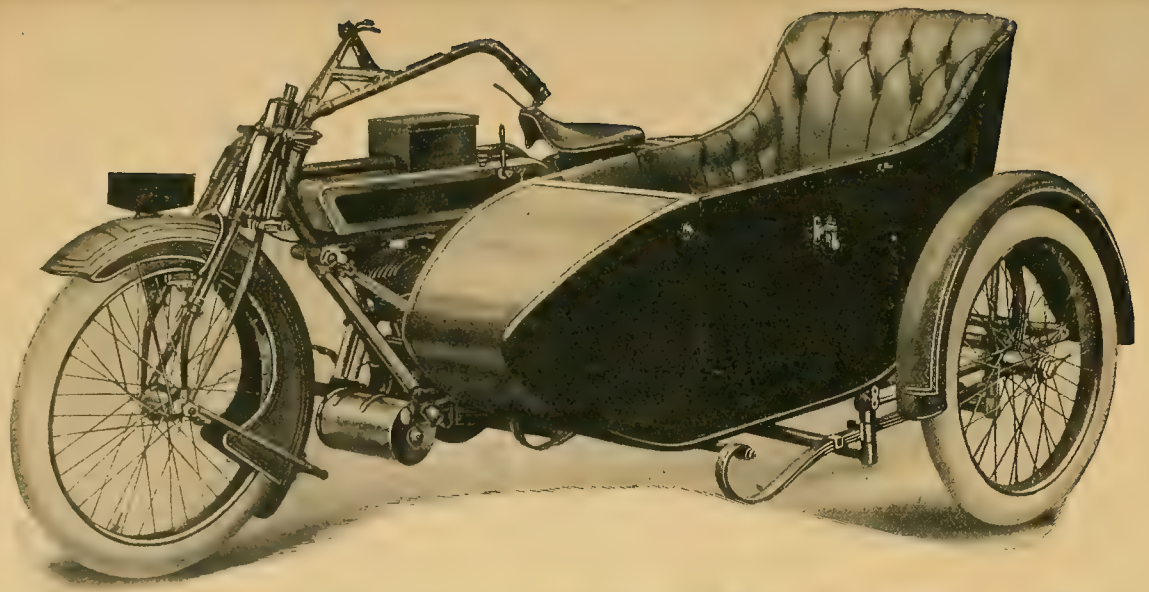

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Enthusiastically received by Press and Public at Olympia. From our private and public trials we know it to be best.

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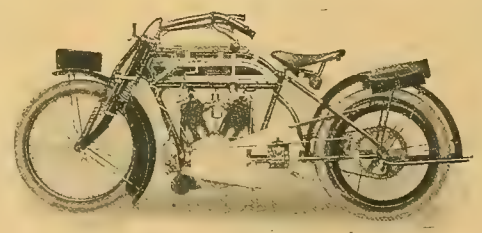

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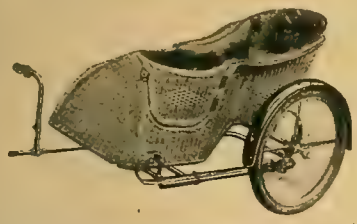

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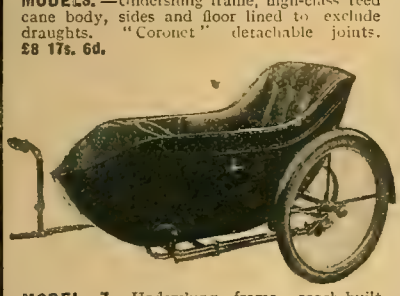

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Set of malleable iron castings for Triumph pattern foot brake 1 6
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New 1913 Simms magneto, suit 3½ h.p. single-cylinder, cost £5 10 ..... £2 19 6

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BAT-J.A.P., 1911, T.T., overhead valves, 5-6h.p. twin, just re-enamelled, splendid condition; £27/10.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [4752

1913 4h.p. Bat-Jap, P. and M. 2-speed, F.E., drip lubrication, spring frame, Kempshall back, P and H. lamp; cost £60 October, accept £43, or exchange. 'Phone: 244 Gerrard.—Gayford, 20, Woodside, Rd., South Norwood [4787

6h.p. Bat and Gloria Sidecar, 1912 model, 2-speed, chain, clutch, cost £73, with extras, X.L. saddle, Cowey speedometer, lamp, horn, sidecar, coachbuilt, cost £18 18, the whole costing over £100, all in perfect condition, not ridden more than 3,000 miles; no reasonable offer refused.—G. Hills, London Hospital, E. [4632

1912 8h.p. Bat-Jap and Montgomery Sidecar, 2-speed, chain drive, kick starter, mileage run 1,600, Cowey speedometer, Rushmore lamps, generator, 2 horns, all tools, etc., 2 spare Dunlop covers, all tyres as new; cost complete £96/10, will take £55, or near offer.—Linington, 54, Commercial Rd., Portsmouth. [4830

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BEDELIA, 8h.p., 90° twin, Bosch, variable pulleys, sliding gear, belts as new, tandem seated, streamline body, tyres as new, handsome outfit, climb anything; owner going abroad; nearest £55 secures.—Plew, jun., Craigmount, Peebles. [X9139

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BRADBURY, 1914 models; exchanges quoted; prompt deliveries.—Halifax Motor Exchanges, Westgate, Halifax. [0385

BRADBURY, 1914 models; keen competitive exchanges quoted.—Colliers Motories, 16a, Westgate, Halifax. [0386

BRADBURY, 1912½, 3½h.p., 3-speed, Sturmey-Archer, lamp, horn, spares; £33.—809, Attercliffe Rd., Sheffield. [X9144

BRADBURY, 1913, 3½h.p., 2-speed, kick starter, absolutely new (shop-soiled slightly); £50.—Gibb Gough, and Son, Gloucester. [4826

BRADBURYS, 1914 models, best deliveries; easiest instalment terms; best exchange allowances.—Maudes, 136, Great Portland St., London, W. [4836

3½h.p. Bradbury and Phœnix sidecar, 1912 cylinder, 1913 N.S.U. 2-speed, splendid climber; nearest £28, quick sale.—Labourne, Frizington, Cumberland [X9196

T.T. Bradbury, 5 months old, in first-class order; cost £52, sell £40, or exchange good model R Douglas.—Thomson, bottlers, Fauldhouse, Linlithgowshire. [X8719

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BROWN, 3½h.p., Bosch mag., 26 wheels, good running order; £12.—W., 108, High St., Aylesbury. [X9241

BROWN, 3½h.p., 1911, F.E., £19/10; also sidecar, 45/-, or offers.—83, Gordon Rd., Peckham. [X9227

3½h.p. Brown, good order, accumulator, £9; light side car, £2/10; bargain.—Duke, 141, Wickham Lane, Welling [4783

BROWN, 3½h.p., free engine, and sidecar, Bosch, B. and B., accessories, £20 — 42, High Rd., Streatham, S.W. 'Phone 1451 [4797

B.S.A.

B.S.A., 2-speed, 1913, unused, 50 gns. Read's Garage, Sheerness. [4725

1912 B.S.A., 2-speed, Whittle belt sidecar, complete; £40. Plaston, Grimsby [X9361

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B.S.A., 1912, 3½ h.p., 2-speed model, excellent condition, complete with good lamp and horn, bargain, £35.—Lawtens, Bicester, Oxon. [X9349

B.S.A., 1913, 2-speed model, chain drive, very good machine, been little used and well cared for, lamp, horn, £46.—Lawtens, Bicester, Oxon. [X9350

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4-cylinder **F.N.,** magneto £16 10
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3½ h.p. **REX,** M.O.V., low built £7 15
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3½ h.p. **N.S.U.,** free engine, splendid order £19 10
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2 h.p. **MOTOSACOCHE** 1910, magneto £13 10
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6½ h.p. **REX** open-frame Tricar, water-cooled, 2 speeds, wheel steering, splendid Wood-Milne 700 x 80 tyres; make splendid cycle car £10 0
3½ h.p. **N.S.U.,** m.o.v. £8 15
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3½ h.p. **REX,** m.o.v., low built £7 15
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SECOND-HAND SIDECARS.

MILLFORD castor wheel £3 10
Nearly new coach-built, side door £7 0
CORONET, cane body £3 15
Good rigid sidecar £2 15
Ditto, Chater-Lea joints £3 5
SCOTT, with Wolbrown cane body £3 15

ENGINES.

New 1913 4½ h.p. **PRECISION.** Your old engine taken in exchange.
New 5 h.p. **STAG,** single-cylinder.
2½ h.p. **DE DION** £1 15
2 h.p. **HERCULES** £1 10
4 h.p. water-cooled **M.O.V.,** side-by side valves .. £4 15

MISCELLANEOUS.

Miller Rear Red Lamp and Mirror 5 0
Brass Sidecar Apron Studs ..... each 2
N.S.U. Gear for Triumph, adjustable pulley £3 10 0
Wheel, fitted with Kerry 2-speed hub gear and free engine clutch for engine-shaft £3 15 0
Silencers, very silent 2 6
7ft. 6in. New Shamrock 1in. Belt 7 6
New ¾in. Rubber Belt 7 6
New Sidecar Frame and Wheel £1 17 6
New Tool Rolls ..... each 6
New 26 x 2½ Heavy Rubber-studded Hutchinson £1 1 0
" 26 x 2½ " " " £1 3 6
Mabon Clutch £1 10 0
4-cyl. Magneto, off Flanders car £2 10 0
New Tee Bee Kick-up Stands 6 0
New Cane Sidecar Body, side door £2 10 0
Nearly new Binks Carburetter £1 5 5
N.S.U. 2-speed Gear and Free Engine £2 10 0
New Wicker Sidecar Body, side door £1 9 6
Ditto, canoe front 19 6
Nearly new Coronet Sidecar £4 10 0
Bosch Magneto, suit Triumph £2 2 6
New Bosch Magneto, suit Triumph £3 0 0
New Twin Bosch DAV Magneto 45°, 48°, and 50° £2 19 6
New 1913 Armstrong Mark VII. 3-speed Gears. Delivery from stock. Trade supplied.
New Coachbuilt Sidecar Body, side door £3 10 0

Removed to our New Premises.

Booth's Motories,

Portland Place, Skircoat Road, HALIFAX

(opposite County Court).

Telephone 1062.

CLEARANCE

of second-hands, taken in part payment for new 1914 models at and before the shows. All prices specially reduced.

ALL MACHINES GUARANTEED.

SIDECAR COMBINATIONS.

REX 1913 Sidette model, 6 h.p., like new, 2 speeds; cost £75. Sidecar **£58**

ENFIELD 1913 6 h.p. combination, 2 speeds, Stewart speedometer, Lucas horn **£66**

ZENITH 1913 6 h.p., kick start, late delivery, Cowey .. **£66**

REX 1913 brand new 6 h.p., and Portland £13 13s. Sidecar .. **£70**

SPECIAL BARGAIN.

Practically new 10 h.p. **Phœnix** car, 3-seater, 1913 model, 5 lamps, Stepney, hood, screen, speedometer, excellent order throughout, cost £230. Bargain..... **£140**

RUDGE 1913 5 h.p. brand new combination, Portland "all cane" torpedo Sidecar **£68**

MATCHLESS 1913 8 h.p., chain drive, brand new, with Portland £12 12s. Sidecar. Special bargain **£74**

REX 1912 6 h.p. combination, 2 speeds, Portland Sidecar, Cowey **£40**

REX 1912 chain drive, 2 speeds, Montgomery £13 13s. Sidecar **£41**

ENFIELD 1912 2¾ h.p. 2 speeds, ladies' model, open f'me **£38**

BAT 1912 6 h.p., with 2-seater Sidecar, excellent order..... **£27**

REX 1911 6 h.p., 2 speeds, Service torpedo Sidecar, very good order **£35**

V.S. 1910 6 h.p. model, Mabon free-engine clutch, excellent order, new Portland £8 Sidecar..... **£30**

INDIAN 1911 7 h.p., 2 speeds and free, with rigid Sidecar **£40**

BRADBURY 1912 4 h.p., 2-sp., wicker Sidecar.. **£41**

BRADBURY 1911 3½ h.p., Mabon variable gear, wicker Sidecar, excellent order..... **£35**

N.S.U. 1912 3½ h.p., 2 speeds, excellent order, new Sidecar.. **£42**

SOLO MOUNTS.

DOUGLAS 1912 2¾ h.p., 2 speeds, kick start, excellent order **£38**

HUMBER 1912 2¼ h.p., twin, good tyres **£27**

V.S. 1910 5 h.p., 2 speeds, suit sidecar if necessary, magneto **£24**

N.S.U. 1908 3 h.p., 2 speeds, spring forks, very good solo mount **£15**

TRIUMPH 1911 3½ h.p., clutch model, Bosch mag... **£33**

TRIUMPH 1909 3½ h.p., Roc 2 speeds, suit sidecar admirably **£26**

ENFIELD 1910 2¼ h.p. model, twin, magneto **£20**

DOUGLAS 1910 2¾ h.p., twin, been overhauled .. **£25**

CHATER-J.A.P. 3½ h.p. magneto, spring forks **£15**

DOUGLAS 2¾ h.p., Bosch, good order **£18**

BROWN 1908 3½ h.p., magneto, spring forks, stand **£18**

PHŒNIX 2¾ h.p., 2 speeds, Saxone forks, M.O.V. **£11**

Easy Payments Accepted. Cash offers considered.

Full List of these and other machines on request.

MAUDES' MOTOR MART

136, Gt. Portland St., London, W.

'Phone: 552 Mayfair.

'Grams: Abdicate, Wesdo, London.

MOTOR CYCLES FOR SALE.

B.S.A.

B.S.A., 1912, 3½h.p., free engine model, new belt, both tyres in good condition, new Peter-Union band in the back wheel, perfect running order; £35.—O. H. Pelham, High St., Uckfield. [4622

B.S.A., 3½h.p., free engine, 1912 model, purchased brand new June, 1913, only ridden 500 miles, in absolutely new condition throughout, horn, tools, etc.; any examination; £34, or close offer.—Openshaw, Brooklande, Bury. [X8716

NEW 1913 B.S.A., 2-speed, £55; Chater-Jap, 8h.p., 1912, 2-speed, and sidecar, £37; 1910 Lincoln-Elk, 3½h.p., £12/10; Enfield 1910 2¼h.p. twin, engine and mag. overhauled by makers, £15.—Trinder and Osborne, Broad St., Banbury. [X9222

Centaur.

1912 2½h.p. Centaur Lightweight, a real topper, brand new; sacrifice £34.—Cordingley, Haslingden. Tel.: 2Y. [4570

Chater-Lea.

1910 Chater-Lea-Jap, 4h.p., F.E., with sidecar, guaranteed perfect; £25.—Wilson, Church Rd., Formby. [X9236

CHATER-LEA No. 7, 1912, Cancelet de Luxe, sidecar lamp, speedometer; any trial; £58.—Phillips, 8, Grand Parade, Harringay. [4723

CHATER-LEA, 3½h.p. W. and P., 2 speeds, fast and reliable; £18; appointment only.—Mr. Burnard, 18a, Horace Rd., Forest Gate, E. [4711

CHATER-LEA-M.M.C., 3½h.p., U.H. mag., variable pulley, spring forks, B. and B., perfect condition; £12.—E.T., 4, Prince of Wales Av., Reading. [X9382

Clarendon.

3h.p. Clarendon, h.b.c., splendid working order; accept £10, or £4 and good cycle or gramophone.—M. Maack, 35, Porter St., Hull. [4708

Clyno.

CLYNO, 1912, good order, accessories, spare tyre; £40.—Smart, Shelley, Huddersfield. [X9443

CLYNO, 5-6h.p., 1914 model, complete with sidecar; £85; delivery from stock.—Cordingley, Haslingden. Tel.: 2Y. [X7865

6h.p. 1913 Clyno Combination, 3-speed, chain drive, excellent condition; £68.—155, Goldhawk Rd., Shepherd's Bush. [4748

5-6h.p. 1912 Clyno and Clyno sidecar, just overhauled by makers, speedometer, lamps, good tyres; accept £58.—Walton, Main St., Shildon. [X9192

CLYNO, 1913½, 6h.p., 3-speed, kick starter, clutch, not run 500 miles, splendid sidecar; £68, bargain.—Clyno, First Floor, 52, Grays Inn Rd., London. [4750

CLYNO, 5-6h.p., 2-speed gear, just like new, with Mills-Fulford spring wheel sidecar to match; would exchange lower power and cash; call and see it.—125, London Rd., Manchester. [0399

CLYNO, 1912, and Turner coachbuilt sidecar, gears and engine just overhauled by makers; all accessories; any trial; £47.—Apply, Colley, chemist, 153, Sherlock St., Birmingham. [X9302

CLYNO, 1912. No. 4 model Gloria sidecar, cost £21, with lamp, luggage and petrol tin carriers, Lucas lamp and horn, Jones speedometer, back-rest, spare tube, tyre, and spares; £45.—Simonds, H.M.S. Bonaventure, Harwich, or London district after 16th December. [4759

CLYNO Combination. 6h.p., 1913¾, grey, new August, costing £114, uncrotched, 3-speed, kick starting, largest F.R.S., 5 gn. speedometer, guinea horn, guinea watch, mirror, whistle, 30/- bucket seat, new tyres; compulsory sale, £70; spares.—Fraser, 13, Princes Sq., Kennington, London. [4744

Connaught

3h.p. Connaught, 2-stroke, perfect condition, tyres new; £25, or nearest offer.—Grosvenor House, Nelson St., Ryde, I.O.W. [X9465

De Dion.

£5.—2¾h.p. De Dion, sound, new tyres, belt, running order.—W. O'Dell, Whitehill, Bordon. [4718

2¾h.p. De Dion, B. and B., new Bosch, horn, lamp, etc., engine overhauled, perfect condition; £15.—Startup, 104, Chingford Rd., Walthamstow. [4715

GENUINE De Dion Lightweight, 2h.p., overhauled thoroughly De Dion Works, nearly new magneto and B. and B. carburetter, not run 500 miles since overhaul, guaranteed in perfect working order, new rubber-studded tyre back, front good, nearly new belt, top bar 27ins. from ground; nearest offer to £11 secures.—Browne, Ashley, Market Drayton, Salop. [X9383

Dot.

AN Opportunity not to be missed.—6h.p. Dot-Jap, 1912, variable gear, free engine, sidecar, all accessories; any trial; guaranteed perfect; £40, lowest.—Carter, Summerfield Rd., Chesterfield. [X9363

Douglas.

DOUGLAS.—Don't get left, order now from Gourlay, Fallowfield, Manchester. [X7505

1911 Douglas, first-class order throughout; £19/10.—Dias, 53, Lowther St., Carlisle. [X5407

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Telephones: 7712 Central, 1297 North.

OLD JEWRY,

CHEAPSIDE, LONDON, E.C.,

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26 × 2¼ Red Guaranteed Inner Tubes	4/9
SIDECARS—Wicker, Michelin tyre	£3 10
Armstrong 3-speed Hubs, new and complete .	£5 5
Belt Rim Brake Blocks	-/8
Handle-bars, ...	4/6
Roughrider Rubber Handles ..... pair	2/6
A.K. KNEE GRIPS ..... pair	4/9
INDIARUBBER MATTING ..... lb.	1/6
Rubber Belt Grip for Rubber Belts ... tin	-/10½
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RED GAS REAR LAMPS	6/6
SPECIAL REAR BRACKETS	1/6
BELT AND TUBE CASE (leather)	5/3
Oilskin Jackets, **7/6** Leggings	2/6
Lycett ⅞in. Lyso Belting ..... foot	-/11
IMP SOLDERING LAMPS	4/6
Sidecar Lamp-brackets	1/6
Reflex Rear Lights .... -/6, 1/-, 1/3, 1/6, 1/7,	2/-
Mirrors, Handle-bar **1/3, 1/9, 2/3, 3/-, 3/11,**	4/11
Suits, Waterproof, double-breasted, high storm collars, dust and windproof, fawn, double texture	16/6
Leggings only	5/6
Seatless Trousers, superior quality	9/6
Mudguards—3½in. ..... pair	2/9
Detachable Side Wings ... pair	2/6
for Sidecar, 3-stay model . each	4/6
Magneto Covers, Waterproof ..... each	1/4½
Piston Rings, to fit any engine ..... each	-/9
Seat-pillars, Swan-neck, extra strong .. each	2/11
Spring Back Stands ..... pair	6/11
Motor Cyclist's Tool-rolls ..... each	1/3
Rom Covers, 26 × 2¼	52/6
Rom Covers, 26 × 2½	55/-
PALMER CORD STUDDED COVERS, 26 × 2¼	38/6
PEDLEY Covers, 26 × 2¼	45/-

UP TO 12/- ALLOWED FOR OLD COVERS.

Red Inner Tubes, guaranteed—

26 × 2in. ..	Plain	**6/3** ..	Butted	7/3
26 × 2¼in. ..	„	**6/9** ..	„	8/3
26 × 2½in. ..	„	**7/9** ..	„	9/-

Patchquick Outfits ..... -/10½ and 2/2

Immediate delivery of most makes of 1914 Motor Cycles.

Exchanges Entertained.

Exhaust Whistles—Single, brass ..... each		1/6
Garner's		10/6
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Coils, single, plain, guaranteed		8/6
Accumulators—12 amp., guaranteed.		5/11
15 amp., „		6/9
20 amp., „		6/11
25 amp., „		7/6
30 amp., „		10/-
40 amp., „		11/-
60 amp., „		14/6
Whittle Belting, ⅞in. ..... foot		3/1
PEDLEY Belting, ⅞in. ..... foot		1/10
Belt Fasteners, Simplex Hook ..... each		-/4½
CARBURETTERS—SENSPRAY		42/-
„ **B.S.A.**		45/-
„ **BROWN & BARLOW** ..		30/-
„ **AMAC**		30/-

UP TO 20/- ALLOWED FOR OLD CARBURETTER.

Silent Silencers ..... each		2/6
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HUTCHINSON STUDDED COVERS, soiled but guaranteed.		
Tourist Trophy, 26 × 2¼		21/6
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Passenger, 26 × 2¼		27/9
„ 26 × 2½		28/9

Michelin and all makes of Tyres in stock. Send for Lists. Good allowances for old covers.

TERMS: Nett cash. Established 1876.

1914 Roc Gear

FIRST IN 1904
FIRST IN 1914

1914 Roc hub gears (live axle patents) for (1) Lightweight Machines
(2) Single-cylinder
(3) Twin and Sidecar work

Pedal control, epicyclic foolproof gear with patent combined hand and kick starter.

1914 Roc 4-speed bracket gear (patent gate change) for belt and chain and chain drive.

ROC gears are designed for ALL makes. Insist on **"ROC"** Gear in your 1914 specification.

The new **Roc** big-clutch type hub gear, with double fulcrum adjustment, new fork ends, dustproof Hoffmann bearings, and 1914 improvements, is the LAST WORD in gears for SIDECAR work.

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HAY MILLS,

BIRMINGHAM.

SPECIAL NOTICE:
Motor Cycles built to order with Roc Gear, singly or in quantities, to suit users' own requirements, or the frame and gear fittings furnished to local assemblers.

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1914 Fafnir, T.T., 4h.p., horn, new P. and H. lamp, spare belt, new August, adjustable pulley, excellent condition, very fast; £33.—Hanne, King's Rd., Wimbledon. [4713

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5-6h.p. 4-cyl. F.N., in good condition, £15; also sidecar, £4. — W. King, Evelyn Villa, Lymington, Hants. [4705

1911 F.N., 4-cyl., recently overhauled, good value; £25; new driving tyre.—Full particulars, Gladish, 60, Conduit St., W. [4692

F.N., 1911, 4-cyl., 2-speed, free engine, 12 gn. sidecar, just overhauled; £29, near lot immediate sale.—18, Woodbine Crescent, Stockport. [X9376

FREE Engine 2-speed F.N., 5h.p., fine running order; £20, or offer.—S.M., Box No. L3,437, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4624

F.N., 4-cyl., 1910, 2-speed, central induction, Bosch, good Rom tyres; lowest £15/10; sound condition.—Write, Knott, Guys Hospital, London. [4792

F.N., 1913, 4-cyl., 2-speed, plate clutch, kick starter, with cane sidecar; £54.10, or separate. — Macdonald, 1, King Edward Rd., Northampton. [X9305

F.N., 4-cyl., 5-6h.p., 1911 model, new Senspray, new tyre, splendid condition; cost nearly £60, accept £25 for quick sale.—Watson's Motor Depot, Ripley, Derby. [X9330

1914 F.N. 5-6h.p. Motor Bicycle, not run 500 miles, special saddle, speedometer, luggage valise, mirror, horn, and all accessories and spares, guaranteed as new; £49.—Mr. H., 21, North Audley St., Grosvenor Sq., W. [4605

F.N., 1912, 5h.p., Bosch, B. and B., h.b.c., F.N tyres, 2 toolbags, etc., splendid condition, plating and enamel unscratched, take two up anything, very flexible, ride reasonable distance to genuine buyer; £27/10.—Bond, Queen St., Gravesend. [4177

4-5h.p. 4-cyl. F.N., Bosch mag., 14in. drop frame, 20 × 6in. brass-edged rubber covered footboards, new Continental tyre, tubular carrier, pannier toolbags, watch, tools, spare valves, etc., plating, enamel, gears, etc., exceptional condition; £10.—J. Lidderdale, Baswich, Stafford. [X9336

Hobart.

HOBART, 1913, 2¾h.p., lovely condition, good hill-climber; £27/10.—Collier, 56, Somerset St., Abertillery. [X9454

HOBART, 1913, 2¾h.p., very fast; offers. — The Stamford Hill Motor Co., 128, High Rd., S. Tottenham. 'Phone: 1982 Tottenham. [X9500

HOBART, Precision, 2¾h.p., 3-speed, free engine, 1913, never been on the road, shop-soiled only; list price £44/12, £32, or close offer.—Wells, 6, Elfrida Parade, Woodford. [4724

Humber.

HUMBER, 2¾h.p., T.T., late 1913; £33.—Gardner, jun., 5, Albany Rd., Coventry. [X9506

HUMBER, 3½h.p., 2 speeds, F.E., complete with sidecar, fine order; £22/10.—Cordingley, Haslingden. Tel.: 2Y. [X7863

HUMBER, 1912, 3½h.p., 2 speeds, free engine, Dunlop tyres, splendid condition; £35; seen any time —72, Perry Vale, Forest Hill. [X9193

HUMBER, 2¾h.p., mag., low, footboards, B.B. carburetter, reliable, complete; £9, or parts.—11, Wootton Gardens, Bournemouth. [X9458

HUMBER, 3½h.p., 1912, 2 speeds, free engine, excellent condition, not done 300 miles; £36.—Mason, Commerce Av., Letchworth. [4683

HUMBER, 1911, 3½h.p., 2-speed, and sidecar; £29.—The Stamford Hill Motor Co., 128, High Rd., S. Tottenham. 'Phone: 1982 Tottenham. [X9494

1912 3½h.p. 2-speed Humber, good condition; offers.—The Stamford Hill Motor Co., 128, High Rd., S. Tottenham. 'Phone: 1982 Tottenham. [X9501

HUMBER, 3½h.p., 2 speeds, excellent condition, tyres as new, accessories, £26; good sidecar, £2.—E. Norsworthy, Montrose, Warlingham, Surrey. [X9033

HUMBER, 1912, 3½h.p., 2-speed, free engine, as new, good sidecar machine; trial; £42, or near offer.—Bates, 35, Church St., Twickenham. [4627

1912 2h.p. Humber, in first-class order, lately rebushed, and new back tyre fitted; sell £18.—Thomson, bottlers, Fauldhouse, Linlithgowshire. [X8720

3½h.p. 2-speed Humber, 1911, Binks carburetter, lamp, horn, spares, splendid condition; £26.—Whittaker, 363, Shaw Rd., Royton, Lancashire. [X9285

1911 3½h.p. Humber, 2-speed, handle starter, as new, with horn and tools, 12-gn. coachbuilt sidecar, spare cover and belt; £35.—10, Cannon St., Nottingham. [X9029

HUMBER, 2¾h.p., clutch, twin, September, 1912; buying cycle car; any trial; lamp; £26.—Box L3,457, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4814

3½h.p. Humber, 1912, 2 speeds, handle starting, sidecar, new spare tube, all accessories, excellent condition; £40, or nearest offer.—Stainbank, 29, Ferrers Rd., Oswestry. [X9374

HUMBER, 1912, 3½h.p., 2-speed, free engine, lamp, generator, horn, mirror, speedometer, Montgomery sidecar, luggage carrier, spares, has been carefully used by experienced mechanic, enamel and plate perfect; £45.—Phillips, 123, Kidmore Rd., Caversham, Reading. [4641

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PERRY Light Car	140	guineas.
HUMBERETTE, W.C., complete	135	"
CALTHORPE Minor "	160	"
G.W.K. Light Car "	£150	0
MORGAN Runabout (Sporting)	£91	0
BRADBURY, 6 h.p., 3 speeds	£75	0
BRADBURY, Horizontal Twin, 3 speeds	£65	0
DOUGLAS, 2¾ h.p., 2-speed	£48	0
REX Sidette, belt drive	£75	0
REX Sidette, chain drive, 3 speeds	£85	0
REX-J.A.P., 8 h.p., 3 speeds, chain drive	£77	10
REX-J.A.P., 6 h.p., ditto, ditto	£75	12
SUNBEAM, 8 h.p., 3 speeds	£84	0
WILLIAMSON, 8 h.p., and Sidecar	£97	10
LEVIS, 2-stroke, 2¼ h.p.	£33	10

SECOND-HAND MACHINES.

BRADBURY, 1913, 3½ h.p.	£32	10
ENFIELD, 1912-13, 6 h.p., Sidecar combination, only done 800, almost as new	£59	10
REX, 1912, 6 h.p., 2-speed, twin, NEW	£53	0
JAMES, 1912, 3½ h.p., 2-speed	£39	10
B.S.A., 1912, 3½ h.p., 2-speed	£42	10
HUMBER Lightweight, little used	£25	0
1911 2¼ h.p. 3-speed **NEW HUDSON**	£31	10
REX, 1913, 6 h.p., 2-speed, done 200 miles	£43	10
REX, 5 h.p., 1909, 2-speed, de luxe	£26	10
SINGER, 1911, magneto, lightweight	£19	19
REX, 1913, 4 h.p., 2-speed, de luxe, nearly new	£39	10
MOTOSACOCHE, Lightweight	£12	10
1911 Twin **REX** Sidette, chain drive	£45	0
1912 Twin **REX** Sidette, grand condition	£46	10
N.S.U., 5½ h.p., 2-speed, and Sidecar	£31	0
2¾ h.p. 3-speed **CENTAUR**, as new	£35	10
5½ h.p. Magneto Twin **REX**	£17	10
N.S.U., 1911, 3 h.p., 2-speed, as new	£29	10
N.S.U., 5½ h.p., twin	£24	10
REX, 3½ h.p., spring forks	£12	10
F.N., Lightweight, battery ignition	£9	10
REX, 3½ h.p., magneto, 1910	£24	10
REX, 3½ h.p., magneto, 1909	£22	10
REX, 1912, 4 h.p., demonstration machine	£31	10
3½ h.p. Light Low **REX**, specially good	£10	10
MOTOSACOCHE, 1911, M.O.V.	£16	10
REX, 5½ h.p., twin, spring forks	£14	10
J.A.P., 6 h.p., M.O.V., free engine	£29	10
MOTO-REVE, twin, lightweight, runs well	£13	10
BRADBURY, 1912, 3-speed Stormey	£39	10
REX, 3½ h.p., magneto, spring forks, 1908	£19	10
3½ h.p. 1912 **BRADBURY**, chain drive	£39	10
3½ h.p. Magneto **SIMMS**, as new	£22	10
1909-10 2-sp. Twin **REX** and Mills-Fulford coach-built Sidecar. Specially good	£33	10
6 h.p. **BAT-J.A.P.**, spring forks	£29	10
REX, 1913 twin, 2-speed, NEW	£56	10

Cash offers considered. Exchanges quoted.
Trade enquiries welcomed.

PERFECTION SIDECARS.
£5 5s. to £10 10s. List on application.
Best value obtainable. Trade supplied.

EASY PAYMENTS.

FROM **£3** deposit and **5/-** weekly.

MOTOSACOCHE	£12 10	**HUMBER**	£8 10
3½ **REX**	£10 10	1¾ **F.N.**	£9 10
3½ **REX**	£12 10	5½ Twin **REX**	£15 10
2¾ **MINERVA**	£8 10	**MOTO-REVE**	£13 10
3½ **HUMBER**, F.E.	£10 10	**JAMES**, 3½ 1910	£15 10

New 1913 Machines to clear.

10% CASH DISCOUNTS. LIBERAL EXCHANGE

1913 3½ h.p. **REX**, Tourist, free engine	£45	0
1913 4 h.p. **REX** de Luxe, chain drive	£61	5
1913 6 h.p. **REX** de Luxe, chain drive	£67	15
1913 6 h.p. **REX** Sidette, coach-built	£77	2

Special Quotations to the Trade.

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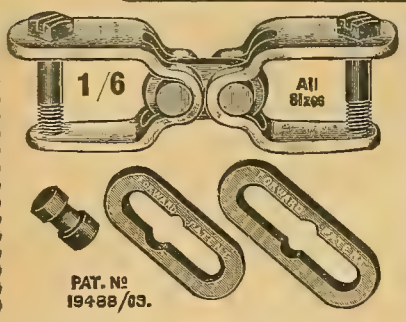

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Class D, with Sidecar, flying 5 & 10 miles.

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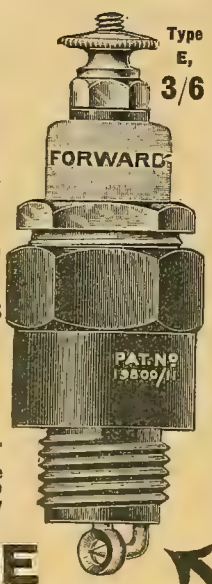

Read this **unsolicited** letter:

Dec. 1st, 1913.

Dear Sirs,

I have been using one of your FORWARD EJECTOR plugs in my 3½ h.p. RUDGE motor cycle for the past five months. During this time I have done some three thousand miles all over England, from Anglesey to the south of Kent, and have never in that distance experienced a moment's trouble from the plug. I habitually travel fast, and over-lubricate while doing so, but with clouds of blue smoke emerging from the silencer there has never been a suspicion of a "soot up." Once or twice I have removed the plug to examine the points, and have found them in each case dry and absolutely free from carbon. The Ejector plug has solved the "soot up" trouble. I am riding a 5-6 h.p. Rudge in the Sutton Coldfield Club's "Sutton Cup Trial" next Saturday. This machine is fitted with a plug of well-known make, which, incidentally, has already been giving trouble, and I do not feel inclined to run the risk of spoiling a non-stop run by a sooted plug. Please send me an "Ejector," for it will free me from all anxiety as to the exact amount of oil which will be enough for the engine without sooting the plug.

Yours faithfully,
GEOFFREY S. DAVISON.

FORWARD Plugs made in many patterns.

Send for 1914 Accessory List.

FORWARD MOTOR CO.,
Summer Row, BIRMINGHAM.

MOTOR CYCLES FOR SALE.

Humber.

1912½ Humber 2¾h.p. Twin, F.E., 3-speed gear, excellent condition, lamp, speedometer, all accessories; immediate sale £30, or nearest offer.—14, Manor Rd., Coventry. [X9284

1913 3½h.p. 3-speed Humber and Sidecar, demonstration model, fine machine; offers.—The Stamford Hill Motor Co., 128, High Rd., S. Tottenham. 'Phone: 1982 Tottenham. [X9499

1912½ 3½h.p. 2-speed F.E. Humber, Cowey speedometer, Lucas lamp, horn, belt case, etc., splendid condition; inspection invited; £32.—Morgan, 148, Loughborough Park, Brixton. [4687

1912½ 3½h.p. Humber, 2-speed, free engine, grand sidecar machine, Lucas headlight, whole lot equal to new; £31; first-rate bargain.—The Colmore Depot, 49, John Bright St., Birmingham. [X9178

Indian.

£23.—Indian, 5h.p., 1910, splendid condition; quick sale.—23a, London Rd., Leicester. [X9197

INDIAN, 1911, 7-9h.p., mag., perfect order; £29/15; exchange.—68, Elmsleigh Rd., Wandsworth. [X9463

INDIAN, 1913 (April), 7h.p., 2-speed, F.E., complete Lucas set, as new; £55.—Willways, St. Augustine's, Bristol. [X9440

INDIAN, 1911, 7h.p., blue, free engine, with horn, splendid order; £30.—Willway's, St. Augustine's, Bristol. [X9441

INDIAN, 7-9h.p., 1913½, free engine model, low torpedo sidecar, combination splendid; £55 cash.—R. F. Fuggle, Edgware. [4662

INDIAN, 7h.p., new May, 1913, practically as new, with 30/- lamp, complete; £52.—Bennett, 34, Dicconson St., Wigan. [X9425

INDIAN, 1913, 7h.p., 2 speeds, spring frame, just overhauled, excellent condition; £55.—P. J. Evans, John Bright St., Birmingham. [X9408

INDIAN, 1913, 7h.p., 2-speed, Mills-Fulford 20 gn. sidecar, Lucas lamp, in perfect condition; £75.—Simpson, Thorne, Doncaster. [X9326

INDIANS.—Earliest deliveries of 1914 models; easiest of easy payment terms or exchanges.—Maudes, 136, Great Portland St., London, W. [4840

INDIAN, 5-6h.p., 1911, free engine, recently overhauled, Millford 1912 sidecar, Autoclipse lamp, horn, tools, accessories; £33.—R. Garry, Great Mead, Wokingham. [4604

INDIAN, 7h.p., 1913, new June, sidecar to match, splendid accessories; cost £100, take £75; like new; trial.—Wild, Killarney, Spring Grove Rd., Richmond, Surrey. [4615

INDIAN, 1913, 2-speed, P.M.C. special sidecar, all red, delivered August, unpunctured, including all spares and accessories, perfect condition, done 1,400 miles; £70.—Bircumshaw, Skegness. [X9231

INDIANS.—Buy one, and take no man's dust; luxury and speed; place your order now; second-hand machines in stock.—Wm. Turner and Co., Indian experts, 185, Markhouse Rd., Walthamstow. [X9198

INDIAN, 7h.p., 1913, new April, Lucas horn and head lamp, speedometer, tools, Mills-Fulford coachbuilt sidecar, back-rest saddle, 2 speeds, good as new; £69; any trial.—Rev. Nicholls, c/o 133, Devonshire St., Sheffield. [X9142

INDIAN, 1913, 7h.p., 2-speed, F.E., black, plated Lucas lamp and generator and horn, speedometer, spares, and spring wheel sidecar, cane body, in perfect condition; £70; exchanges considered.—Quorn Garage, Leicester. [4833

7h.p. 1913 Indian and P.M.C. red sidecar, Miller, Stewart, horn, accessories, delivered September, mileage not exceeding 500, everything as new; cost over £90, sell 75 gns.; offer; buying electric starter.—Das, University, Edgbaston, Birmingham. [X9417

Ivy-Precision.

IVY-PRECISION.—Earliest delivery.—Northern Depot, Ltd., Liverpool. [X9333

IVY-PRECISION, 3½h.p., 1912, lamp set, perfect; £25.—Peacock, 274, High Rd., Balham. [4733

J.A.P.

J.A.P., 6h.p. Twin, Bosch, Chater No. 9, new belt, good tyres, sidecar, all good condition; £26/10.—67, Newington Green Rd., N. [4806

4h.p. J.A.P. built to order from £30; cylinders rebored, new pistons, engines rebushed.—Hopley, Upper Highgate St., Birmingham. [X9389

1913 Bat, 6h.p. J.A.P. engine, 3-speed, foot starter, Kempshall tyres, Lucas lamp and horn, perfect; any trial; £52/10.—Thompson's, The Moor, Sheffield. [X9300

TWIN J.A.P., latest type engine, Sturmey 3-speed, complete with underslung sidecar, canoe; lot cost £87/10 in Sept. last, what offers? cash wanted.—66, Norbiton Av., Norbiton, Surrey. [4747

4h.p. J.A.P., multi-speed gear, free engine, semi-automatic drip lubrication, Millford sidecar, handsome combination, in perfect condition; £39, no offers.—30, Ravenswood Rd., Balham. [4694

James.

WE can give immediate delivery of the famous James 3½h.p. twin, etc.; you cannot get better terms and delivery, try us.—Townley's Garage, Lancaster. [X9204

—is always enjoyed by rider and passenger when the machine is fitted with the world-famous "DRUID"

—The "DRUID," by reason of its SCIENTIFIC DESIGN and PERFECT SPRINGING PRINCIPLE, completely absorbs vibration—every obstacle is met with a velvety touch—no shocks, no jars, no bouncing—the machine runs with a "silky-smoothness" of motion, always.

—Further, the "DRUID" ensures perfectly true steering—admits of no side-play whatever—decreases wear on tyres—and increases the life of the machine.

—The "DRUID" is the *only* Spring Fork that makes possible these *ideal* riding conditions—hence its adoption on the leading machines of the day—and its world-wide popularity.

—Be sure and see that the mount you buy is "DRUID-equipped"—and ensure *perfect comfort awheel.*

—Ask for "Explanatory Booklet."

A. DREW & CO.,
Leopold Street,
BIRMINGHAM.

THE DRUID

Fitted on all the leading machines at OLYMPIA.

R.H.S.

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND SIXTIETH CONSECUTIVE ISSUE.

Subscription Rates: Home 6s. 6d.; Canada, 8s. 8d.; Foreign, 17s. 4d. per annum.

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Cycle Cars in Competition.

THE rather anomalous position in which cycle cars find themselves gives rise to some very interesting queries as to their future in competitions. Many of the best known machines which started life as cycle cars have now cast off their early cloak of disguise and blossomed forth into light cars proper. At the recent Olympia Show there were cases of vehicles whose birth was heralded with an acclamation as conferring distinction on the already existing band of cycle cars, being actually cast forth from the Show because in their short career they had grown a little too heavy, and were thus over the prescribed weight. And it must be said that in this class were to be found some of the most attractive little machines made, call them cycle cars, light cars, voiturettes, or what you will.

Now, what part have these heavyweights to take in competitions and races in 1914? If they can train down to the defined weight will they be allowed to start, or will they be officially ruled out by the authorities as out of place, even as they were at Olympia? In other words, are these Olympia expulsés to be classed as light cars when in standard touring uniform, and cycle cars when cut down in weight to conform to the definition? The point is that practically all the light four-cylinder cars which are at the moment enjoying a well deserved popularity exceed the 6 cwt. limit by a small amount only, and if put into racing trim could easily be brought within the cycle car definition.

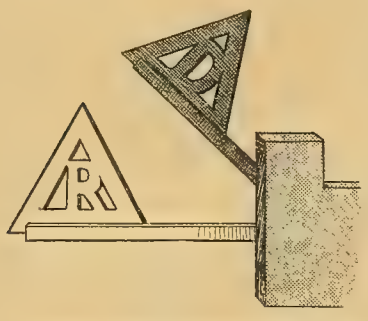
Gilbertian Situation Possible.

IF this procedure is permissible, surely the true cycle car will have no chance at all in the cycle car race arranged for their particular benefit, and the event would be more correctly termed a "light car race." If light cars in racing mufti are to be regarded as cycle cars all sorts of complications will ensue. We may find the curious anomaly at the next Olympia Show of the winner of the Cycle Car T.T. Race not allowed in the Show! It sounds ridiculous, but it is a position that may easily arise under conditions such as at present obtain, and if these little cars may be stripped down for racing what chance has the real simple cycle car fitted with an air-cooled engine, and perhaps belt drive, and only two speeds, got against these miniature racers? In answer to this question it is only necessary to remind readers that a stripped light car type of machine has covered over seventy-two miles in one hour at Brooklands this year, and, as it appeared on the track, it was under the cycle car weight limit, while the highest speed obtainable from the lighter and simpler type machine is about sixty miles an hour. Thus it behoves one to ask whether the A.C.U. is going to allow any vehicle to compete in the Cycle Car T.T. Race which can be squeezed inside the weight limit by extensive drilling and general lightening of parts and afterwards to debar the same machine from competing in reliability trials in touring trim which would bring it over weight? And if the A.C.U. allow such vehicles in the T.T. Race, will it allow the winner, if provided by this type, to be exhibited in touring form at Olympia? For, after all, the T.T. Race, as its name implies, is to encourage the touring type of machine. Of course, the A.C.U. conditions governing this race are not yet announced, but we sincerely hope that they will not permit the running of mere chassis, but will insist upon some semblance to touring conditions in the equipment of the competing machines. The whole question of the future of the cycle car proper depends on the way in which it is treated at the present time by the authorities responsible for the sporting side of the movement. As we have several times pointed out, if it is given a fair field and is not allowed to be overshadowed by its bigger brethren, the true cycle car will survive, but if unfair competition is allowed it means practical extinction.

The simple type of machine has had quite enough to struggle against already without adding to its burdens. Too much has been expected of it in the past, and it ought to be given every chance to show up well in the future.

A DISTRESS SIGNAL.

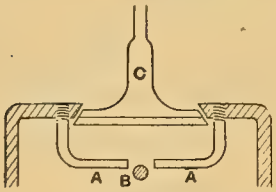
MR. A. E. DOVER, of Messrs. Dover, Ltd., Northampton and Coventry, recently drew our attention to an ingenious device for showing when a motorist does or does not require assistance on the road. Readers know that they very often stop their sidecars or cycle cars on the roadside for luncheon and other purposes. Passing motorists seeing a vehicle stopped, usually slow down or stop and enquire if assistance is required, only to be met with thanks and a wave of the hand indicating that they should drive on. The Dover distress signal is a small metal sign, consisting of two diamonds with the letters D and R in the centre of each. These signs are attached to the inside of the wood frame of the screen, and can be swung outwards as illustrated. The letter R in the centre of the white diamond signifies "resting," while D in the centre of a red diamond denotes "disabled." This device should prevent any misunderstanding in future, and its simplicity will appeal to all who wish to save their fellows inconvenience or delay. Members of the R.A.C. will be able to obtain the device with the R.A.C. badge at the top of the diamond, and members of the A.A. and M.U. will also be able to obtain their insignia in letters denoting the body to which they belong.

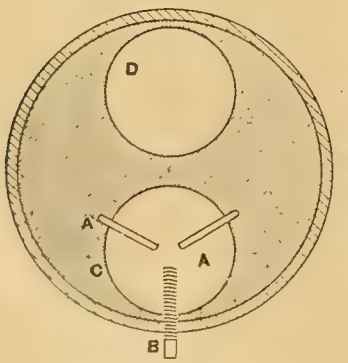


A "distress" signal introduced by Dover, Ltd.

HOW TO PREVENT VALVE HEADS DOING DAMAGE.

AS almost every motor cyclist knows, the maximum efficiency is obtained with engines of the overhead valve type. Such engines are commonly used on racing machines, but the reason they are not popular for touring is on account of the liability of a broken valve head falling into the cylinder and puncturing the piston.





Recently we were shown a method of preventing broken exhaust valves from dropping into the cylinder, which consists of nothing more or less than $\frac{5}{16}$in. steel rods (marked A in sketch), bent to shape and screwed into the cylinder top. B is a stud screwed through the cylinder wall, which projects about 1¼in. inside. C is the exhaust valve and D the inlet. To remove a valve, B is unscrewed and the two angle pieces are unscrewed a quarter turn. One-sixteenth of an inch is allowed to clear the valve head at the sides, and about one-eighth clearance is left for the valve in its open position.

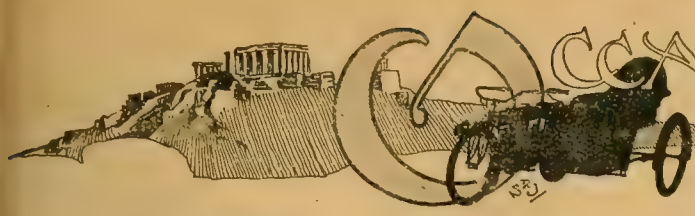
In examining the idea, any experienced motorist might be pardoned for suggesting that the projections would cause overheating and pre-ignition, but such is not the case.

The Device in Use.

Mr. J. H. Wilkinson, of 40, Jubilee Road, Doncaster, who has used the fittings on his T.T. Matchless-Jap for some hundreds of miles, originally experienced more than one valve breakage which always resulted in a broken piston, till at length he "doctored" his engine in the manner described and has had no trouble since. He assures us that no ill effects have resulted from the additions and that the engine runs perfectly at all speeds. We may add that having personally tried the machine on the road, it would be impossible to detect the presence of any such device. Incidentally, one of the pistons Mr. Wilkinson is at present using was one which had a 1½in. hole knocked through the top. Noticing an advertisement in *The Motor Cycle* of Messrs. Binney and Sons, Kirkstall Road, Leeds, Mr. Wilkinson sent the piston to be oxy-acetylene welded, and it has given every satisfaction since it has been submitted to this process.

A NOVEL TYPE OF PASSENGER MOUNT.

An American couple, Mr. and Mrs. Strogonoff, who use a twin cylinder Emblem bicycle with seats arranged side by side. At the back there are two smaller seats for children.



OCCASIONAL COMMENTS

BY "IXION"

Handy Lubricators on Cycle Cars.

Much experience of a light car with dashboard drip oilers mounted in the cavernous depths of a mighty scuttle inspired me to appreciate the Depford foot oiler. On a car there is just room for a corpulent driver to slide round the edge of his steering wheel and reach the tip of his finger deep down under the scuttle to adjust a drip or operate a hand pump. But these gymnastics are not possible in the narrow cross width of a cycle car, and a foot oiler is urgently desirable unless the "instruments" are mounted on a little wooden drop curtain, hanging down just far enough inside the scuttle to protect them from rain; an inch or two will suffice, as rain is very seldom blown in under the scuttle from the rear.

The Non-skid Sidecar.

A correspondent with trade connections offers me his conclusions on the skidding of sidecars with the authority that a sidecar mileage topping the 50,000 mark confers. He thinks that skidding can be practically eliminated by the following precautions: The use of a light car tyre (studded) pumped board hard on the driving wheel; the use of a good studded tyre on the sidecar wheel; fitting the sidecar dead in line with the bicycle plumb upright and the sidecar wheel two inches in front of the bicycle wheel; tackling grease firmly and steadily at about twenty miles an hour on top gear (steering is never firm with a nervous driver who has dropped on to a low gear); and using a stiff, broad saddle which prevents the rider swaying his weight about. The last recommendation appears a trifle meticulous where a sidecar is concerned; but I have always believed that a saddle capable of much side sway and mounted too far back on the frame is a great provocative of sideslips on a two-wheeler. For a greasy ride on a bicycle, give me a stiff saddle mounted well forward, and a board hard rear tyre—then I'm happy. There are very few—uncommonly few—saddles which do not rock sideways.)

Winter Gears.

Talking of sideslips, I am killing two birds with one stone this winter. There is nothing I detest more than belt trouble on a cold wet day (stay! I forgot punctures), and I conceived the brilliant idea of fitting out my roadster with a real Brooklands pulley, so that my top gear ratio is about 3½ to 1, and driving normally on the second gear of my Sturmey hub. Incidentally, this tip will lead to a magnificent test of the hub's durability, for an indirect gear is in operation most frequently. But I started to describe my *modus operandi* because a recent experience showed me the value of the old tip about using low gears in winter. On my ride, just as dusk came on, and I was feeling very cold and miserable, I struck some very greasy roads, and my misery affected my nerves, so that I funked the slime as if I had been a novice. I had been purring along on the 3½ ratio, and changed down to the second (say about 5½) when I hit the grease, and on one particular virulent patch I did some pretty figure skating, though I neither turned completely round nor yet took a toss. Two or three more violent back wheel wobbles actually disposed me to dismount, when I had to slide through very narrow openings between trams and carts or stop; and suddenly it dawned on me that I was practically using a summer gear, and I dropped gleefully to the bottom ratio of 8½. With the engine turning over thus merrily, I negotiated the remainder of the greasy wood without wobble inside or out. 5½ to 1 is a fine gear for winter work, and when a three-speed hub enables you to obtain it in conjunction with a six-inch engine pulley, it is a much finer gear than when you are taking it direct off a three inch pulley; but, of course, my procedure demands a certain confidence in the innards of your hub.

Single-cylinder Cycle Cars.

I heard a number of quondam Rover and De Dion enthusiasts lamenting the scarcity of single-cylinder cycle cars at Olympia; their experience with "one lung" cars had led them to prize the simplicity and well maintained power of a type of engine which is now practically extinct, and they regarded the numerous valves, gadgets, and twiddly bits of the *monobloc* four-cylinder engines with a certain apprehension. The single-cylinder engine is dead, so far as cars are concerned, because of its noise and vibration. It certainly developed its power with the minimum of friction, and it was so simple that even a duffer could keep it in decent order; but it was doomed as soon as it had to compete with the even hum and smooth torque of a bijou four-cylinder. Those surviving Rover and De Dion enthusiasts, who regret its demise, should consider such vehicles as the £100 A.C. for the moment, and look forward with hope to the arrival of the twin-cylinder two-stroke cycle car (there is one being made)—a machine which should combine the virtues of the four-cylinder with the simplicity of the old one-lunger.

Oversize Singles.

One or two single-cylinder enthusiasts take exception to my prophecy that the twin will eventually be almost universal in sidecar work; and one local agent informs me that he can get slower and smoother top gear work from a 600 c.c. single than from an 8 h.p. twin in his possession. That may well be; there are good singles, and there are bad twins. If we had to draw conclusions from single instances—a particularly vicious form of induction—we should have to confess that the slowest running motor cycle ever demonstrated in public was the late D. G. Gilmour's 8 h.p. Jap, which fired quite evenly at about three miles an hour on a gear of about 3 to 1; but to argue that the 8 h.p. twin is the slowest running engine in the world would be pretty foolish.

Mechanical Alarms.

Can any reader supply authentic information on the merits of the mechanical alarms shown at Olympia and marketed by several firms during the year? My pessimistic views on the subject of exhaust whistles are already public property. Since I gave up exhaust whistles, I have been busy experimenting with electric hooters, and though they may be immensely suitable for cycle cars, and even for sidecars, I have no great opinion of them as applied to motor cycles. They are excessively heavy when the weight of the battery is included, and my recent experience with batteries has given me small cause to modify the detestation of them with which accumulator ignition inspired me in the prehistoric period of the motor cycling era. I find, too, that the penetration of the squawk is exceedingly sensitive to the condition of the battery; when the voltmeter registers 4.2, you can get a sound like the dying yell of a dodo, but when the battery is down to 4 volts, the hooter whispers like a punctured doll trying to ejaculate "mamma!" Olympia staged a number of hand-operated mechanical devices in which a geared down striker hit a resonant diaphragm, etc. Some of them generated a very satisfactory noise whilst brand new. Does anybody know how they wear, and whether they withstand the vibration of a handle-bar successfully? If so, they should have a future.

Petrol-oil Mixture on Four-stroke Engines.

Like Messrs. Davison and Blumfields, I used a mixture of oil and petrol on the primitive Clement-Garrard machine of 1⅓ h.p., and now that I know more about the internal combustion engine, I wonder however the system worked. The engine in question had an external flywheel, and I remember very little more about its details except that its compression was very poor. One would presume that the rings were rather a sloppy fit, and that oil ran freely down the cylinder walls past the rings into the crank case; but even thus, we must have used a much larger percentage of oil in the petrol than is necessary with the modern two-stroke. I distinctly recall filling the little plated cylindrical tank behind the saddle in which the petrol was carried, but memory fails when I try to remember the proportion of petrol to oil.

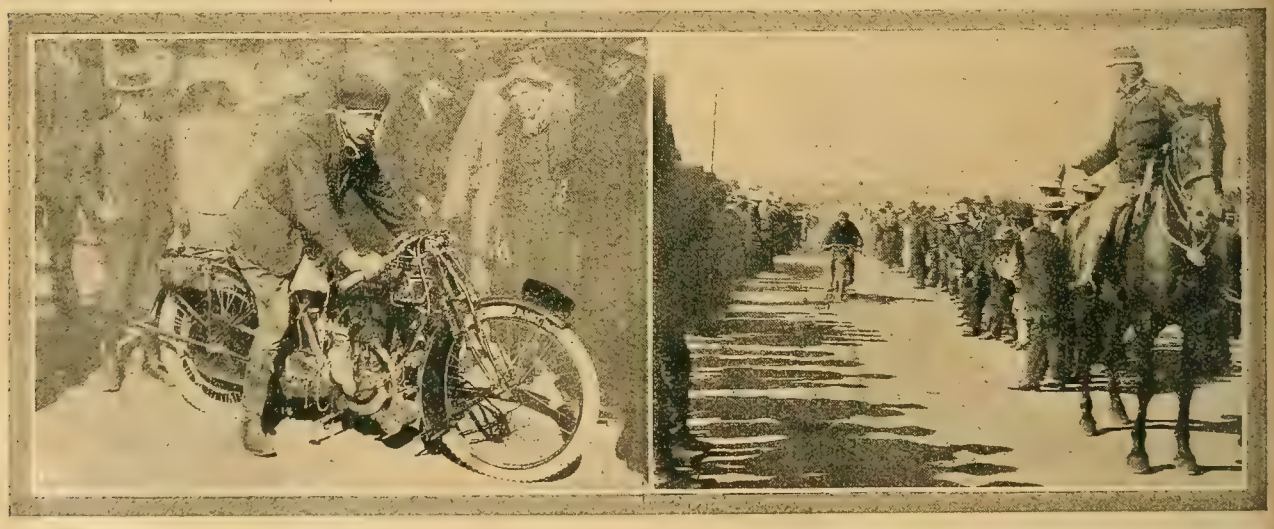
Hub Troubles and Oil Leaks.

One of my correspondents points out that riders' experiences with the earlier three-speed hubs seem to have been very varied, for while one man enthusiastically claims a five figure mileage without a whiff of trouble, another asserts that his hub seized up or collapsed after a much less imposing distance. He suggests an interesting and plausible explanation. Everybody who has used three-speed hubs since their inception must have noticed how their oil-retaining qualities have been improved. My first sample was a frightful sinner; practically the whole of an oil-injection was distributed over the spokes and tyres before I had got the stand up. My 1913 hub barely stained its spokes. Enquiries have proved that some of the 1911 and 1912 hubs retained their oil almost as well as the latest models, so it is at least possible that variations in the oil-retaining qualities of particular hubs account for the divergent testimonies we hear.

MOTOR CYCLE RACING IN AUSTRALIA.

We have already published the fact that the Western Australian T.T. Race run in November last was won by Norton on a T.T. Triumph. We now hear that second place was taken by F. W. Cato on a 2¾ h.p. two-speed Sunbeam, who finished well up behind the winner, third place being taken by C. Lewis on a 2¾ h.p. New Hudson. A large number of English machines took part in this 150 miles race, the makes represented being Triumph, Sunbeam, New Hudson, Rover, Bradbury, Kerry, Rudge, and B.S.A.

The event was run on a handicap basis, and also a maximum time limit was imposed to ensure a briskly run race. The winner received one minute start, while Cato was in receipt of twenty minutes' allowance. The winner's average speed was 39¼ m.p.h., while Cato achieved a mean speed of 35½ m.p.h.



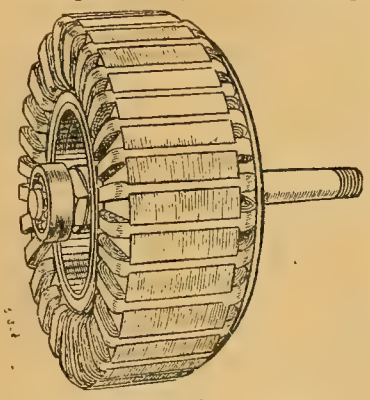
F. W. Cato on the 2¾ h.p. Sunbeam directly after the West Australian T.T. Race in which he gained second place. In the right hand illustration he is seen at full speed passing down between the lines of spectators at the finish. Great interest was displayed in this event all along the course, especially at the finishing point.

ELECTRIC LIGHTING SYSTEMS.

BY WILFRED G. ASTON. SECOND INSTALMENT.

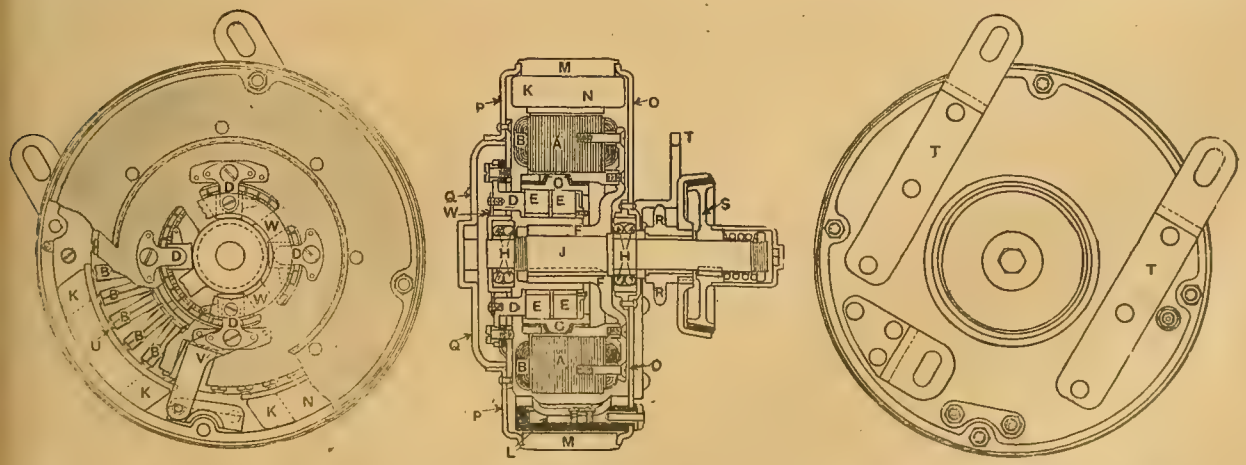
The New Indian Installation.

IN the following description it is only appropriate to deal with the Indian installation first, for not only is it the most important and complete equipment that has ever been placed on a motor cycle, but it is also a standardised article which forms a definite part of the Indian programme for the year 1914. Further than that, it is not only a lighting system, but embraces an electric self-starter and the ignition system as well. The question as to whether it is advisable to do away with so absolutely trustworthy and reliable a mechanism as the magneto in favour of an accumulator ignition, in which the accumulators are kept in a constant state of perfect charge by means of a dynamo, is a moot one, and may be left to a future article for discussion. There can, however, be no two opinions as to the value of a combined dynamo and electric self-starter, although it must be conceded that the starter itself is not of so much use on a motor cycle as it is on a motor car, for, after all, a great deal of physical effort is not required for starting a variably-geared machine, and, as a matter of fact, the Indian itself is notably good in this respect. On the other hand, with a sidecar outfit, where stoppages are perhaps more frequently involved through the desires of the passenger, the self-starter should certainly prove a very great convenience, if not a necessity.



Indian armature showing internal commutator.

The electrical machine, which performs the dual function of providing current to the battery and acting as a starting motor, is illustrated in several of the adjoining sketches, which show it complete and in parts. It consists of a multi-polar motor dynamo with an armature of rather peculiar design. This is built up of laminations of soft iron and wound with oblong section strands of fairly thick wire, which is double cotton covered, and further insulated with a dressing of varnish. Four former-wound field magnets surround this armature, and are placed on the inside of an iron case which encloses the whole mechanism. It will be observed from the sketch of the armature that the commutator is of quite a new type, that is to say, instead of the brushes bearing on the outside of a ring, the four brushes in this case bear on the inside of a segmental copper body. The armature spindle is carried on ball bearings, and is chain driven from the engine shaft, the ratio being as 17 is to 9. Owing



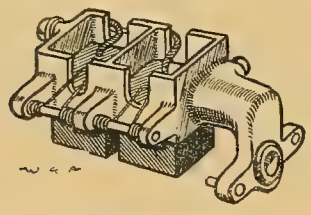
The dynamo and electric starter on the 1914 model Indian motor cycle.

Part sectional front elevation. Full sectional end view. Rear elevation showing anchor plates.

A. Armature.
B. Armature winding.
C. Commutator.
D. Brush holder.
E. Composite brushes.
F. Spider.
H. Ball bearings.
J. Armature shaft.
K. Field coil.
L. Connecting blocks.
M. Field yoke.
N. Pole pieces.
O. Rear plate.
P. Front plate.
Q. Cover plate.
R. Sprocket.
S. Clutch.
T. Anchor pieces.
U. Pole shoe
V. Connecting Bar from blocks to brush holder.
W. Cross connecter.

Electric Lighting Systems.—

to the large diameter of the armature, a considerable torque is exerted by the series wound motor to enable the engine to be easily started on this ratio, and this, of course, does away with the necessity of employing any double form of gearing, in which one ratio is used when the machine is employed as a dynamo and the other brought into use when it is performing its function as a starting motor. The illustrations also show the very neat design of the spring-propelled brush gear, incorporating two carbon brushes, either of which is sufficient to carry the necessary current.

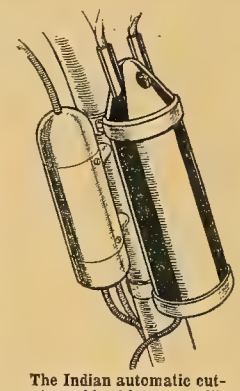


Indian brush gear.

The Working of the Dynamo.

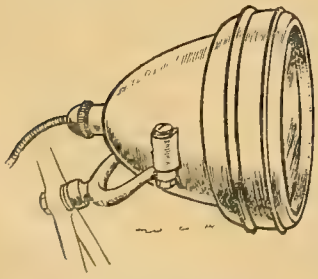
When the machine is working as a dynamo it passes the current through a battery of accumulators, which are carried underneath the rider's saddle. These are connected in series for starting purposes, when they give a pressure of twelve volts, and in parallel for charging and lighting, when the pressure is six volts. The output of the dynamo is five ampères at eight volts, but it is a very much more efficient mechanism as a starter, when it gives a power of, roughly, 1 h.p., passing sixty-four ampères when the compression is full and fifty-four when the compression is released by means of the neat decompressor device now fitted to Indian machines. The batteries have a capacity of thirty-five ampère hours at twelve volts, and of seventy ampère hours at six volts.

The head and tail lamp take approximately two ampères, so that there is at least twenty-four hours' light in the battery with a considerable margin for leakage.



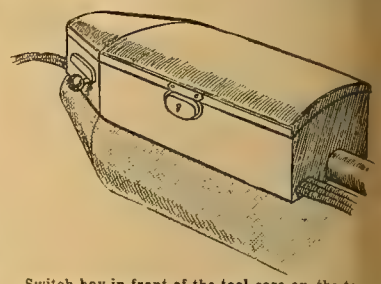
The Indian automatic cut-out combined in case with current regulator and coil. They are fixed to the rear down tube.

The dynamo cuts into action at 800 revolutions, that is to say, about 400 engine revolutions. In order to prevent the voltage rising above a predetermined minimum, a vibrating armature has its coil run in series with the field magnets, and has the effect of preventing the voltage rising, however high the speed of rotation of the armature may be, as this vibrating armature only passes a strictly limited and definite amount of current to the field windings. Combined with the regulator armature, and carried in the same waterproof case with it, is an automatic cut-out, which ensures that the dynamo is disconnected from the battery when the output of the former is insufficient to charge the latter.



Design of Indian head lamp.

The armature spindle is fitted with a simple form of cone clutch, which acts as the shock absorber, both when the machine is being driven as a dynamo and when it is driving the engine as a motor. This considerably relieves the strain and stresses which would otherwise be imposed upon it through a chain drive connecting it to an engine in which the explosion impulses occur at uneven intervals.



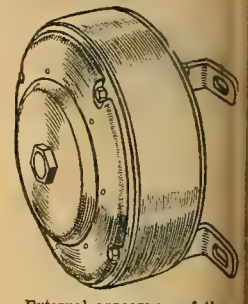
Switch box in front of the tool case on the top tube of the latest Indian.

In order to withstand the very high discharge which is required for starting purposes, the batteries are of a special construction in which the plates are protected by wooden packing pieces, which also serve to prevent any likelihood of the electrolyte spilling or washing about. The batteries weigh 23 lbs. and the motor dynamo 24 lbs., but it is claimed that the total addition to the machine is not more than 25 lbs., taking into consideration the fact that it does away with the ordinary foot starter, the acetylene generator, and the lens mirror head lamp. The designer of the Indian system gives it as his opinion that since a dynamo alone would weigh from 10 lbs. to 15 lbs. without any mechanism to make it suitable for being run as a starting motor, the starting apparatus only means a nett increase of 9 lbs. to the weight of the machine. One may, however, regard these figures as decidedly problematical, as there is no doubt that an efficient dynamo, a head lamp, and a very small tail lamp could certainly be made at a much less weight than 10 lbs., and, in point of fact, several examples have been produced well under this weight.

The coil which is used in place of the magneto is of a special type, and is claimed to be of considerably higher efficiency than those previously used for motor cycle work. It is fitted with a separate condenser of unusual size, and it is claimed that the spark it provides is more efficient for firing the mixture than that which is produced by a high tension magneto. The coil is of a waterproof type, and is mounted on the down tube below the steering column, and close beside it is the case containing the cut-out and automatic regulator previously referred to.

The head lamp is of very neat form, as shown in the illustration, and embraces a silvered parabolic reflector. It is practically airtight, and therefore is not liable to tarnishing through bad weather. The focussing attachment by which the glow lamp is carried embodies also a very neat push-in switch, which does away with the necessity for any other form of control.

In order to change the electrical machine over from a dynamo to a motor and *vice versa*, a single switch is all that is required, and this protrudes from a small metal box, which is carried forward



External appearance of the Indian dynamo and starter

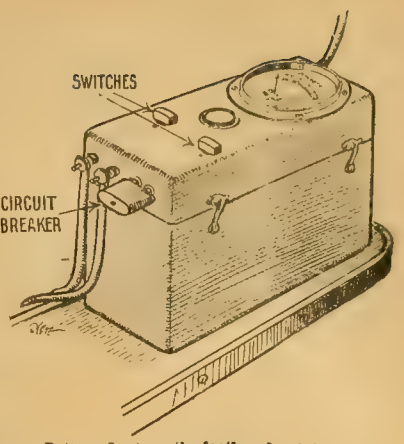
Electric Lighting Systems.—

on the tool case, mounted on the top of the tank. This box contains a rotary switch, which connects the battery cells in series or in parallel as required. For starting purposes the switch is pressed forward, and when released springs back into the charging and lighting position. Underneath the rider's saddle, and attached to one of the tubes of the frame, is a vulcanite body containing two interrupter plugs, which when withdrawn absolutely prevent anybody from tampering with the electrical outfit whilst the machine is left unattended. The wiring throughout is carried in metal-covered cables, and the whole installation is a wonderful example of neatness in design and construction. A small tail lamp is fitted at the rear, and the cable for this purpose is housed inside the head of the rear mudguard.

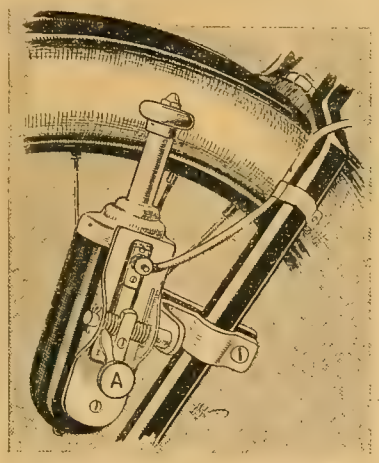
The Motosacoche, another Example.

The only other machine exhibited at Olympia with an electric lighting equipment incorporating a dynamo was the Motosacoche, in which, however, the installation is on a considerably less ambitious scale. It is, however, particularly interesting, as it is the sort of lighting equipment which can be very readily adapted to the ordinary standard type of machine.

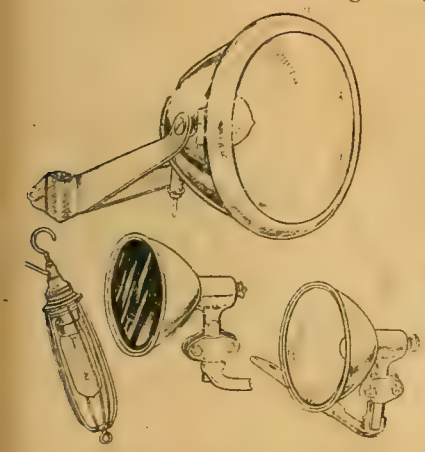
The dynamo in this instance is quite a small affair, and is supported on a bracket carried by one of the saddle fork tubes at the rear of the machine. Its armature spindle is furnished with a small roller which is held by a coil spring in contact with the wall of the tyre, which drives it by friction. The roller is scarcely more than an inch in diameter, and consequently a very large gear ratio is provided. Accordingly, at thirty miles an hour, the dynamo spindle has a theoretical speed of nearly ten thousand revolutions per minute, which is, of course, extraordinarily high, but no doubt a considerable slip will take place and so act in the nature of a self-regulating device. The machine itself incorporates a single bell-shaped magnet arranged in a similar manner to that adopted on the Mea magneto. This magnet is of the permanent type, and the armature re-action which follows upon the use of such a magnetic field, is relied upon to prevent the voltage of the output rising above a desirable amount. Unfortunately, detailed particulars of the internal construction of this compact little outfit were not available. The case of the dynamo contains an automatic magnetic cut-out, which disconnects the dynamo with the battery when the former is running at an insufficient speed. This occurs at a speed of the machine equal to about seven miles per hour. The dynamo lights the lamp through a battery which it keeps constantly charged. This battery is contained in a neat metal case, either carried on the footboard of the machine or clamped to one of the sidecar tubes. The top of the battery box is complete with a voltmeter and ammeter, alternate readings of which can be obtained by pressing a push switch, and two small rotary switches which control respectively the head lights and the tail light and side lamp attached to the sidecar. The dynamo output is about nine watts or one and a half ampères at six volts. The head lamp is a neatly constructed unit, and although of comparatively small size gives a very large volume of light. The sketch shows its neat appearance and the light form of bracket which is employed to support it from the steering head.



Battery fixed on the footboards of the Motosacoche machines.



The Motosacoche dynamo which is driven off the rear tyre. A. Screw to vary pressure of dynamo friction wheel against tyre. The wheel can be adjusted to clear the tyre when not in use.



Head, inspection, rear, and sidecar lamps respectively on the new Motosacoche machines.

Electric Lighting for Cycle Cars.

Several stands in the Gallery contained dynamo outfits more or less suitable for cycle cars, and one with a stretch of the imagination might have been regarded as being suitable for motor cycle use, though its size was rather large and its weight not inconsiderable. This was shown on the stand of Messrs. S. Wolf and Co., and was a twenty-five watt machine with an output of three ampères at eight volts. This employed an H section armature with a special design of commutator. Inside the dynamo carcase is placed a simple form of magnetic cut-out for the purpose of disconnecting the dynamo from the battery when required. A sketch is given of the six volt accumulators used with the set, which was not, however, shown in a complete state. The batteries are carried in a wooden box, which is covered by a leather wallet, designed to be attached to any suitable point of the frame. Something a little more permanent than this would, the writer believes, be required by a dis-

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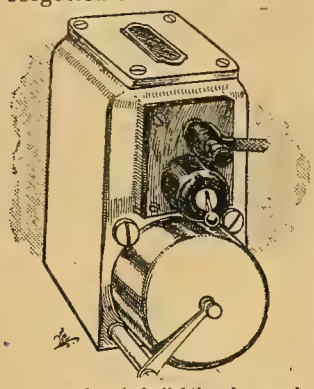
criminating motor cyclist, as those who had experience of accumulators in the early days will not have forgotten that on some of the original lightweights, in which the accumulators were carried in a somewhat similar manner, the near presence of acid and acid vapour caused the leather very soon to perish, and the inevitable result was that the accumulator was deposited on the road when the machine met with a more than usually large "bump."

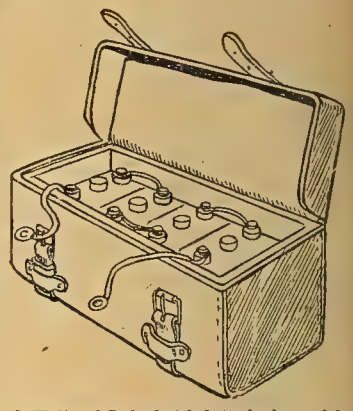


A small electric lighting dynamo by S. Wolf and Co.

Why not a Two Filament Lamp?

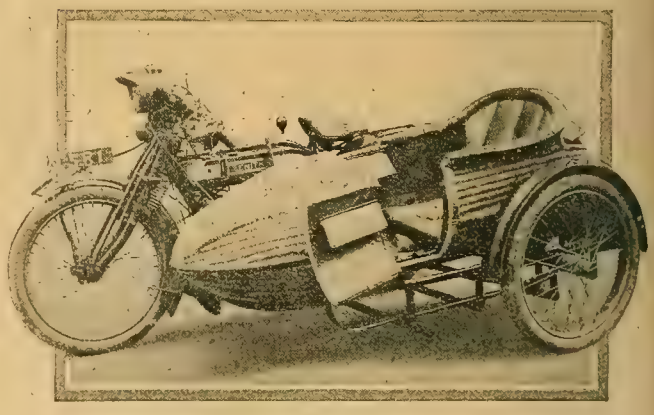
It will be seen from the figures connected with the Indian outfit that roughly fifty per cent. of the total weight (which is, of course, the most serious objection to electric lighting for motor cycles) is due to the accumulators. If the electric machine is to serve as a self-starter, and if as a secondary function it is to serve, as it is claimed the Indian machine can serve, as an auxiliary to the engine at low speeds, since it gives approximately one horse-power, then the weight of the accumulators cannot very easily be cut down. On the other hand, if the dynamo is required solely for lighting purposes, then it seems to me that a very easy way out of the difficulty can be found, and in fact the weight of accumulators reduced by as much, perhaps, as seventy-five per cent. It should be borne in mind that it is only when the machine is travelling from, say, six miles an hour upwards, that a full volume of light is required. Below this speed light is only wanted in order to comply with the law. This being so, it is obvious that unless the machine is standing stationary, there is no particular difficulty in obtaining a dynamo which would give all the current required practically irrespective of a battery altogether, and consequently the battery would only be used when the machine was stationary, which, as pointed out above, need, and probably would, be very seldom. The battery, however, is essential, for the purpose of acting as a cushion between the dynamo and the filament of the lamp, otherwise with slight increases of voltage the filament would be overloaded and would very rapidly wear out. Now it seems to me that the difficulty of weight could easily be got over by the use of either two separate bulbs in the same lamp, or, if necessary, of two separate lamps, or what would be better still of two filaments inside the same bulb, one giving only a very little light and taking, say, one-half of an ampère, whilst the other would be the principal source of illumination. Any convenient form of switch would serve to connect up either filament as desired, but it might be possible to incorporate this switch with the automatic cut-out so that the connection would be effected quite automatically. If this were done a battery of about ten ampère hours capacity would be ample for all purposes, as this would give a constant light for at least ten hours, which would be far more than anyone would think of leaving a motor cycle out unattended. In taking very bad corners or difficult bends on steep hills at night the speed of the machine might drop below that at which the dynamo commenced to charge the battery, and therefore the full discharge of the large filament would be taken from the battery. This, however, is a state of affairs which would probably last only a very short time, so that there would be always plenty of margin for safety. The best idea with a variably geared engine would be, however, to drive the dynamo from the motor itself, as is done in the case of the Indian, and not rely upon mere road speed for providing the necessary current generated.

There is nothing new in the two-filament lamp, which is a commercial product that has been in use many years, and this would prove undoubtedly the best solution to the problem, as it would enable one filament to be perfectly focussed in the lens mirror without allowing the other to detract from the volume of light given. If two bulbs were used in the same lamp, a black shadow would be projected forward, whilst if two sets of lamps were used the objection might be made that they were providing an unnecessary and possibly unsightly complication.



S. Wolf and Co.'s electric batteries in special leather wallet.

In conclusion, it is perhaps worth reminding readers that before very long there is a very considerable chance of motor cyclists seeing a practical and efficient system in which illumination is obtained by means of the petrol contained in the tank, which is volatilised and led to a special form of incandescent burner in connection with a head lamp of the ordinary type. This, in motor cycle work alone, is probably the most serious rival which electricity has to face, and it is even lighter than an electric installation, involving, as it does, no extra parts, whilst it can probably be constructed at a very much lower price.



A cane bodied torpedo sidecar marketed by Maude's Motor Mart, 136, Great Portland Street, W., the chief features of which are an underslung chassis, a large box for spares at the back of the body, cee-springs, four-point suspension, luxurious upholstery and an extra heavy spindle.

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"It would perhaps be as well to explain that the necessity for changing tyres in the previous Trials was not because the tyres wore out, but because the non-skid properties entirely disappeared in about three days, and a new tyre would be necessary, to prevent slip when climbing very steep hills. In the case of your tyre, however its non-skid properties were as good at the end of the Trial as at the beginning.

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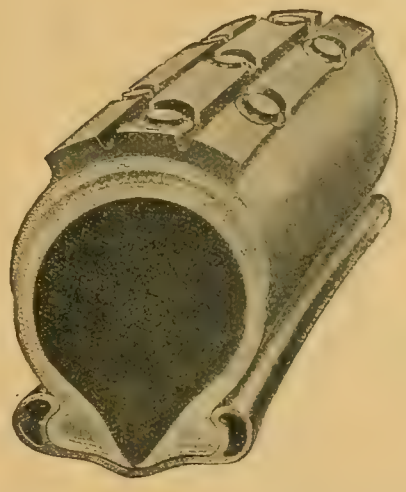
Every motor cyclist should carry a shilling box of KURKUT (Cure-cut), a handy stopping for the instant "healing" of cuts and gashes. KURKUT is the "stitch in time that saves nine."



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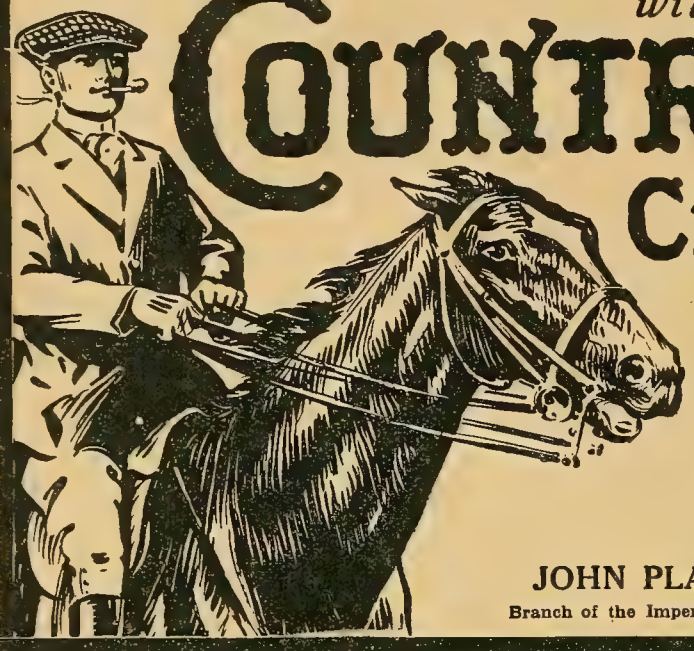

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LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

A Curious Case.

Sir,—In *The Motor Cycle* of October 16th, the letter "A Curious Case" reminded me of an instance when I was troubled by missing and firing in the carburetter. I was jogging along all day without finding out what was the cause, until it became dark, and I then saw what was the trouble. The carburetter control wire had come slightly adrift, and was swinging on to the sparking plug.

I take much pleasure in reading "Letters to the Editor" in *The Motor Cycle*, and have gained many useful tips from them. M. MACFARLANE.

Nishihu, Osaka.

Reckless Driving.

Sir,—I am quite in agreement with Mr. Thomas's remarks published in your issue of the 4th inst. relative to reckless driving on the part of some motor car owners and drivers.

A goodly number of motor car drivers, around this part of the country at any rate (Watford, Herts.), appear to be under the impression that the roads are constructed and maintained solely for their own use and pleasure, and they show but scant regard for cyclist, pedestrian, or motor cyclist either.

As a case in point, I would like to mention that only three weeks ago, whilst travelling on my motor cycle between St. Albans and Watford, when negotiating St. Stephen's Hill, I met the driver of a fairly large car, who took the bulk of the road (which, by the way, was the only part dry and in good condition), forcing upon me the alternative of either taking a kerbless footpath or trying my luck on a narrow, loose, and greasy piece of roadway. Since the law forbids us to use the footpath my choice fell on the latter. Result—a bad sideslip, ending in a cut and bruised knee, to say nothing as to damage incurred to my machine. The car, I may add, did not stop, notwithstanding the fact that two friends, following some distance behind, called out to the driver as he passed.

Such circumstances as these do not suggest fair play or create a feeling of goodwill towards the car owner.

A. E. TWIGGER.

Lightweights.

Sir,—I noticed with interest the advent of several lightweights which give promise of more closely harmonising with general expectation than any previous specifications that have come under my notice.

As you have pointed out the name "lightweight" is often a misnomer, since it is not at all uncommon to find it scaling as much as 150 lbs. Possibly, however, there is some method in their madness here, as witness the stock advertisement of one well-known model to the effect that the machine will not tumble to pieces after one or two season's wear. Of greater importance, however, than even the question of weight is that of gearing, so persistently insisted on in your journal. To cut down the h.p. and to give no compensating gear ratio is surely the height of fatuity. As you remark, what ought to be considered a *sine quâ non* is the incorporation of an emergency gear. The advantage of three gears as against two is hardly matter for argument, and the increased cost would surely be infinitesimal. The tendency is to imagine that a few extra miles per hour on the level is what really matters, and that power on hills can be left to look after itself.

SHAFT-DRIVE.

Garage Charges.

Sir,—With regard to the question of excessive garage charges, I should like to call attention to the fact that whilst on holiday this year I, on several occasions, "put up" my motor cycle at G. R. Barrett's garage in Canterbury, and although the season was in full swing—in fact it was Cricket week, when every garage was taxed to the utmost—I was only charged 3d. for a whole day, from 10 a.m. until 10-30 p.m.

I think that this is a reasonable charge, seeing that an ordinary bicycle can be stored for a whole day for 2d. and a motor cycle takes up but little more room, and usually the rider buys petrol or oil before leaving. F.A.H.

Insurance.

Sir,—For some years I have been insured with a prominent accident insurance company against accidents generally, and in May last I wrote them specially asking if my policy covered me against accidents whilst motoring, and was informed that I was covered against any accident whatever (no mention being made that it was necessary for me to be disabled).

In July last, whilst on holiday in Keswick, I had the misfortune to have a spill with my motor cycle and sidecar, in which I injured my shoulder and knocked out two of my front teeth, which latter I have been obliged to have replaced. I notified the company on the day following the accident, and duly received a formal acknowledgment of my letter, but nothing further until last month, when I sent the dentist's account for £5. I then received a letter from the company's agent, stating that they could not admit liability because I had not been disabled, but, "as an *ex gratia* payment," they enclosed cheque for £1. This I refused to accept, and subsequently the company sent a representative to see me, who finally offered £2 2s. to settle the matter, and stated that if I could find a company that would admit liability under their policy for such an accident, his company would probably re-consider my claim. Although the injury to my shoulder partially disabled me for a fortnight, I did not make a claim for disablement (which would have been £6 6s.), as I did not anticipate for a moment that the company would decline to pay me what the accident actually cost me.

I feel convinced that this is a matter of great interest to motorists generally, and shall be glad to know if any of your readers have had a similar experience. If any accident insurance company exists which will provide in their policy for such a rare accident as this, I am sure that it will be to their advantage to make it known to motorists through your columns. One thing I can assure them of: they will have at least one more who will take out a policy with them.

A. V. CATTERALL.

Why More Air with Benzole?

Sir,—Mr. Gibson seems to be unnecessarily severe with me for having advanced a theory of my own after making a few statements concerning benzole, which, I thought, might interest motorists using that fuel. I admit the wording was rather misleading, but the theory can be justified all the same.

Let me state at the outset I am no expert on carburation, but merely a chemist of long experience who has taken to motor cycling for four years, greatly to his benefit in health and happiness.

Now, as to gaseous carbon—that great absurdity not existing within miles of a motor cycle. I suppose Mr. Gibson is aware that acetylene gas (not many miles off) contains over 92% of carbon, and that, in order to burn it to the best effect and prevent deposition of carbon on the burner and lamp, the burner makers find it necessary to make special air-inlets in the burner: this is not necessary with burners containing less carbon and more hydrogen. Again, benzole or petrol is distilled at a temperature below that of boiling water—completely converted into gas (the fact of its being combined with hydrogen does not make it not a gas, and it is necessary, first, to gasify your motor spirit before you can ignite it by the sparking plug in the cylinder). What becomes of the carbon if it is not gasified?

Although there is much to be said for and against my theory, I fail to see that my argument is a loose one. I say in effect A contains 8% more carbon by weight than B, and showing that when gasified carbon requires four times as much oxygen or air as hydrogen does for complete combustion, I say A must require more air than B.

I have worked out many formulæ, some showing for and some against my view, and, on consideration, I am inclined to agree that the heavier weight of benzole has most to do with the extra air or smaller jet required. There are, however, several physico-chemical problems involved, apart from the mere weight of fluid passing the jet.

I put down the greater difficulty of starting up on benzole in cold weather to its higher boiling point, but once the engine is thoroughly hot and kept at high speed, the need of extra air becomes evident in practice.

With regard to the action of benzole on tanks, I have not been troubled that way, but it may be due to the fact that I am using a very high grade benzole, produced in the works at 100% commercial purity, and afterwards diluted down. Probably that obtained from an ordinary gasworks or tar distillers would have more action on the soldering of tanks.

CHEMIST.

The Oversize Single.

Sir,—Our attention has been called to the article appearing on page 1627 of your issue of December 4th.

We quite understand that it is difficult, nay, almost impossible, for a conscientious writer like "Ixion" to put together a candid article week by week without "treading on the toes" of somebody.

As there are two sides to every question, we shall be glad if you will permit us to make a few comments upon "Ixion's" article, as this, in our opinion, is likely to mislead prospective motor cyclists who lack technical knowledge.

Your contributor's concern for competitions of the future need not be taken seriously: if a manufacturer has to choose between building machines for the public or for competitions, he will certainly adopt the former course.

Again, sidecar enthusiasts, as a whole, do not crave for the last notch of speed. Any modern big single sidecar combination will reach the safe limit of road speed with power in hand. The average rider wants power to climb steep gradients under full load. This condition is not usually found in racing engines. Arduous reliability trials are still open to all passenger vehicles, with little or no restriction as to capacity. After all, if nobody breaks away from what is regarded as standard practice at the moment, we may well ask, "Whence comes progress?"

The complaint that big singles cannot be made to run "quite so sweetly" as 500 c.c. singles is true. It is also true that 500 c.c. singles cannot be made to run as sweetly as 350 c.c. singles, and that big twins approaching 1,000 c.c. cannot be made to run so sweetly as a medium twin of, say, 700 c.c., and that V twins, as a whole (except, perhaps, the very few 90° V twins), cannot equal the horizontal twin for sweetness in running; and so on *ad lib.*

This superiority of one type over another is merely a question of degree. In a modern well-designed big single the advantages of the type outweigh any small disadvantages there may be due to vibration and unequal torque. We venture to ask by what right or rule does "Ixion" lay it down that 500 c.c. is the ultimate limit for a single?

When, however, he asserts confidently that the big single cannot represent finality as a sidecar hauler, we are once more in agreement with him. The same remark applies equally well to any other type of engine on the market.

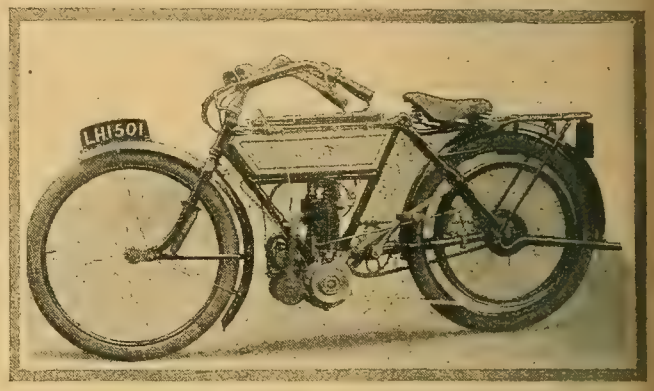
Time and experience have proved the practicability of the big single, and, in our opinion, it is destined to have a big future. As pioneers of this type, we are gratified to see other makers, and makers of repute at that, coming forward with singles of larger capacity than the accepted standard. It must be abundantly evident to the thinking individual that these manufacturers have not embarked on the big single proposition without making every trial and test.

BAYLISS, THOMAS AND CO.

W. H. CARSON.

A Cheap Mount.

Sir,—Being a constant reader of your valuable paper since its inception, and knowing that there are many would-be riders if they could get a reliable cheap mount, I am enclosing a photograph of an old 1¾ h.p. Werner generally renovated and modernised. The work was carried out by a local man. The frame has been cut down, tank altered, new silencer, frame and wheels enamelled, and engine taken down and tuned up. The result is that the machine is quite up-to-date, very safe on greasy roads, because of its low position, and it will do thirty miles an hour on level country. The total outlay has been £15.



An old Werner, modernised by H. E. Thomas.

H. E. THOMAS.

Miniature Four-stroke Engines.

Sir,—We note in an otherwise admirable article that your contributor, Mr. B. H. Davies, comments upon what he is pleased to term the "toy" four-stroke engine, with its dollar-diameter belt pulley.

Lest this may by some of your readers be imagined to refer to our own lightweight, because we have in the first place pinned our faith to the well-known four-stroke principle, we would like to say that the O.K.-Junior has neither a dollar-size belt pulley nor direct belt drive.

The transmission is by chain from engine to breakfast plate size belt pulley, and we trust that this slight information will modify the views of Mr. B. H. Davies on the four-cycle type of engine.

His trouble seems to be that some manufacturers are fitting direct drive to the engine with a small size belt pulley. We want it clearly understood that this does not apply to the O.K.-Junior.

Further, we would point out that the big ends and valves on this engine are as large as found on some engines of 3 h.p.

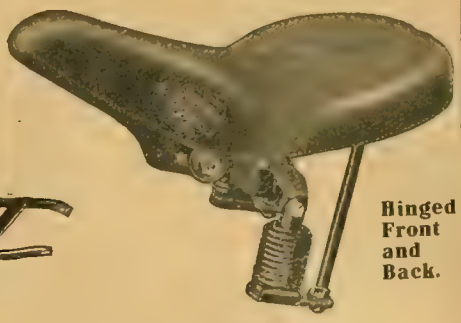
HUMPHRIES AND DAWES, LTD.

Sir,—We feel that it is necessary to express our disagreement with the sudden conclusion arrived at by some of your contributors in the issue of December 4th, that a small four-stroke engine must soon lose its "tune." This may have been true of certain types of engines which have been marketed in the past, not because they are four-stroke engines, but because designers in producing lightweight engines went to extremes in weight reduction, and provided inadequate wearing surfaces, and consequently the engine suffered from sheer wear and tear.

In the "Junior Precision" engine all wearing parts are as substantial as though the engine were four times its horse power. If the cycle of operations affects tune at all then the balance of merit lies with the four-stroke engine, as on account of its higher thermal efficiency it does not have

Lycett's
"V.A." Pan Seat.

Lycett's "SWAG-BAG."



Hinged Front and Back.

Lycett's "LYCO" Pan Seat.

Ask for "LYCETT'S"

— when buying EQUIPMENT—and you'll get the BEST that's made.

¶ "LYCETT'S LINES" are exceptionally well-made of highest quality materials *only* - and embody many valuable patented features which combine to ensure the highest utility and comfort of the rider awheel.

— chiefly to be noted are the famous "LYCETT" Saddles — the "Seats of Comfort" — two of which we illustrate here, viz. :—

Lycett's "V.A." Pan Seat. Our New Improved Saddle. Gives exceptionally LOW RIDING POSITION. Anatomically-shaped Top with strong metal base covered with selected Pig-skin and padded with best Felt. Its VERTICAL ACTION SPRINGS *absolutely kill all vibration* — no bouncing is possible. Price **27 -**

Lycett's "LYCO" Pan Seat. Hinged at front and top of rear swinging tension springs — allowing a straight pull in action. Top is anatomically shaped having a strong metal base, covered with selected Pig-skin and padded with best Felt. This saddle completely isolates the rider from all vibration and bouncing. Price **27 -**.
— Did you notice the predominance of LYCETT'S Saddles at OLYMPIA? quite 60% of the saddles fitted were LYCETT'S!

Lycett's "RELIABLE" Belt. Built of Rubber and Leather - expressly designed to afford greater grip, flexibility, strength, speed, long life, and absolute reliability under all conditions. Prices ¾in. **2 -**, ⅞in. **2 4**, 1in. **2 7**, 1¼in. **3/-** per foot. FASTENER **1/-** extra.

Lycett's "SWAG-BAG." Extremely useful handy bag — capacious and adjustable to size of space contents take up. Dust and Waterproof. Made in two sizes and three qualities. Prices **5/7** to **15/-**

Lycett's Armour-plated Tool Bag. Made of best quality leather, hand-sewn, and lined with Flaxite. Encased in stout metal. Full front and Patent Spring Lock. Made to clip or strap on carrier. Three sizes. Prices **3/9** to **6/9**.

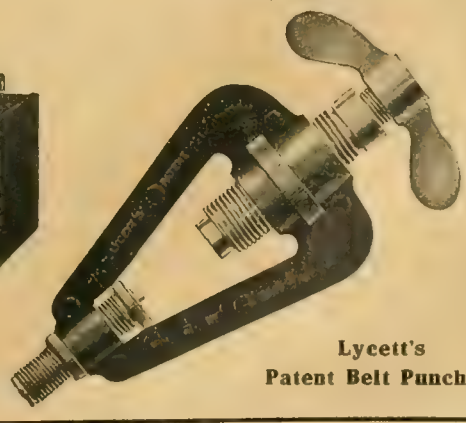
Lycett's Patent Belt Punch. Adjustable to any size of Belt, pierce hole and inserts Pin *dead central* at *one* operation. No material is cut away and the Fastener cannot pull out; thereby greatly increasing the life of the Belt. Price, complete with Leather Case and Spare Washers, **4.-** each.

— "LYCETT'S LINES" are obtainable of all Agents, or supplied direct if any difficulty. Ask for "The Saddle Book" — it describes a host of good things, and is an invaluable aid in buying efficient equipment.

LYCETT'S "The Saddlery" Birmingham.

Guaranteed for 2,000 miles minimum.

Lycett's
"ARMOUR-PLATED"
Tool Bag.



Lycett's
Patent Belt Punch.

R.H.S.

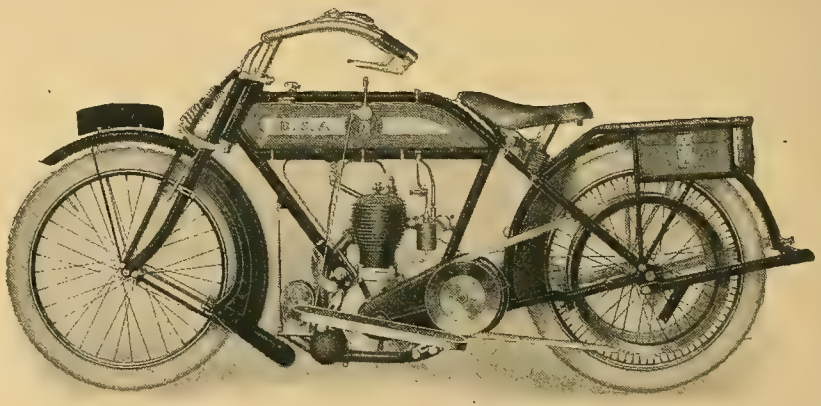
FLEXIBLE

The flexibility of the B.S.A. Motor Bicycle greatly simplifies control, as a wide range of speed is always at the service of the driver. Being easier to handle and less expensive to run than a heavy high powered machine, the B.S.A. Motor Bicycle is ideal for side-car work. It starts easily, gives ample power, and when fitted with the B.S.A. Countershaft Three-Speed Gear can be relied on to take a side-car up almost any hill with a reserve of power.

The B.S.A. Motor Bicycle
(as illustrated)

fitted with B.S.A. 3½ h.p. Engine, B.S.A. Three-Speed Countershaft Gear, Chain-cum-Belt Transmission, B.S.A. Semi-Automatic Carburetter, B.S.A. Spring Forks.

Price complete -	£59 15s.
Fixed Engine Model	£49 5s.
Free Engine Model -	£55 10s.
Three-Speed Countershaft Gear & Chain Drive Model with 499 c.c. or 557 c.c. engine - - -	60 gns.
Tourist Trophy Model	£48 10s.



B.S.A
MOTOR BICYCLES.

Write for 1914 Catalogue.

THE BIRMINGHAM SMALL ARMS COMPANY LIMITED,
13, SMALL HEATH, BIRMINGHAM.

A Motor Cyclist's advice:—"Always use B.S.A. Cylinder Oil for your Engine."

In answering this advertisement it is desirable to mention "The Motor Cycle."

to be so abnormally lubricated, and what lubricant is used is not so rapidly converted into carbon, as this type of engine admittedly runs cooler than the two-stroke.

That the latter engine has a range of possibilities is admitted, but to jump to a general conclusion that it has yet equalled the four-stroke engine in all round merit is opposed to the experience of internal combustion engine practice over a wide field, and places your contributors in the same category as the writers they criticise for assuming that other well-known types of motor cycles are rendered obsolete by the introduction of a new type.

F. E. BAKER, LIMITED.
FRANK BAKER, Director.

A Ready-for-the-Road Motor Cycle.

Sir,—With reference to the letter of "G.T.Y." in your issue of the 11th inst., it may interest the writer to know that we list our motor cycles as complete for the road, with Lucas lamp, generator and horn, spare valve, sparking plug, belt fastener, belt punch, and tyre levers. These fittings are, of course, included in the price of the machine.

It is a wonder that more manufacturers have not done this before, as it saves a customer a lot of trouble and worry when purchasing a new motor cycle.

We have been supplying machines like this all through our 1913 season; and it has turned out an immensely popular move, as proved by the numerous congratulations received from our customers for turning out a machine in so complete a manner. BURNEY AND BLACKBURN.

The Effect of Benzole on Valves.

Sir,—I notice a letter in your issue of December 11th from F. W. Wagner *re* effect of benzole on valves. I have a 1912 Bradbury and sidecar, and have had exactly the same experience. After about 400 miles the exhaust valve gets completely burnt out, the inlet valve remains quite perfect and both valve seatings also sound. I have had three exhaust valves this year, all have been trued up and used again. As the cast iron seatings are untouched I think perhaps that at the high temperature of combustion there is something in benzole which attacks nickel steel valves and not cast iron because my seatings do not even pit. I trust this correspondence will elucidate the reason of this effect on valves by benzole. J. CHANDLER.

Sir,—In a recent issue you ask for information *re* the effect of benzole on the interior of tanks. I have seen several peculiar cases of benzole acting on solder and dissolving zinc. Perhaps several users may have noticed small white and yellowish crystals on their petrol tubes and taps. Has it ever occurred to anyone to find out what they are? I fancy they are nitrates of zinc and lead, due to a certain percentage of nitrogen peroxide in the benzole. I have not yet tried the experiment, but I think if a strong solution of caustic soda were added, and the whole solution carefully re-distilled, the first results would be a purer benzole. After treating the distilled liquid carefully with a dryer (sulphuric acid or calcium chloride or dried copper sulphate) it would be ready for use. We would get (1) a pure hydrocarbon, (2) perfect combustion, and (3) no action on tanks. The cost need not be greater than at present, as, if we take Economin Company's prospectus, we find they estimate to make benzole for 5½d per gallon nett. Why not spend another 2d. and turn out a purer product? We will still have a fuel of more power than the present one, and more powerful still than petrol. I have tried pure benzole (benzene, rectified), and have had much better results than either "motor spirit" or petrol, with no crystallisation on my tubes after standing for three or four days. I got a greater mileage, viz., seventy-two on pure benzole, sixty-seven on benzole (motor spirit), and sixty on petrol. My machine is a 4½ h.p. single-cylinder with sidecar, the roads here being nothing but hills from 1 in 20 to 1 in 10. Perhaps some manufacturers will try and experiment. If results prove better there will surely be a far increased sale, as many who use petrol now only use it on account of its cleanliness, and because it does not act on the solder. I saw a new Alldays where the seams and joints were all gone with using benzole.

MOTORIST AND CHEMIST (Oldham).

Signposting.

Sir,—I have read various correspondence on national signposting. Whilst giving attention to the open highways I think a few direction plates would be appreciated in towns and cities. I have always managed to get into large towns all right, but to get out is like trying to get out of a maze. Not many persons can direct you to a place twenty miles away, let alone sixty, and even then it is rather puzzling going down tram roads and keeping a look-out for, say, the seventh turn to the right and fifth to the left.

ROLAND WARD.

Carburetters, other than Standard.

Sir,—I desire to draw attention to a matter, the seriousness of which will be well recognised by those concerned. A large number of gentlemen in various parts of the world order machines fitted with Binks carburetters, and we are constantly getting letters from these gentlemen saying that they do wish that we would supply the carburetter to Messrs. ———, as they say the sole difficulty in delivering the machine rests with us, as they cannot get the carburetter from us. Now in several cases the manufacturers are deliberately deceiving their customers, as they have never ordered the carburetters from us. No doubt, fitting a few odd carburetters does cause a certain amount of disorganisation, but we venture to think that they should tell their customers the truth. Their idea, probably, is that the customer will get tired of waiting and eventually order the stock carburetter.

We trust that other gentlemen who have ordered machines fitted with our carburetters experiencing anything of this kind will acquaint us of the circumstances.

C. BINKS, LIMITED.
CHAS. BINKS, Managing Director.

Do Sidecars Skid?

Sir,—I do not know whether what follows will interest your numerous readers, but during last July my wife and I made a journey to the South and West of England per sidecar. The trip was very enjoyable bar tyre troubles, such as rips, cuts and punctures, but an incident occurred of which I have failed to obtain, to my mind, a satisfactory explanation. It was when returning, and passing along a Worcestershire road, it was raining at the time, when suddenly the sidecar tipped up and I was thrown off the saddle, and my left leg not getting clear of the machine, was dragged many yards along the road before getting free. Fortunately, neither of us was injured with the exception of a fair amount of gravel rash on my right hand which was cured in due course. The combination turned on the grass on the side of the road a few yards from where I was released, and my wife, being fully instructed, raised the exhaust and stopped the engine.

Lighting up time on this date was 9-15 p.m. and the time of our trouble was about 8-45 p.m. I could see distinctly a hundred or one hundred and fifty yards ahead—yet I saw nothing to cause the upset. I ought to say the speed we were travelling was eighteen to twenty miles per hour, and the road had undergone repair, perhaps a couple of months previously, the surface being tar macadam. After examining the wheel tracks, which were distinctly marked on the middle of the road, I failed to discover any obstruction, and am still at a loss to account for what happened.

It will perhaps be as well to say our outfit is a 1912 Clyno and sidecar, coachbuilt, weighing together about 360 lbs. SIDECARIST.

Sir,—I read with greaf interest the letter of Mr. J. W. Newall, and I most certainly say sidecars do skid. I had a very similar experience to his, which also occurred outside a little town in Cheshire. I was driving a 3½ h.p. and sidecar, with my brother as passenger, when the whole turnout skidded across the road, missing a deep pitch, luckily for my passenger and myself, but by only a few inches. The roads were in rather a greasy condition owing to the heavy rain, but the crown of the road was not excessively high. This is my first experience of a sidecar skidding, and I sincerely hope it will be the last, as it is not at all a pleasant sensation to see the sins of a lifetime (although not a long one, fortunately) rise before one.

JOHN ARTHUR HALL

Bicycle as Sidecar.

Sir,—Some months ago a writer mentioned in *The Motor Cycle* that he had a "side bicycle"—that is a pedal cycle minus the front wheel—attached to his motor cycle, and that he was going to give it a good trial, and then he would let us know how it had succeeded. Although I have carefully kept a look out, I have never seen anything mentioned about it, but hope he will let us know how he fared, as I am thinking of trying the experiment myself. C.D.

[We saw such a contrivance on the road at Taunton upwards of five years ago.—ED.]

Large Wheels for the Colonies.

Sir,—Seeing a letter under the above heading in last week's issue of *The Motor Cycle*, page 1663, from Mr. A. W. Hampson, of Toronto, advocating 28in. wheels for colonial use, we think it may be of interest to him and to others to know that we are making a sidecar combination fitted with wheels of this size specially for colonial use, and that we exhibited this model at the recent Show at Olympia, where it created considerable interest.

We quite agree with your correspondent that the larger wheels will prove an advantage over rough roads, and for this reason we are recommending it not only for use abroad but wherever roads have exceptionally bad surfaces.

THE SPARKBROOK MFG. CO., LTD.

Mudguarding,—A Problem of the Future.

Sir,—In your issue of the 4th inst. is an article on the possibility of protecting the rider of a motor cycle in wet weather. I therefore send you a photograph of a splendid protection, put on the market last month, in the form of "Robinson's Registered Covercape." This cape, which is made of high quality mackintosh material, fits in a few moments right over the handle-bar of the bicycle, covers the whole of the front, and at the same time fits round the rider's neck and back; it is held in position by press buttons, so that in case of a fall it would immediately free the rider and he could not possibly be entangled. There are now several motorists round Lowestoft using these capes, and they are all delighted with them, as they can ride in any weather and keep their engine, ignition, belt, and themselves perfectly dry. Several motor cyclists have drawn my attention to your article.

LEO ROBINSON.

L. Robinson's "Covercape" for motor cyclists' wear.

Sir,—*Re* your leading article on weatherproofness. Having ridden to and from business, a distance of three miles each way, two macadam and one tram set, through all weathers, for four years, I claim to have had some experience, and am of the firm opinion that motor cycling is still a fine weather pastime. On arriving at business after a wet journey I must spend an hour wiping the machine down and drying the intricate parts, or else keep it thickly coated with grease, and not touch it further, in which case, after two or three weeks, the mud and grit begin to work their way into the bearings, and proper lubrication of the bicycle parts under these conditions is very difficult. In the spring, on dismantling the machine, many nuts will be found to have rusted up and become immovable, the enamel will be chipping off, and the machine generally will have depreciated something like ten per cent., in addition to the usual depreciation of a well kept machine. In addition to these drawbacks there is the one of sideslips and spills, which are unavoidable, and frequently run up a big bill for breakages, and sometimes doctors' bill as well. So I shall leave the winter riding to those with more time and money than myself, and wait until a machine comes along which can keep a straight line in grease and have a hose-pipe turned on it once or twice a week. R 350.

Sir,—I read with much pleasure your interesting article in the issue of the 4th inst. It is quite evident that no progress has been made by the makers of motor cycles in protecting the driver from the weather.

The accessory maker has doubtless made improvements by providing Hutchinson waders and other similar articles, but this does not do away with the unsightly appearance and inconvenience of wearing such articles. One calls on a friend, but cannot present oneself inside the house until one has gone to the labour of removing one's bespattered outer garments, and then replacing them before continuing one's journey.

I was very pleased to see that one firm at Olympia has made an effort—and I think a successful one—in providing equal protection for the driver as for the passenger. In the U and I sidecar the driver sits side by side with the passenger, and has complete control of the machine from under the hood and storm apron, not requiring to wear waterproof of any description.

I have not had delivery yet of the one ordered at Olympia, but I have ridden in one, and find it most convenient and to have every advantage claimed for it.

Judging from the number of people enquiring about it at Olympia, I feel sure there must be many motor cyclists like myself who are anticipating the pleasure to be derived from the introduction of this sidecar.

ALL-WEATHER RIDER.

The Motor Cycle in the Army.

Sir,—As the writer of the letter signed "Seven Motor Cyclists, Territorial Force," to which your correspondent "R.E.S.R." takes exception, may I be permitted to deal with the matters he brings forward?

1. How does your correspondent make 8s. per day for the motor cycle, with 1s. 1d. lance-corporal's pay, come to 12s.?

2. The 1913 Manœuvres were the third in which I have taken part as a motor cyclist orderly, so that I can claim to know something of the subject. Your correspondent's intelligence must indeed be of a high order if by merely looking round he can find shelter for a motor cycle in a blizzard on the middle of Salisbury Plain.

3. King's Regulations can be read in many ways—they seem to be made with that intention.

I know during 1910 Manœuvres my machine was damaged to the extent of £6 or £7; the War Office said that this was fair wear and tear, and nothing at all was paid.

Does your correspondent think that it is exactly fair in the case of a motor cyclist being killed on manœuvres (and it is only the proverbial luck of the British Army which has prevented this occurring before now) that his wife or dependents should get a pension drawn up on the scale of a private's rank in the British Army, which would, I believe, work out somewhere in the neighbourhood of five shillings per week?

In conclusion, I fail to see how anyone could read contempt of the O.T.C. men into the letter in question. It was necessary to point out that these men could afford to take risks, which men in poorer circumstances (but otherwise no whit inferior) cannot do. Otherwise it might have been said, "The authorities always get plenty of men from the O.T.C., and *they* never want to be insured, or make any stipulation about pay or anything else."

Speaking of my Territorial companions, I may say none of them were shirkers ONE OF THE SEVEN

A SPOILT TRIAL.

Birmingham Club's Cycle Car Trial abandoned owing to the Trail being destroyed.

SATURDAY was the day of the Birmingham Motor Cycle Club's open cycle car and light car trial, an entry of twenty-eight having been received. The course was kept secret until the start, the meeting point being Rose Hill, Rednal. Within three miles of the start Beacon Hill, the most severe climb on the course of thirty-five miles (which was to be covered three times), was encountered, and in some respects the proximity of this hill, on which the stopping and starting test was held, to the starting point was fortunate, seeing that by the time Tanworth-in-Arden was reached, the competitors, who had several times previously gone off the route and managed to regain the right track, were utterly bamboozled by three arrows pointing in different directions, and there was no official present to guide them. The trial was a "non-stop" one, and after careering round in circles the majority there and then decided to give up before completing one circuit, and those who had come from the London district made direct for home. The confusion in the arrowing of the route was in no way due to the officials, for the course was carefully marked on Friday afternoon, and Mr. R. V. C. Brook, the hon. sec., journeyed round the course again in the early hours of Saturday to make sure all was well, and at the same time laid a paper trail. He found several arrows moved and others missing which he reinstated, but the mischievous persons (schoolboys were blamed) must have again interfered with the arrows, and a strong wind blowing the paper trail about made the confusion complete.

J. Guilding (8 h.p. Alldays) charging the water-splash at the foot of Grimes Hill.

The *mêlée* on Beacon Hill. R. Mundy (A.C.), followed by Dr. Rathburn (5-6 h.p. A.C. Sociable).

The course was exceedingly intricate, and passing was impossible on many stretches. As for an average of 20 m.p.h., it was practically impossible; in fact, the honorary secretary told us as much before the start.

Stopping and Restarting Test on Beacon Hill.

To revert to the start, Humphries, who had entered his four-cylinder four-seater (the chassis of which is under 6 cwt.), elected not to compete owing to a broken piston ring, and the remainder were despatched at minute intervals from 9 a.m. We are able to give the official observations on Beacon Hill, which is a moderately severe rise, rendered a good deal more difficult by deep ruts of clay which clung to the driving wheels with remarkable tenacity. The stopping and starting test was held at a point near the top, half

The only lady competitor in the trial.—Mrs. Powell who drove an air-cooled 8 h.p. Humberette.

of the road surface at this point being dry, the other half very greasy and rutty.

F. H. Southam (Humberette).—Re-started well but stopped higher up.
J. T. Wood (G.W.K.)—Good climb and re-start.
H. F. S. Morgan (Grand Prix Morgan).—Good climb and re-start.
J. J. Woodgate (Singer).—Re-started well but stopped higher up.
Rex Mundy (10 h.p. A.C.)—Re-started well but stopped higher up.
J. Woodhouse (Morgan with Quadrant engine).—Good climb and re-start.
W. Guilding (Alldays Midget).—Good climb and re-start.
V. Busby (Morgan).—Good climb and re-start.
B. Buckman (Stag).—Good climb and re-start.
G. R. Day (Morgan).—Stopped before re-starting test and again on brow of hill.
A. Milner (Calthorpe).—Broke differential pinion during the ascent.
B. M. Bailey (Crescent).—Good climb and re-start.
H. J. Miller (Crescent).—Stopped before re-starting test.
Mrs. S. P. Powell (Humberette).—Restarted after some hesitation but stopped higher up.
H. Pearson (Alldays Midget).—Stopped before test owing to slipping clutch.
A. Sale (G.W.K.)—Good climb and re-start.
J. Percox (G.W.K.)—Good climb and re-start.
M. Anderson (Humberette).—Good climb and re-start.
F. Baylis (Perry).—Good climb and re-start.
W. Adamson (Adamson).—Good climb and re-start.
G. Hands (Calthorpe).—Stopped before re-starting test.
L. J. Walker (Crouch).—Claimed that he was baulked by another competitor so long that he withdrew.

The Averies stopped on the hill owing to the gradient preventing petrol flowing into the carburetter. When Woodhouse stopped between the lines his engine was firing on one cylinder, due to a high tension wire resting on the exhaust pipe. W. H. Egginton, the official at this point, promptly used his pencil to lift the wire off the pipe, when the engine fired perfectly and the driver got away well. Query, would this have been counted as an adjustment?

A Long Wait.

The officials had a long tiring wait for the competitors on the second round, and no wonder in view of what the competitors were going through. The course plotted was *via* Woodville, Lickey Rock, Burcot, Cobley Hill, Rowney Green, Weatheroak (check), Earlswood, Gorcot, Holt End, Beoley, and Alvechurch. A water-splash near Weatheroak was over a foot deep and caused some fun. The low-built Adamson appeared to float through it. Trouble even on the first lap was not absent. We heard of two punctures and two broken chains.

"No freak hills or abnormal surfaces," the regulations stated. Certainly Beacon Hill is not a freak climb, but the surface at times is most abnormal, and Saturday was one of those days. The climb was not too severe, however, for we ascended it with consummate ease on a new standard-geared Humberette, passing several stranded competitors on the way.

Only four continued on the second circuit, and it is doubtful whether they covered the course properly. First, Woodhouse made another clean ascent of Beacon Hill, followed fifteen minutes later by Woodgate (Singer), his water boiling and causing a stop at the top of the hill; then W. Guilding (Alldays), who made a very neat climb, another long wait, and Busby (Morgan) went up well.

It was clear that something was wrong, and the officials returned to the starting point to find a group of competitors having given up the chase in disgust.

An Impromptu Event.

Many adjourned to the Bilberry Tea Rooms for luncheon, where it was announced that in the afternoon a to-and-fro race would be held on a by-lane at the top of the Lickey Hills.

This impromptu event proved very interesting to participants and onlookers. Competitors were timed

J. Woodhouse and T. Silver on an 8 h.p. Morgan fitted with twin-cylinder Quadrant engine in the stopping and restarting test on Beacon Hill.

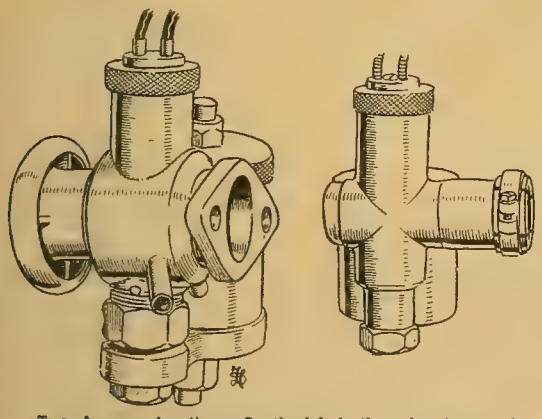
A Spoilt Trial.—

from a line at the foot of a rise about 60 yards long, and, after passing the flag at the top, turned round and sped down the hill again, when the time was taken at the moment of crossing the line. The three-wheelers with no reverse gear had to resort to skidding methods. Morgan shot up the hill, suddenly ported his helm, and so caused the driving wheel of his machine to slew round. He emerged from the bracken with long streamers of grass and bracken trailing from his machine—time, 38s. Woodhouse did the same thing, but reduced the time to 35⅗s., and won the 10s. first prize. After crossing the tape he burst a front tyre, which came off and caused the machine to wobble dangerously. Rex Mundy handled his four-cylinder A.C. very dexterously, and was first of the four-wheelers in 42⅘s., P. J. Evans (Calthorpe) being next in 44⅖s. Other good times were by Woodgate (Singer) and Powell (Humberette).

Subsequently a vote was taken of the competitors and officials remaining as to the re-run trial, when it was resolved to hold the event in January over another course, most probably in connection with the club's open trial on January 31st, in which case the entry list will be reopened.

J. Woodhouse (Morgan-Quadrant), the winner, doing a lightning turn by skidding the rear wheel. In the photograph the front tyre can be plainly seen off the rim. It burst a few minutes later.

NEW TYPE AMAC CARBURETTERS.



Two Amac carburetters. On the left is the exhaust warmed Douglas type while that on the right is the new lightweight model.

A very neat little carburetter, on the well-known Amac lines, has been produced to suit some of the many lightweights now on the market. The main jet is quickly detachable, and there are three sprayers directly above it. The throttle and air slides are similar to those on the larger models. Another very taking type is a special one that is being turned out for Messrs. Douglas Bros., the outstanding feature of which is the exhaust jacketed mixing chamber. The jacket is cast with the body of the carburetter, and is very neat in appearance. A special flange joint to bolt to the Douglas inlet pipe is, of course, incorporated.

Amac carburetters are now so largely used that an appreciation is scarcely necessary. However, we may add that we have had excellent results from a larger model during the past year, both in respect to flexibility and petrol consumption.

Group of Indian riders at Cape Town, all of whom are prominent motor cyclists in those parts.

TIME TO LIGHT LAMPS.

Dec. 18	... ...	4.49 p.m.
,, 20	... ...	4.50 ,,
,, 22	... ...	4.50 ,,
,, 24	... ...	4.51 ,,

Cycle Car Race.

The regulations covering the cycle car race to be held in the Isle of Man on September 24th next will shortly be issued, and a special sub-committee has been appointed to arrange the details.

A.C.U. Spring One Day Trial.

The A.C.U. has decided to hold the Spring One Day Trial on March 7th in Yorkshire, a district abounding in steep hills quite apart from the "freak" variety. This event will be open to motor cycles and cycle cars (A.C.U. definition).

Police Activities at Epsom.

We understand that the police at Epsom have become very active in prosecuting motorists. Our readers are advised to see that their silencers are very efficient when riding in this district, and that their number plates are well lighted.

Roman Road Regulations.

It is interesting to note, in view of the congested state of the roads in many cities, that about A.D. 67 the Roman road authorities did not allow slow moving heavy vehicles to occupy the main arteries of the city. These carts had to be driven at night.

Military Motor Cyclists.

We have evidence that the Special Army Orders of May 20th and June 29th and the Army Form B 210A are hardly acceptable to motor cyclists, and even if they are, the recruiting is very slow. More than one correspondent has recently pointed out that the Army authorities should make these conditions less stringent and increase the monetary allowances, otherwise the support given by motor cyclists to the movement will be very meagre.

We must say that we think the authorities are expecting too much from a class of motorist who is not overburdened with wealth. If they expect to have the full service of motor cyclists in time of need they should offer better inducements for them to volunteer. We are the last to deprecate volunteer service, but motor cyclists run a somewhat expensive machine, and while legislation is what it is in connection with all forms of pleasure motoring it would not be a bad idea, if the authorities really want the services of motor cyclists, to exempt all Territorial riders from taxation both of the machine and the spirit used.

The Six Days Trials in 1914.

This event, fixed for July 5th to 11th, is to radiate from two centres, one in Wales and the other in the Peak District. The framing of the rules has been entrusted to a sub-committee, which will bear in mind that special attention is to be paid to the testing of brakes and acceleration, with a view to improving mechanical efficiency.

Permits Granted.

The A.C.U. has granted permits for the following events:

January 7th.—Bournemouth and District M.C.C. Open Trial.

January 17th.—Essex M.C. One Day Trial.

January 31st.—North - West London M.C.C. Open 24 Hours Trial.

February 14th.—Sutton Coldfield and Mid-Warwickshire A.C. Open Trial for Colmore Cup.

SPECIAL FEATURES:

A PLEA FOR CLEANER MACHINES.

ELECTRIC LIGHTING SYSTEMS EXPLAINED.

SOME NEW DESIGNS.

Result of Motor Fuel Competition.

Readers may remember that last spring the S.M.M.T., Ltd., and the R.A.C. and A.A. offered a prize of £2,000 guineas for the best suggestion for replacing the present motor spirit by a less costly fuel produced from materials entirely available in this country. Thirty-seven communications were received from eight different countries. The report of Sir Boverton Redwood is confirmed by the Council of the S.M.M.T., viz., that "none of the applicants has succeeded in complying with the conditions." Unfortunately for the competitors, certain processes were necessarily ruled out owing to their being known prior to May 1st.

THE ABANDONED BIRMINGHAM M.C.C. CYCLE CAR TRIAL.

Held up at the second bend on Beacon Hill till the congestion in the stopping and re-starting section was over. The competitors in the foreground are Baylis (Perry), M. Anderson (Humberette), and R. B. Adamson (8 h.p. Adamson). The hill was too narrow for a stopping and starting test.

Police Trap in Surrey.

We are informed that the police are very active between Old Malden and Ewell, where they have a police trap on a straight open road.

A Distinguished Motor Cyclist.

Prince Henry of Prussia purchased last week from the N.S.U. works in Germany a 2 h.p. N.S.U. two-cylinder lightweight motor cycle. This machine, we learn, is to be used by His Royal Highness for touring and pleasure purposes.

Further Open Events in 1914.

Since the list of 1914 fixtures was published the following open events have been arranged :

Feb. 7th.—Middlesex M.C.C. Open Reliability Trial.

Sep. 5th.—Middlesex M.C.C. Open Reliability Trial.

A Bit of a Puzzle.

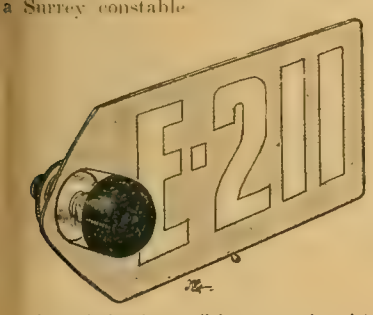
We expected a good many attempts to solve the puzzle contained in the article published last week, but were hardly prepared for the shoal of letters which have reached us by every post since the notes appeared. The correct solution will be published in our next issue, and replies received up to the end of this week will be considered.

Italian Flying Kilometre Record.

A £40 cash prize has been offered by the Italian agent of the N.S.U. Co. to the motor cyclist who covers a flying kilometre on the road in 28 seconds—nearly 80 m.p.h. The offer remains open until October 31st, 1914. The following regulations must be adhered to: The record must be accomplished in Lombardy. Four days' notice must be given and a deposit of £1 paid (which is not returnable).

The Vanishing Motor Cyclist.

A motor cycle figures very prominently among the "mysteries" of the entertainment at St. George's Hall, London. It is intended as a demonstration of the wonderful potency of what are called the "D.D." rays, whereby a fully-equipped 2¾ h.p. Enfield and its rider are made to disappear in such startling fashion that the astonished onlooker can only ask, "How is it done?" The trick appears simple enough. The motor cyclist rides up a plank into a large packing case, open on one side. This being closed, the box is then lifted several feet clear of the ground. Then the "marvellous rays" are brought into play—a flash on the case, and the sides fall out. The motor cycle and its rider have both vanished. Where or how? But that is a mystery no less than the "timing" of a Surrey constable.



A novel electric rear light and number plate illuminator marketed by Benton and Stone

FUTURE EVENTS.

Dec. 26-27.—Motor Cycling Club Winter Run from London to Exeter and Back.

" 26-27.—Bristol M.C.C. Open 24 hour Trial to Land's End and Back

1914.

Jan. 5.—Liverpool A.C.C. Open One Day Trial

" 7.—Bournemouth. M.C. Open One Day Trial.

" 14.—A.C.U. Annual Dinner.

" 17.—Essex M.C. Open One Day Trial.

" 31.—Birmingham M.C.C. Open Trial for Motor Cycles & Cycle Cars.

An Addition to the South Kensington Museum.

At the request of the secretary of the Board of Education, a Wall Auto-wheel, attached to a standard B.S.A. bicycle will be on exhibition at the Science Museum, South Kensington, after the middle of January.

Exhibition of Lantern Slides.

The Motor Cycle series of lantern slides has been in considerable demand at club evenings and social functions lately. On Dec. 4th they were used by Mr. E. E. Beale at a lecture at City and Guilds of London Institute; on the 10th by Mr. Stead at Sedbergh; and on the 11th inst. by Mr. F. H. Dutson at a lecture to the Heywood Municipal Officers.

A Strange Exchange Suggestion.

The following interesting exchange was suggested to one of our advertisers who offered an Ariel motor cycle and sidecar in our miscellaneous columns. The offer was a level exchange of "a secret racing system which cleared over £1,500 in a year and a half," or, as the applicant wrote in reply to the advertisement, "seventy-one winning weeks out of eighty-two." "No tips or wires required, and cycle to be carriage paid." The offer was not accepted.

An Open Christmas Trial.

The Bristol Motor Cycle Clubs' twenty-four hours' Christmas open trial promises to be well supported. Entries are coming in well, and it is expected that nearly eighty will start from the Queen's Hotel, Bristol, at 5 p.m. on the 26th inst. Among other well-known trial riders both Frank Smith and W. B. Gibb will take part, whilst another entrant will endeavour to take a 2¾ h.p. Douglas and sidecar through the 400 mile trip. Entries close to-day (Thursday) and may be wired to Mr. P. Grout, Keynsham, Bristol.

Red Rear Lights.

Apropos of the rear light question, it is worthy of note that as far back as April 7th, 1904, the *R.A.C. Journal* quoted a case where a motor cyclist was prosecuted at Wallasey (Birkenhead) Petty Sessions for riding a motor bicycle without a rear red light. The magistrates imposed a fine of 5s., and the club thereupon took up the matter, and contested the decision, with the result that the magistrates wrote stating they had come to the conclusion that the club's contention was right, and that a motor bicycle only required the ordinary pedal bicycle light

Ignition on Indians.

Mr. W. H. Wells tells us that it has been decided to equip all 1914 Indians with magnetos, including the Hendee Special, which, as our readers know, has a starting and lighting dynamo.

The Rear Light Question.

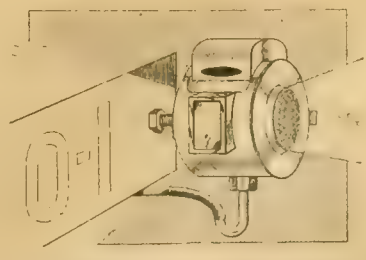
The Local Government Board regulation on the matter of rear lights for motor cycles is still anxiously awaited but its publication cannot be delayed much longer. Meanwhile, owners of sidecars are fitting rear lamps to their machines, as most seem to agree that rear lights on two-track machines are desirable.

We are informed on excellent authority that the official L.G.B. order is on the point of going out, and that it is almost certain that there will be no alteration in what we announced exclusively in these columns a month ago, viz., that motor bicycles need not exhibit rear red lights, but that two-track machines, such as sidecars, will, in future, be required to carry a rear warning light.

A.A. and M.U. Notes.

BIRMINGHAM OFFICE NOTE.—On several occasions there have been allusions in the press (mainly *The Motor Cycle*) to the hopeless condition of that part of the Coleshill-Stonebridge Road which had been made and maintained by the Earl of Aylesford, under an Act of Parliament passed in the latter part of the eighteenth century. Nearly a year ago the Automobile Association approached Lord Aylesford's agent, and put forward a scheme, which, being accepted by the owner and the county and district councils, has resulted in the road being put in thorough order to be maintained in future as a county highway. Considering the importance of this short length of road as a link in the communication between the north and the south and west, the gain to motorists and cyclists, not to mention other traffic, will be considerable.

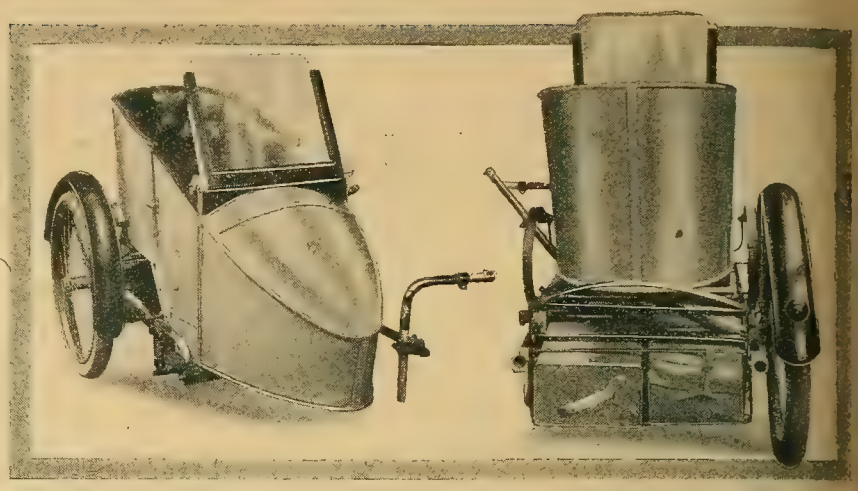
SAFE ROADS AT NIGHT.—During the past month the Association has got into touch with a number of local authorities, railway and other corporations, with regard to roads covered with stones and left unrolled until the next morning, badly lit railway and canal bridges, and dangerous cross roads, which could be made much safer for night travellers driving at reasonable speed, were the corners properly rounded off. The Secretary of the Association will welcome all such reports and suggestions, and take the necessary action thereon.



A type of rear light by H. Miller and Co. Ltd. Birmingham. It is of the acetylene pattern with a rear red glass and a white light showing on to the numbers. As we have already pointed out there is no need to illuminate the front numbers if a lamp such as the Miller "Rearlite" is adopted.

AN ALUMINIUM SIDECAR.

Our illustration shows the Burnsley sidecar, which is of interesting construction. The body consists of a light wood framing panelled with sheet aluminium, behind which is a very thin sheet of steel to prevent denting. A feature is that the panelling is polished, and because of the use of a special polish the coating retains its brilliance in spite of rain and mud—in fact, it can be washed down just as a coachbuilt sidecar. The chassis is stoutly constructed, and is fitted with a large folding carrier, below which provision is made for a petrol can and a fair amount of luggage, in addition to the space afforded by the top or folding portion. Several models will be placed on the market, that illustrated being merely a model to show the construction and general design. A luggage grid is a standard fitting on this sidecar, which is made by the Burnsley Motor and Aluminium Sidecar Co., 62, Branston Street, Birmingham.



The Burnsley aluminium coach built sidecar for fixing to the offside of the machine.
(1) Threequarter front view showing wind screen and side door (2) Rear view. Observe the method of carrying luggage and spare can of petrol.

M.C.C. London-Exeter and Back Run.

Review of Regulations.

The arrangements for the winter run have been very thoroughly carried out by the club officials, and it now only remains for the competitors to fulfil their part of the programme—to ensure a most successful event. We are glad to note that special attention will be given to the question of silence, and give below the special regulations issued.

SILENCER REGULATIONS.

When presented for examination by the Judges, every machine fitted with a cut-out, or other movable device for freeing the exhaust must have the cut-out, or other movable device for freeing the exhaust, sealed with wire, in such manner that it cannot be used.

Every machine will have to pass the Judges for silence. Noisy machines will not be allowed to proceed.

Machines will be subject to re-examination at any point of the course.

To avoid accidents and congestion, competitors are requested to pass and re-pass as little as possible, and to proceed directly after signing on at the checking stations.

Numbers must be obtained at the Bridge House Hotel, Staines, not later than 5.30 p.m., and competitors will be started in the order of the programme at one minute intervals, in pairs.

The numbers, which are varnished to exclude wet, must be fixed on each side and not front and back.

There will be a stop of an hour at the Angel Hotel, Salisbury, on both outward and homeward run.

Chard Hill and Trow Hill must be climbed without stops. Traffic stops, though they do not count against a competitor, must be reported to a responsible official before leaving the hill. The checker will not remain later than fifteen minutes after the last man's schedule time.

A stop of 1½ hours will be allowed at Exeter. Machines will remain at the Exeter Motor Company's garage, and breakfast will be provided at the Bude Hotel. Hot refreshments may be obtained at the Mermaid Hotel, Yeovil, on the outward journey, and arrangements for replenishments have been made with Messrs. Schards at Basingstoke and Messrs. Moffats at Yeovil.

The course will be carefully marked, but the onus of finding the way rests with the entrant.

Competitors must sign sheets at start, in and out of each control at the top of Chard and Trow Hills, and at finish.

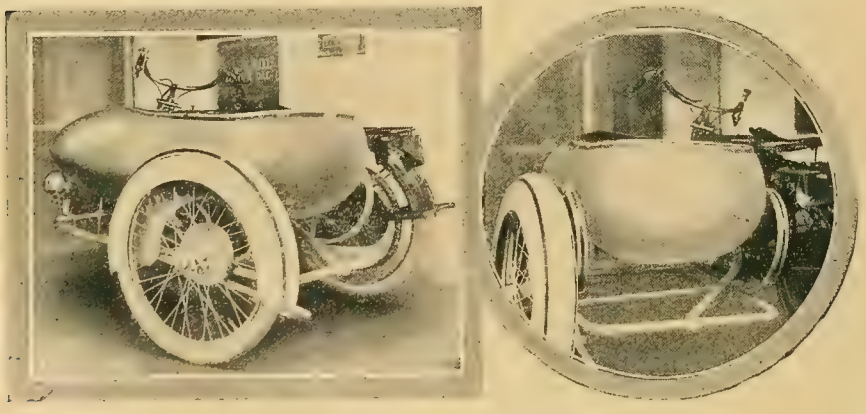
Competitors requiring accommodation at Staines should write at once to Mr James Brown. Hot dinner will be ready at 6.30 before the start for those who have arranged for it.

Riders are warned to keep their number plates clean, particularly between Salisbury and the finish. Anyone found fifteen minutes ahead of time at any point on the route will be disqualified.

Starting Times.

The first competitor, H. Karslake, the organising secretary, will lead off with George Brough at 8 p.m. prompt, and they are due to start from Exeter on the return journey at 6.50 a.m. The first cycle car driver (A. B. T. Bashall Morgan) will leave at 9.23 p.m., and will be timed away from Exeter at 8.13 a.m.

With the exception of the team trial the number of entries received for the Exeter Run is the largest secured in the history of this enterprising organisation. The awkward turns will be arrowed by illuminated box signs made of three-ply wood; the arrow will be cut out of the box and the illuminating agency will be inside. Twenty-four of them will be used. The order of starting will be motor bicycles, sidecars, cycle cars, and cars. The two first-named will probably be intermingled to some extent. The M.C.C. has decided that all four-wheeled vehicles shall be classified together for the purpose of this event; in other words there will be no weighing to determine which are and which are not cycle cars. It is worthy of note that any competitor who arrives at Staines on the return journey after about 5.15 p.m. on the night of December 27th cannot qualify for a gold medal.



AN ATTRACTIVE SIDECAR BODY.

A novel type of streamline sidecar body is that designed by P. J. Scarlato, which is made of welded sheet steel on a wooden frame, and we understand scales only 45 lbs. finished. The mudguard is worthy of notice.

The Manufacture of Endless Rims.

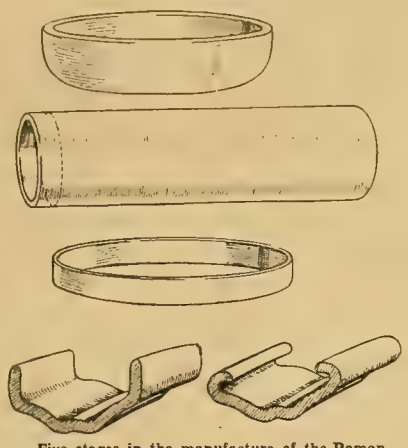
An Interesting Process adopted by the Roman Rim Co.

IT puzzles many people to understand how the endless rim construction of the Roman Rim Co., Ltd., is carried out, and accordingly we made a call on Mr. Dawes at the company's offices at Upper Priory, Birmingham, to see if he was willing to enlighten us. Mr. Dawes was most willing, and proceeded to explain to us practically every process, many of which we actually witnessed.

It is perhaps as well to explain the usual method of steel rim construction before dealing with the Roman process, as it will form a contrast and show how unusual is the construction of the latter. In the steel rim construction a band of strip steel is fed under a series of rollers which gradually form it into the desired shape and pass it out in a series of spirals. These spirals are cut to correct length and the ends welded together. This system gives excellent results in practice, as every motor cyclist knows. However, many of us have had badly damaged rims when riding on rough ground, and it is not uncommon to see rims knocked altogether out of shape by a comparatively slight accident. It is claimed for the Roman rim that it is absolutely rustless, and that it will withstand any shock within reason without losing its shape. In support of this last claim, a rim was shown to us which had been used by Mr. C. R. Collier, and, though the tyre had burst when travelling at 72 m.p.h. on Brooklands, the rim remained a perfect circle but proves the stresses it had withstood by the roughness on the edge from its contact with the track.

The Process of Manufacture.

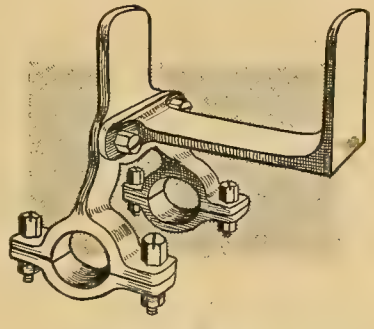
The first form of the Roman rim is a circular disc about 2ft. in diameter and ½in. thick, made of a special aluminium alloy known as Romanalium. This is first of all formed into a bowl about 20in. in diameter and 5in. deep, and from this form is drawn out by successive processes to a cylinder about 3ft. long, 10in. in diameter, and ¼in. thick.



Five stages in the manufacture of the Roman rustless rims.

Rings about 2½in. wide are now cut from the cylinder, and each of these is a complete rim in chrysalis form.

Each rim, in turn, is now placed between rollers on an automatic machine and, the rollers being brought together under a pressure of 1,650 lbs. on both sides of the ring, expand it to a circle of much larger diameter and, at the same time, compress the metal.



A new lamp bracket supplied by Brown Brothers Limited, designed to be attached to the handle-bar of a motor bicycle for the purpose of carrying the lamp and generator.

The next process is somewhat similar, but the rim is given its first shape, being made the correct diameter and having the sides turned up. After this it is placed on a very simple and ingenious little machine which gives a lead to the edges and so prepares it for the next rolling. Now comes the final process which turns over the edge to its final form. The rim is next checked and gauged and finally is put into the lathe, and the edges of the bead are made perfectly round and smooth by a touch of a hand tool.

From this description it will be seen that the rim is of a highly compressed metal alloy and has absolutely no joints; also that each process is done cold so that there is no fear of destroying the nature of the metal.

The thought and money expended on the machinery must have been enormous; indeed, we were told that though the first machine was constructed in 1899 it was not until recent years that the device was perfected.

Rustless Rims.

Motor cyclists will realise what a blessing it would be to have bright rims which will not rust and damage tyres, and of such a nature that even after severe shocks they return to their perfect form. We were challenged to smash up a rim with a sledge hammer in ten minutes, but as better men have failed we did not take it on. The rim of course can be sererely damaged in this way but not broken.

We are informed that Roman rims can be fitted by any manufacturer at 15s. above the list price of the machine. In the foregoing description approximate sizes only have been given for obvious reasons. It may be asked why the metal (which is in its early stages approximately the same size as the rim) should be reduced and then expanded again, but it is claimed that it is in this compressing and rolling process that the rims obtain part of their wonderful strength.

The Toronto Motor Cycle Club recently held their annual hill-climb at High Park toboggan slides. The surface was about three inches thick with loose sand and the distance an eighth of a mile, with an average gradient of 1 in 5.
The photographs show: (1) H. Kipp (7 h.p. Indian), the ultimate winner, near the top. (2) A competitor approaching the bad portion of the hill.

The Choice of a Cycle Car.

By "ROAD RIDER."

THE man who has plenty of money, lots of leisure, a keen sense of humour, and very few important engagements may do a great deal worse than invest in a rank bad cycle car—there are plenty of them about, you know. The most enjoyable month's motoring I ever had centred round the most atrocious tricar that was ever designed. A state of complete uncertainty as to what will happen next furnishes a sportsman with a succession of the most delicious thrills, and I was genuinely grieved when at the end of the month that tricar dissolved into relics of its component parts, and I could neither afford to have it repaired nor to invest in a duplicate. However, the ordinary man has to take his motoring rather more seriously. He is compelled to insist upon comfort, economy, and reliability, and I should advise such to study the records of those 1913 competitions in which cycle cars have figured. There are over one hundred different makes of cycle car on the register, but the solemn and earnest type of cycle carist will have whittled his interview list down to very small proportions by the time he has digested the aforesaid competition results. The survivors, whose name, as I have indicated, will not be Legion, will all show a tolerable level of reliability, and the final choice must depend upon the suitability of the several machines to our individual needs, and upon questions of extravagance or economy. As all the favoured candidates will evince very similar capacities in the way of speed, climbing pace, climbing power, and petrol economy, financial considerations must enter very closely into our decision.

Depreciation.

Here let me say quite frankly that depreciation is usually the heaviest item in a cycle carist's balance sheet. I say "usually," because I have known cases where depreciation was absurdly trivial. If a club member, for instance, buys a sound vehicle, and every motor cyclist in the vicinity sees it running daily, never stalled by the road side, romping up hills, and developing no unwonted noise or rattles as it ages, the probability is that the happy owner will be embarrassed by the number of pals who desire its reversion. *Per contra*, a solitary rider who has few motor cycling pals may have to unload through an advertisement upon a stingy and sceptical public; he will drop from 20% to 50% of his outlay. The good rider who owns a bad machine, the bad rider who owns a good machine and manhandles it, alike pay the penalty when selling time comes.

But a glance down the advertisement columns of second-hand machines will show that very low prices are asked for many 1913 cycle cars, and in some cases far lower prices were finally accepted, while in extreme cases the machines remained unsold; this would apply only to rank bad machines in rank bad condition. However, we may cheer up as regards 1914, for the bad machines have nearly all been eliminated by stress of competition, the demand is growing keener, and designs are settling down; all these factors tend to reduce depreciation losses to reasonable figures. Of course, the genuinely successful cycle cars of 1913 fetch good prices everywhere, as they deserve to do.

Running Costs.

When we have narrowed down our range of selection to the machines which we can rely on selling should we wish to do so, we must remember that the cost of running depends on five main factors: (1) Luck, (2) original quality, (3) skilled handling, (4) weight, and (5) simplicity.

The first we must chance. The second we have taken careful steps to ensure. The third we are conceited enough to be sure of. The fourth and fifth we must now take into account. Chassis weights vary very considerably. A stripped Morgan chassis with the air-cooled engine scales a bare 2¼ cwt. Many of the "miniature car" type of chassis have a rare struggle to get down within the 6 cwt. limit allowed for the A.C.U. competitions; this is true of their special light Brooklands models, and I know that some of their stock touring chassis considerably exceed the limit. Other vehicles, loosely termed "cycle cars" in general parlance, have been known to weigh as much as half a ton; and even the Morgan, when burdened with coachwork de luxe, and a full kit of bulky accessories, may be brought up to 7 cwt. All this weight, to the last grain, makes its presence felt in the tyre and petrol bills; and, other things being equal, the economist must select the lightest machine that will do his work, whereas the bijou millionaire may let his fancy rove freely over every machine on the list that will go, even though it should cost him 6d. per mile to run.

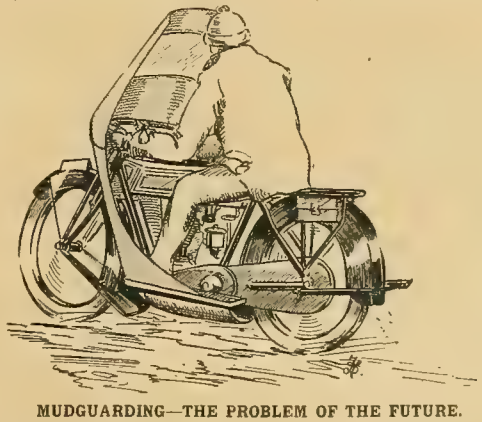
The Economy of Simplicity.

The final factor is complexity. We may reduce the contrast to its extremity. Picture a belt-driven machine with an air-cooled engine carried well back on an ash plank chassis with wire and bobbin steering (though I admit that such machines have yet to achieve real prominence). It is plain that repairs and replacements will cost a mere nothing. The specification is so simple that no breakable item is listed at more than a pound or so at the outside. On the other hand, picture a four-cylinder bijou car with a three-speed sliding gear, etc., etc. The radiator is concertinaed in a collision; the crankshaft is seized up through a lubricating mischance, and strains or snaps half a hundred tiny engine details; the back axle is bent in a side-slip; and so forth. These things may not happen, but then again they may; in four years' running one of the larger mischances is tolerably certain to occur. Or take repairs or adjustments. You may not have the time or the knowledge to do everything for yourself. It is one thing to overhaul, clean and tune a single-cylinder air-cooled engine, or even a V twin; it is quite another job to overhaul a wee four-cylinder *monobloc*. The path of the economist is clear, while the man who is not particular to £5 or £10 on his annual outlay may safely invest in the more luxurious specification, knowing that no accident and no repair can land him in the huge bills presented to unlucky owners of big cars. Expenses are proportionate to complexity and weight. These principles, coupled with a reference to the annual margin available, and with a thorough digesting of the 1913 competition results, should easily solve the problem of selecting a 1914 cycle car.

A Plea for Cleaner Machines.

FOR the past two years I have been allowed a grumble on the subject of mudguarding and protection of both machine and rider for winter riding. Once again I am turning to my pet hobby, but this time standard machines have improved so much in the matter of weather-proofness that my growls are consequently greatly curtailed. There is, however, still room for improvement in detail work. On the whole, mudguards are wider, and are more frequently fitted with side flaps of a sensible depth. There are still a few manufacturers who dispense with this flap at one of the most important points (inside the fork springs), but the majority have seen the error of their ways and have widened their forks so as to accommodate proper guards. Manufacturers do not seem to take kindly to that excellent type of sloping flap employed by the P. and M., B.S.A., Ariel, Swift, and a few others, though those who have tried them will seldom wish to be without again.

To avoid a pile of letters being forwarded to me by the editor, explaining that I have left out the name of the so and so, "which was undoubtedly the feature of the recent Olympia Show," I should like to state that examples have been taken here and there to illustrate the type under discussion, and it would be tedious and unnecessary to enumerate a list of machines coming under each category. Still further to reduce the postman's load, I would add that machines as exhibited at Olympia are being dealt with, for I have no grumbles against the many excellent weather-proofing devices on show (many of which I have tried with great satisfaction), but rather against machine designers who do not fit them or their equivalent.



MUDGUARDING—THE PROBLEM OF THE FUTURE.

In the leading article in our issue of December 4th, we suggested some form of protective shield with a transparent insertion, for use in bad weather. One of our artists has put on paper what he thinks our idea would look like.

Accessibility Combined with Protection.

Rear guards have improved very considerably, and are either very large and domed as on the Premier and A.J.S., or have flat wings to catch the mud thrown by belt and brake rims. A few machines, especially chain driven ones, have side flaps for the full length of the rear guards. It has become almost standard practice to make some part of the rear guard detachable so as to render the tyre and wheel more accessible, and many and wonderful are the means employed. Except when the wheels are of the quickly detachable type, the whole of the guard behind the back stays should be easily removable with the carrier, for when this part merely swings it only renders one part of the tyre rather more easy to get at, but does not expose any greater surface for handling.

Chain guarding has improved enormously, and it is not uncommon to find the front chain running in an oil bath. With regard to the total enclosing of the rear chain, my views have been somewhat modified, and considering the wonderful absence of trouble experienced with the modern low speed chain, it is rather doubtful whether the increased chain life counterbalances the increased difficulty in reaching or adjusting the wheel. Of course, the detachable wheel gets over the difficulty and the makers of such machines as the Clyno, Lea-Francis, Sunbeam, etc., are to be congratulated on the efficiency of their transmission protection.

Guarding the Belt.

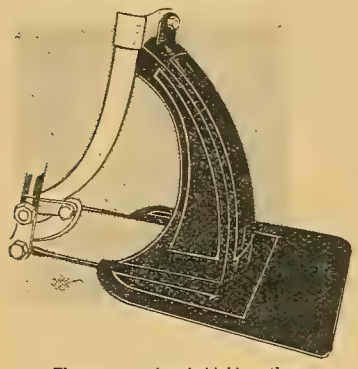
Belt protection has not progressed nearly so much, and this is disheartening, for if half the attention were given to this subject that is given to chain guarding we should not hear grumbles about slipping and breaking belts. Without raising the much-discussed transmission question, I am one of that large army who like a belt somewhere between the engine and rear wheel, even if a chain be employed for the primary drive. Belts are admittedly not without defects, but, all the same, are not nearly so black as they are painted. Protect the belt where it passes round the engine pulley, and produce the front end of the rear guard below the belt, and belt slip disappears, except under unusually severe conditions.

The Value of Undershields.

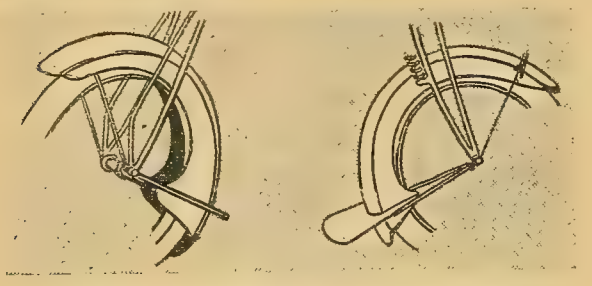
Long and comfortable footboards are steadily coming into fashion, and these form an excellent protection from the mud thrown up when the front wheel passes through a puddle, but a light, quickly detachable undershield as fitted to the Lea-Francis front stand completes the job and saves endless cleaning at the end of a winter run. The same machine has a low guard running across the front of the boards which forms a good protection, and was among the four examples of machines shown fitted with large and sensible leg guards. The mudguarding of the Scott is admirable in every way, and the Rex and Sparkbrook also shine in this respect. Williamson and Douglas machines were shown with really complete front wheel guards calculated to protect the rider in almost any weather.

A Plea for Cleaner Machines.—

In a very large number of cases fork springs have been blacked. Here is a tip for the winter rider whose springs are not blacked. Go to your local saddler and ask him to make you a leather cover for each spring. First cover your springs thickly with grease and then get the cover firmly sewn on and you need not worry about your springs for the rest of the winter. I have tried this, with most satisfactory results, but would rather see the springs enclosed by the makers in telescopic tubes.

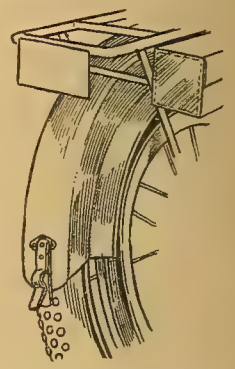


The mudguard and shield on the 1914 P. and M.



TWO TYPES OF EFFICIENT FRONT MUDGUARDS.
(1) As fitted to the Matchless machines. (2) The Sparkbrook pattern.

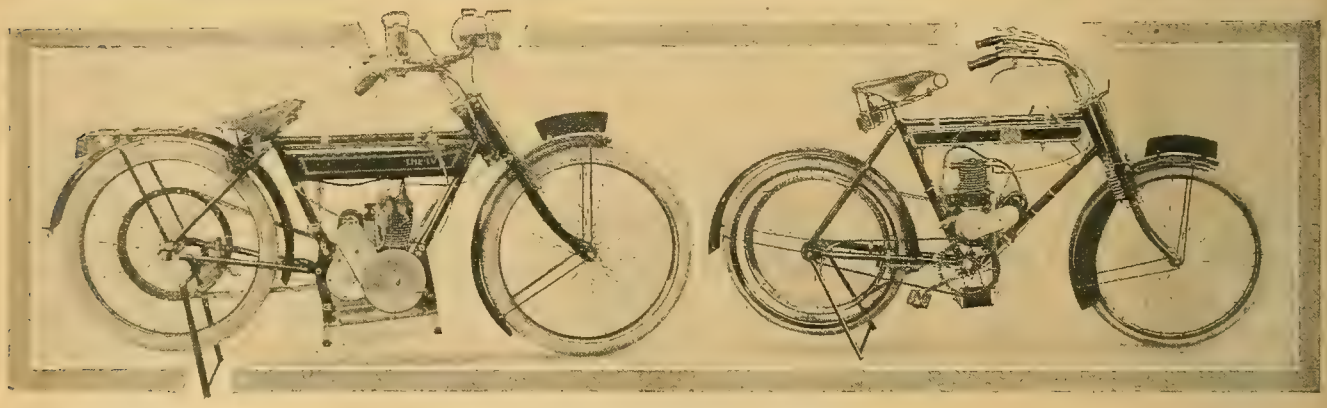
All practical riders will commend the increase in all-black machines, though I was told at the Show that agents do not care to handle them as they are not sufficiently smart. Surely this can not be the case. For the all-black machine usually looks infinitely better than its plated brother after six months' hard work on the road. Another burning question, which is at last beginning to receive the attention it deserves, is the matter of weather-proofing front hubs. All those who ride hard in bad weather know that hubs require adjustment much too frequently, but a few firms have made a careful study of this point and are turning out a satisfactory article.



Rear guard on the Douglas machines, which extends over the belt pulley.

Sidecar guards are infinitely improved, and are, as a rule, much larger and better stayed, and in many cases have deep valances. Though mudguarding has considerably improved in the main, there is still plenty to be done, and let us hope to see something approaching perfection by next year. UBIQUE.

Foot protectors fitted to the A.J.S.



TWO TYPES OF LIGHTWEIGHTS FOR 1914.
The 2 h.p. single-cylinder two-speed Ivy with belt drive and four-cycle engine. The two stroke single-cylinder single geared Dayton—a real lightweight.

SOME OLYMPIA STATISTICS.

Few would have believed that there was a less number of motor cycles in Olympia in 1913 than in 1912. Cycle cars were also fewer as a whole, though three-wheelers were five or six more than last year; but four-wheelers were fourteen less, for last year ninety-nine cycle cars were shown, while this year there were ninety-one.

The most surprising feature of all is that there were nearly forty fewer sidecar combinations than in 1912, when 132 were shown; but the number of detached sidecars was very great.

Curious h.p. rating was another point, there being little attempt to explain the exact difference between a 7-8, a 7-9, and a 7-10, or between a 5-6 and 5½. The 3½ was equal to one-third of the whole number. There were no less than 19 of 1 h.p., the other limit was reached by a single "nine."

In 1912 there were 409 singles to 219 twins. This year the twins increased to 250 and the singles (despite the number of very low power) fell away to 343. Direct belt dropped by almost exactly 100 from 411 in 1912, and chain drive gained 25% from last year's 162. The three-speed gear has increased by about 30%.

M.C.C. Twelfth Annual Dinner.

Distribution of Prizes by the President.

THE Motor Cycling Club's twelfth annual dinner and prize distribution took place at the Trocadero Restaurant on Saturday last. Those present numbered 137, and included several ladies. Mr. Charles Jarrott, the president of the club, occupied the chair, and the vice-chairmen were Messrs. E. B. Dickson, L. A. Baddeley, R. H. Head, W. H. Wells, and H. G. Bell. Among those who supported the chairman were Major Lindsay Lloyd, Messrs. Robert Todd and T. W. Loughborough (A.C.U.), H. B. Karslake, Southcomb May (M.C.C.), and F. T. Bidlake. Other motor cycle clubs were well represented, and many had travelled long distances to the function, notably the representatives of the winners of the team trial, the Sheffield and Hallamshire M.C.C., who were there to take possession of *The Motor Cycle* trophy. The prominent trade members included Messrs. J. K. Starley, F. J. Jenkins, R. M. Brice, R. M. Banks, O. C. Godfrey, E. H. Mayes, and F. A. Applebee.

Following immediately on the toast of "The King," proposed by the Chairman, Major Lloyd gave "The Motor Cycling Club," and explained that a club could even be too popular, for it became a question of great difficulty for those who wanted to join to enter its ranks; that position the M.C.C. had now reached. What they wanted was an ever open door, and he thought that the executive had arrived at a scheme by which it would be possible to achieve this. Major Lloyd referred enthusiastically to the "open road," and certainly there are no keener exponents of it than the M.C.C. The sporting nature of the club was proved, said the speaker, by the increase in the entrants for the Exeter run; his reference to what he had noticed at previous dinners, viz., how bald-headed veterans, without a shadow of shame, came to the dais to receive gold and silver medals won in competitions, provoked much amusement. Major Lloyd concluded with a word of praise for the M.C.C. organisation and the manner in which the executive managed to run off all their events without exceeding the legal limit—remarks which caused a few merry twinkles in various parts of the room.

Only Two Speeches.

Mr. Charles Jarrott, who was welcomed with loud and long applause, announced to the delight of all present that there would be only two speeches. He continued by saying that the M.C.C. undoubtedly held the premier position as the sporting motor cycling club, the pastime was growing and with it grew the M.C.C. However, the limit had been reached and something had to be done. Major Lloyd had said that the executive had arrived at a brick wall, so the M.C.C. had decided to adopt its usual method and climb over it. (Applause.) Alterations in regulations would allow for this.

The Chairman's reference to the various important events proved that he was closely in touch with them all. "So far as the Exeter run is concerned," said Mr. Jarrott, "I feel that a car appeals to me more forcibly than a motor cycle. When I rode a motor cycle I was always kept so occupied. Machines, of course, have altered a little since that time."

The popularity of the M.C.C. events is proved by the following figures:

ENTRIES FOR EXETER RUN.

	1912.	1913.
Solo machines	64	67
Sidecar machines	68	100
Cycle cars and cars	31	64
Total	163	231

Mr. Jarrott said he welcomed the ladies who had graced the proceedings with their presence, and said his opinion was that the sidecar had much to do with the increase in the number of entries in their various runs. He explained that Mrs. Jarrott had been ill for some weeks and was not sufficiently recovered to attend and present the prizes as usual.

The Prize Distribution.

Then followed the prize distribution by the President: no light task when the numbers are taken into account. Mr. Southcomb May's task of checking the medals and keeping all straight must also occupy some considerable time.

Mr. Robert H. Head proposed the health of their president, and pointed out that they had a president who took a keen personal interest in their doings. He asked Mr. Jarrott to accept the sympathy of the members with regard to his wife's illness, and expressed their regret that she was unable to be present.

Mr. Jarrott, in replying, offered another cup for next year's London-Land's End-London Run.

The musical programme was of excellent quality, and the whole proceedings, like everything undertaken by the M.C.C., went with a swing. Although dinners are often wearying owing to the duration and quality of the orations, that criticism cannot apply to the M.C.C. dinner of 1913, as we have seldom spent a more enjoyable evening.

GORE PRIME MOVER.

Self-starting and Reversing Motor Cycle Oil Engine; Forced Gas Supply.

WE give below some particulars of a very interesting motor cycle engine, which is on new lines so far as motor cycles are concerned, but the principle has been successfully tried on six-cylinder marine engines of no less than 1,115 h.p. One great advantage is that it will run on paraffin. The engine is controlled through its valve gear.

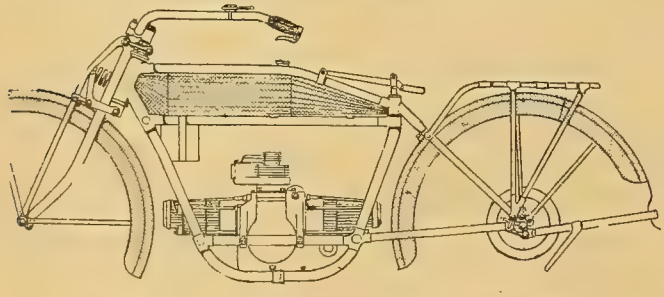
The mechanically-operated valves are of the usual construction and bear on seats formed in the valve chamber. They are retained on the seating by springs acting on the stems of the valves in the usual manner. The stems of the valves, instead of sliding in the usual guides, work in sleeves or pistons, the latter also being arranged to slide in the guides. Owing to the method of mounting the inlet valves, the pressure in the valve pockets cannot open the valves, but they offer no resistance to the action of the cam.

The body of the gas-generating device contains two cones and a fuel jet, below which is mounted an automatic non-return valve and an adjustable needle feed. The fuel pipe is attached to this body.

The action of the gas-generating device is as follows: On opening the main air valve, the air rushes into the first cone at a high velocity, creating a vacuum below the fuel jet and lifting the non-return valve. There being a vacuum, the atmospheric pressure forces the fuel through the jet. This fuel, on entering the gas-generating body, is caught by the inrushing air and is atomised; as this air is at a different temperature the fuel is also vaporised. This action is instantaneous and simultaneous, and this combination is made under pressure.

Valve Gear Control.

Two cams are provided for each valve. The cams form an inclined plane, giving a variable cut-off in either rotation. The engine is controlled by the valve gear.



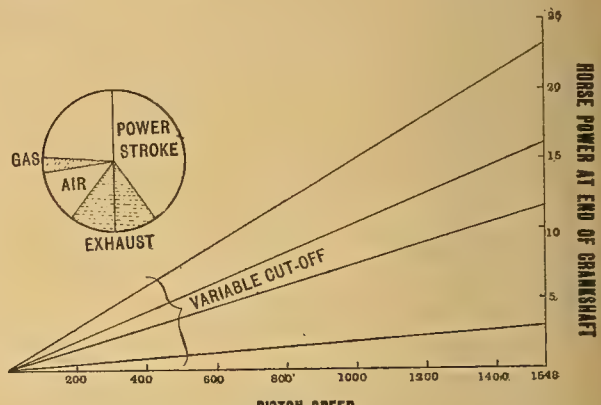
Diagrammatic sketch of Gore engine fitted to motor cycle frame.

The gas supply is independent of the cycle of operation, therefore the power output is not limited by the rate of speed of the piston. This permits of an increased supply of gas under pressure to an engine labouring under an increasing load, and at the same time making the motor self-starting. As the rate of the revolution decreases, the bulk of the gas can be increased and so maintain a steady torque at a low piston speed.

All working parts are lubricated by air and oil in combination under pressure by a device similar in construction to the gas generator, the oil sump having a capacity of one and a half gallons.

As the engine is reversible, a fifty watt generator furnishes the requisite current for ignition and electric head light. Ample supply of air for tyre inflating and pneumatic brake is provided for.

The engine is said to work on any fuel fluid enough without any alteration. This effectively solves the fuel problem, which is of importance for military and colonial work.



Gore motor cycle oil engine: 498 c.c., two pistons, and two power strokes per revolution. The diagrams show the cycle of strokes and the power curves. There is a forced gas supply independent of piston speed, and the consumption is ·45 pint per horse power hour.

The engine is geared down 4 to 1; the multiple disc clutch acts on the crankshaft, and the clutch control is by means of an inverted lever on the left handle-bar. The pneumatic brake is brought into action by an inverted lever on the right handle-bar; on top of this bar the engine control is fitted; this small lever starts, stops, and reverses the engine.

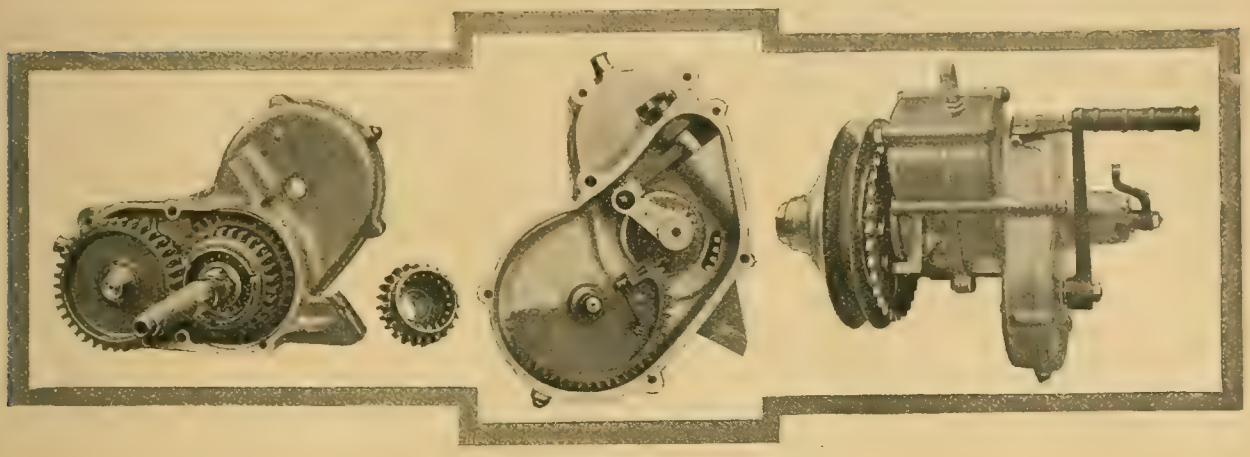
A NOVEL SIDECAR BODY.

We recently paid a visit to the works of the Light Car Body and Fittings Co., Coventry, and saw there a carrier sidecar body of ingenious and unusual type. It was made in the form of an ordinary boot, and it is interesting to note that the linear dimensions are only five times greater than the boot from which it was copied, though it looks much more. As will be seen in the photograph on this page, the finish is extraordinarily good. This body is made without frame work by a special process invented by Mr. H. S. Harvey. It is now on its way to Egypt.

A novel method of advertising—a sidecar in the form of a boot made by the Light Car Body and Fittings Co., Coventry.

A Premier Three-speed Gear.

No Dog Clutches; Gears always in Mesh; a Smooth-acting Plate Clutch.

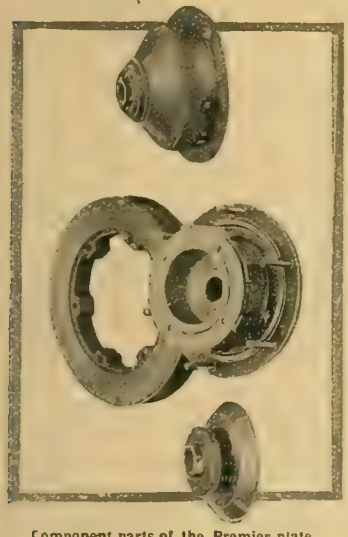


DETAILS OF THE PREMIER COUNTER-SHAFT GEAR.

(1) Gear box partly stripped to show internally toothed wheels which take the place of dogs. (2) Kick starter and gear control. Note the first spring touth in the quadrant. (3) Exterior of gear box showing control levers, kick-starter, and large diameter pulley.

FOR some time past the Premier Cycle Co., Ltd., of Coventry, has been experimenting with a three-speed counter-shaft gear, the construction of which is somewhat unusual and very neatly carried out, and from a short run on a machine fitted with the gear we can testify that the changing of speed is wonderfully easy, and that the gear box is extremely quiet on all speeds

On the layshaft are fixed three gear wheels, which are in constant mesh with corresponding wheels, free to revolve on the main shaft. Within each of these last-mentioned wheels is an internally toothed ring, the centre wheel or middle gear taking its bearings on outside extensions of the high and low gear wheels. Thus a clear passage is left inside the gears for a small gear wheel to slide on the central squared portion of the main shaft. This sliding wheel takes the place of the usual dog clutches, and meshes with each of the internally toothed rings in turn, thus locking any one of the gears to the driving-shaft and producing the required reduction in ratio. The sliding wheel is operated by a tubular sleeve working inside the main shaft and controlled by suitable means from a substantial striking lever and quadrant placed on the right hand side of the tank.



Component parts of the Premier plate clutch enclosed in large pulley

The ratios obtainable are 5, 7½, and 13 to 1, and the box can be fitted to any existing two-speed counter-shaft gear Premier.

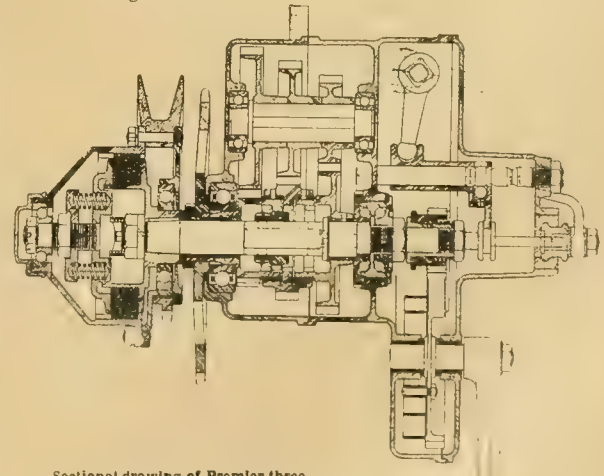
An Excellent Plate Clutch.

A plate clutch, having forty-five steel plates, is enclosed within the 8½in. diameter driving pulley, and is actuated by a rod controlled by a quick thread screw. The plates are of large diameter and the action of the clutch is beautifully smooth. On the right hand side of the gear box, and mounted within an extension of the casing, is a pinion and quadrant kick-starter, the teeth of which are so formed that there is no fear of them over riding. The quadrant when out of use is carried clear of the pinion by the action of a clock spring, so that no part of the starting gear is at work once the engine is running.

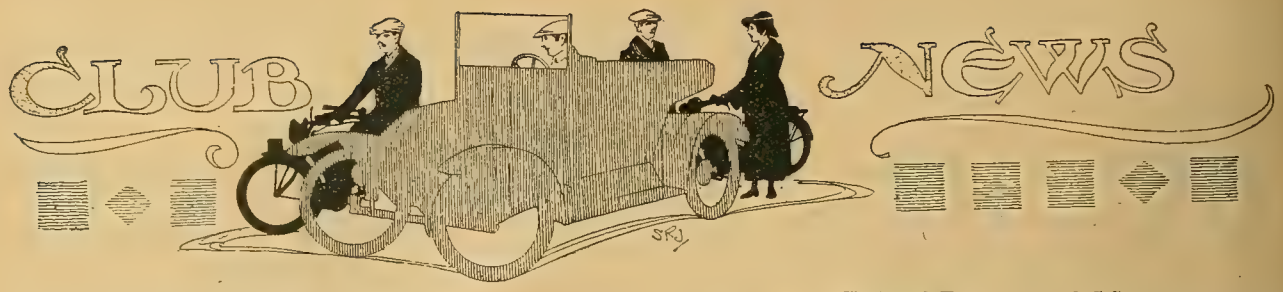
A special 3½ h.p. model will be equipped with this gear, and may be obtained with either chain and belt drive or with chain drive throughout. The big 7-9 h.p. twin can also be supplied with the new three speed.

The box which we examined, and from which our illustrations are taken, has been undergoing most severe tests, and yet there are no signs of wear or damage. All the chief features of the device have been patented.

The Premier Co. were among those firms who were quick to take up the counter-shaft two-speed gear, so that it is no surprise to find them keeping well up with the latest practice. The new box should render a 3½ h.p. Premier and sidecar an absolutely "go anywhere" mount, with the advantage of a medium ratio for moderately bad hills.



Sectional drawing of Premier three-speed counter-shaft gear showing clearly the method of construction.



Southampton and District M.C.C.

The annual dinner took place on the 3rd inst. at Scullard's Hotel, Dr. Alderson in the chair.

Cyclecar Club.

On Jan. 3rd there will be a run to Wisley (tea at the Hut Hotel).

Essex M.C.

A one day open trial will take place on January 17th. For particulars apply to Mr. E. J. Bass, Bishops Stortford, Herts.

Islington and District M.C.C.

The first annual dinner, concert, and prize distribution was held on the 11th inst., at headquarters, Camden Head Hotel, Islington Green, N. Mr. Lionel Harris, who was in the chair offered a cup for competition. About sixty members and friends were present.

Birmingham M.C.C.

The following are the most important club fixtures for next year:

April 11th-14th.—Sangster Cup Run, Birmingham-Weymouth.

May 30th-June 2nd.—Lycett Trophy Trial, Birmingham-Land's End.

August 1st-4th.—Birmingham-Edinburgh Run.

Leicester and District M.C.C.

The fourth quarterly trial for the Edwards Cup was run off on Thursday, December 4th, and the results were as follow: 1, W. H. Chapman (6 A.J.S. sc.), total error 3m. 40s.; 2, T. Green (6 Rex sc.), total error 5m. 31s.; 3, F. J. Yates (7 Indian sc.), total error 8m. 46s.; 4, R. G. Wainwright (3½ Campion sc.), total error 9m. 34s. F. J. Yates, having done the best performance in the four quarterly trials, holds the cup for one year and receives club gold medal. R. G. Wainwright receives club silver medal for second place. W. H. Chapman receives a John Bull belt as first prize in the fourth quarterly trial and T. Green a club silver medal. The club annual dinner will be held on Thursday, January 15th, at the Saracen's Head Hotel at 7.30 p.m. The annual general meeting will be held on Friday, January 23rd, at headquarters.

Public Schools M.C.C. (London).

The first annual dinner was held at the Waldorf Hotel on the 12th inst. Major F. Lindsay Lloyd, R.E., president of the club, was in the chair. After the loyal toasts Mr. Clive Preen proposed "The Club." He stated that it had only been established eight months and there were already fifty-four members, and many competitions had been held, some of which were of a novel character. Each member would find on the table a paper on which he would be asked to make suggestions for competitions for the coming year. Mr. E. M. P. Boileau, chairman of the committee, in reply, congratulated the club on its excellent officers, and said how pleased he was to have followed the success of the club during its first season, and that they had to congratulate themselves on the novelty of their competitions, and the manner in which they had been run. A musical programme followed.

At the race meeting held on the 29th ult., at Brooklands, A. J. Luce (8 Zenith) was third in Class III., with a speed of 66.97 m.p.h.

Hull and East Riding A.C.C.

The annual dinner took place on the 11th inst. at the London Hotel, Hull, when about forty members and friends attended, followed by the distribution of the prizes won during the year. The president of the club, Dr. W. H. Coates, C.C., occupied the chair.

Surrey M.C.C.

A penalty run will be held on Boxing Day, starting from the Angel Hotel, Guildford, at 10.30 a.m. Route: Godalming, Chiddingfold, Petworth, Duncton, Chichester, Lavant, Petersfield, Greetham, Farnham. The annual general meeting will take place at the Angel Hotel on January 13th at 8.30 p.m. The Marians Cup trial will be run off on February 7th.

Cheltenham M.C.C.

The last of the series of trials for the Williams Challenge Bowl was held on the 13th inst.; a prize was also presented by Mr. F. W. Corbett for the best performance by an amateur; silver awards were offered for all who obtained full marks and for the best performance with a single-geared machine. The route included Dowdeswell, Elkstone, and Birdlip Hills. The following were successful:

Silver award for full marks.—T. R. Trotter (3½ B.S.A.) and W. N. Tettery (2¾ Sunbeam).

Prize for best performance by an amateur.—P. W. Ford (3½ B.S.A.) and W. H. Littley (3½ B S.A.) tied.

Silver award for best performance on single gear.—W. H. Littley (3½ B.S.A.).

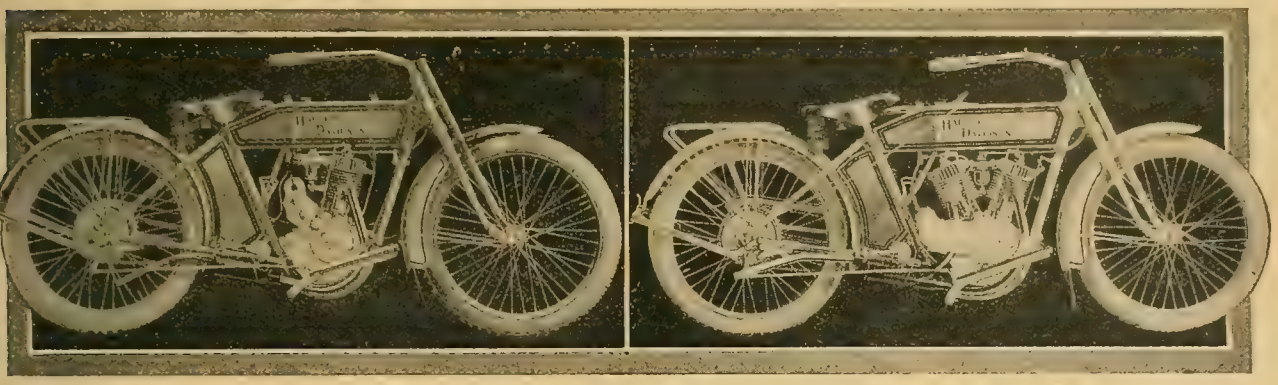
This results in a tie for the Cup, W. B. Gibb (2¾ Douglas) and T. R. Trotter (3½ B.S.A.) standing equal.

A dance will be held at the Montpellier Rotunda on Wednesday, Feb. 4th, 8.30 p.m., at which the prizes will be presented.

Members of the Sheffield and Hallamshire M.C.C.—winners in 1913 of "The Motor Cycle" Challenge Cup in the M.C.C. Team Trial. In the foreground are seen the cup and six medals which were presented to them at the M.C.C. dinner on Saturday evening.

The Harley-Davidson Motor Cycle.

A High-class Powerful American Production. Singles and Twins with Loop Frames.



TWO TYPES OF HARLEY-DAVIDSON MACHINES.

(1) The single-cylinder 5 h.p. model with chain drive, footboards, overhead inlet valve, and separate petrol and oil tanks. (2) Valve side of the 8 h.p. two-speed model, which is on the same lines as the 5 h.p.

THE firm of Harley-Davidson, whose factory is at Milwaukee, U.S.A., is very well-known in America, but up to the present we have only seen an occasional specimen over here. All this is to be altered, however, for the firm has secured premises in Great Portland Street, W., whence it will handle the sale of the two Harley-Davidson models, the 8 h.p. chain-driven twin, with or without two-speed gear, and the 5 h.p. single inclined cylinder, on which transmission is also by chain.

The 8 h.p. twin has a capacity of 815 c.c., and the carburetter is fitted between the cylinders. Two chains are employed for the drive, both being on the left side. The two-speed gear is fitted in the hub, and is, to all intents and purposes, a bevel type balance gear (on the lines of the early quad gears of about 1900 to 1902), one of the large pinions being locked by a dog clutch to produce the low speed action. This hub illustrates the barrel of the hub being cut away to show the bevel pinions and the sliding portion of the clutch.

The brakes are a feature of the Harley-Davidson models, and the 1914 brake has a drum nearly 7½in. in diameter by ⅞in. wide. These brakes have been in use on all the three-wheeled delivery trucks made by this firm for a year, and have given every satisfaction. The brake band is operated by pedal, conveniently placed for the right foot.

Clutch Mechanism.

The clutch control is arranged so that it can be brought into action either by a pedal on the near footboard, or by the clutch lever, operated by hand, also fitted on the near side.

Another feature of this American model is the folding footboards, which permit of several different positions for the feet, thus avoiding cramping on long rides. These footboards are covered with rubber.

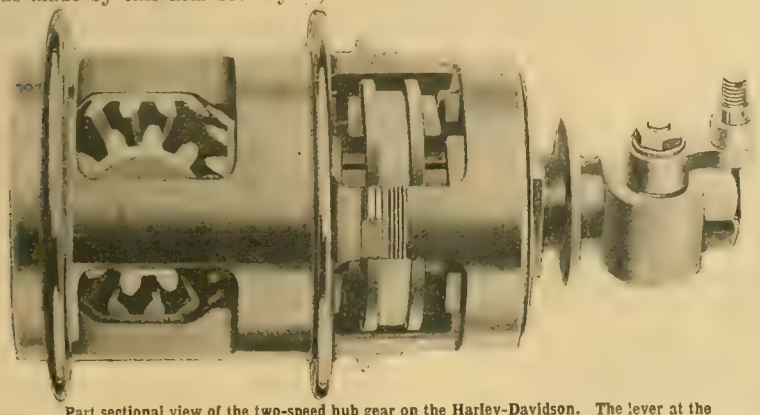
The frame is extremely strong, and lined throughout with steel liners, and is not designed in the usual manner, but the seat tube and down tube are one continuous member, passing right underneath the crank case : an extremely strong method of building the frame. The wheels of the Harley-Davidson are 28in. in diameter, and the tyres 3in. back and front.

The single-cylinder model, with the exception of the engine, is practically identical with the one we have just described.

The Tricar Goods Truck.

The three-wheeled goods truck, as it is termed in the States, is a type with which British riders have not had very much to do of late. It is a tricar which can be fitted with a front seat for a passenger or a box for carrying goods. The frame of the truck is constructed of channel steel, tapered fore and aft, and in it is fixed the bicycle minus the front wheel and fork. The steering details of this machine are excellent, and although it is difficult to imagine the revival of the tricar type of motor cycle in this country, it is just possible that as machines of the Morgan and A.C. type give such excellent results, a considerable measure of popularity may fall to this model.

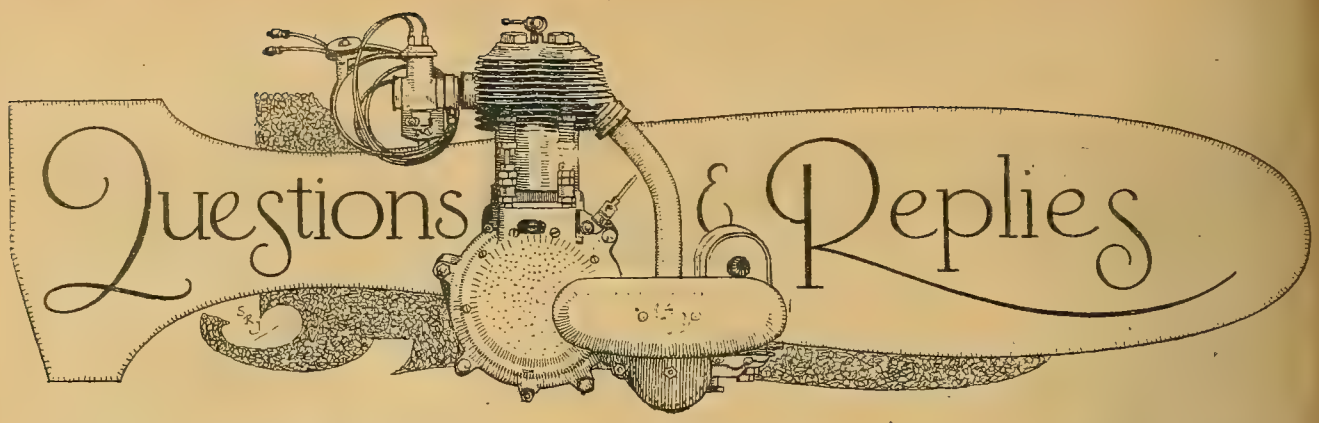
Double band brake on the Harley-Davidson models. One brake is of the internal expanding type, while the other is of the external contracting pattern.



Part sectional view of the two-speed hub gear on the Harley-Davidson. The lever at the end operates the dog clutch.

While on the subject of Harley-Davidson machines, it may be interesting to mention the history of this company. The four members of the firm—three Davidsons and one Harley—commenced operations in a very small way some years ago, and now have one of the largest purely motor cycle factories in the world, employing 1,500 hands, and in 1913 they manufactured 20,000 machines and expect to turn out 25,000 in 1914.

We hear that it is the intention of this firm to take part in British competitions in 1914.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Rigid or Flexible Sidecar.

I should be glad if you would tell me what advantages (if any) a rigid sidecar possesses over one of the flexible variety, and which type is the better for cornering. We have rough roads in Victoria, Australia, and opinion seems sharply divided on which is the better type.—C.B., Victoria, Australia.

The rigid type of sidecar is now practically universal. It is simpler to fit and lighter, and probably stronger for its weight. It steers more easily and is much easier to detach. It also allows of a much more simple frame construction. Its disadvantage is that on a highly cambered road the whole outfit has necessarily to lean a little to one side. Taken altogether, we should advise you to have a rigid type of sidecar, even if your roads are very bad.

Big Bore Twins.

Will you please advise me what advantages a 90 × 77½ side by side valve 8 h.p. engine has over an 85 × 85 mm. model? I understand that it is slightly faster and runs more sweetly.—E.B.

The 90 × 77½ mm. engine is designed to run at a far higher speed as regards revolutions per minute than the 85 × 85 mm. model. As the engine is essentially a high-speed one better results will be obtained with it if a slightly lower gear ratio is used than with the 85 × 85 type. With regard to the smoothness of running, we should not think that there is very much difference between the two, but, provided that it is not over-geared, the big bore engine may perhaps be the smoother.

Fitting a Kick Starter.

I am desirous of fitting a kick starter to my three-speed T.T. Roadster Triumph. Could you kindly give me any names of makers of these, and would you recommend such a fitment?—C.P.

We have never seen a kick starter fitted to the machine in question, but provided the clutch operating rod is not in the way there is no reason why a kick starting pedal connected to a free wheel sprocket on the back wheel should not be fitted to the back fork, though it would probably disfigure the machine as regards appearance. As you are probably aware, the engine in question is fitted with an admirable half-compression device, which renders starting on the low gear literally a matter of a slight push, and we do not think that you would find a kick starter any material advantage on a T.T. model.

Automatic Inlet Valve.

I am writing as a novice to ask if you would give me your opinion of an engine with automatic inlet valve, and would you explain how it works? The reason I ask is that I have had offered to me a motor cycle with an engine with automatic inlet valve, and as I understand this kind of valve is not as good as the mechanically operated, I should be glad to know if this is a drawback to my purchasing.—A.C.V.

Generally speaking, automatic inlet valves are a thing of the past, except for very small engines. Far more power can be obtained with mechanically operated inlet valves, and a better range of engine speed. For easy starting, with an automatic valve you require a weak spring, but for power and pace a strong one is wanted. Thus it is obviously impossible to combine both virtues in one spring. At the same time quite good service may be obtained with an engine fitted with an automatic inlet valve, especially if the engine is not large. The action of the valve is governed by the suction of the piston, which causes it to open, and the spring closes the valve when the piston has reached the end of the stroke.

Dressing a Slipping Clutch.

I have experienced a good deal of trouble with the clutch on my 1913 8 h.p. machine. Leather wore very quickly, and I have now substituted Ferodo, which operated very well at first, but with time the surface became very hard. Ferodo is undoubtedly the best material, but owing to its great strength and hardness will stand a much greater pressure. So I am fitting a much larger additional spring to the clutch. I should also like to know if there is a suitable dressing for Ferodo, to prevent slipping. Up to the present I have applied varnish and resin.—C.H.

The dressing of resin and varnish, which you say you are using to dress your Ferodo clutch, is about as bad a substance as you can possibly use, and is bound to make the clutch very hard and very fierce, with the result that slipping is bound to occur very shortly. Ferodo should be dressed with ordinary engine oil and only requires a few drops a week. You will find in all probability that it will be necessary for you to scrape the surface of your clutch in order to remove all traces of the varnish and resin before you can get good results.

A NEW FEATURE.

"LOOKING BACK." *In the course of our work we frequently have occasion to refer back to old numbers of "The Motor Cycle," and invariably find our excursion into the past a task of extreme interest. These old numbers extend back over a period of more than ten years, and it is only by a perusal of these past volumes that it is realised vividly how complete a history of the motor cycle movement our pages provide. And if a perusal of the doings of the "old brigade" are of interest to ourselves, who live and move and have our being among motor cycles and those interested therein, and thus may be said to be taking a "busmen's holiday" by such dips into the past, it has occurred to us that our readers may also like to share in the pleasure. We therefore propose for the next few months to review briefly week by week the position of the motor cycle in the corresponding week exactly a decade ago. The comparisons and reminiscences will, we feel sure, prove of absorbing interest alike to new motor cyclists as well as riders of the old brigade. Valuable old prints will be used for illustration purposes.*

"The Birmingham Daily Mail"

(Dec. 8th, 1913)

states with regard to the new

LODGE

WEATHER-PROOF PLUG

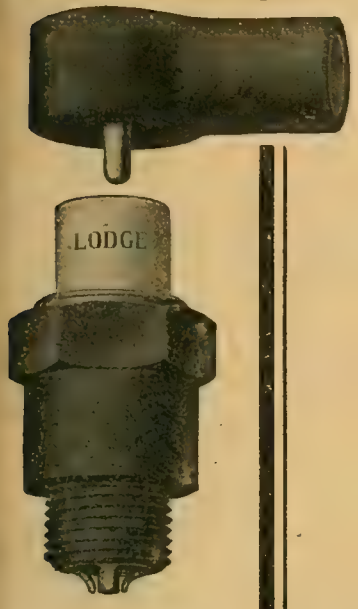
"Very effective in every way, and certainly the only real water-proof plug I have yet come across."

—Fire-proof, Shock-proof, and Weather proof—

No screw terminal. All high-tension metal parts completely enclosed and protected from wet and mud. The ideal plug for motor cycles.

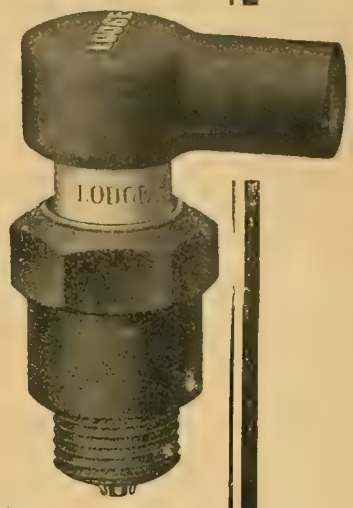
Price 5/- each

(complete with quick detachable cable connector, as illustrated).



Note how conveniently spark may be tested by raising insulated terminal from plug.

Illustrations actual size.

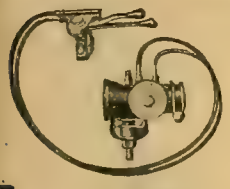


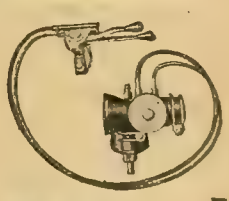
Showing quickly detachable and insulated cable terminal in position, overlapping plug insulator.

1914 *LODGE PLUG LIST IS NOW READY.*

THE LODGE SPARKING PLUG CO., LTD.,

BIRMINGHAM.





RECORDS GALORE

WITH THE

SENSPRAY

CARBURETTER

Riding a 3½ h.p. Rudge at Brooklands on Thursday, Nov. 20th, Messrs. C. G. Pullin and T. E. Greene established 19 RECORDS as follows:

		Classes.	H. M. S.	M.P.H.
250 miles	Mr. C. G. Pullin	C and D	4 11 2⅗	59·75
300 miles	„ „	C and D	5 1 22⅘	59·72
350 miles	„ „	C and D	5 51 36⅕	59·72
400 miles	Mr. T. E. Greene	C D & E	6 41 21⅕	59·79
5 hours	Mr. C. G. Pullin	C and D	298 m. 1,020 yd.	59·71
6 hours	„ „	C and D	358 m. 1,106 yd.	59·77
7 hours	Mr. T. E. Greene	C D & E	419 m. 823 yd.	59·92

This also beats Class E Records for 8, 9, and 10 hours.

7 HOURS AT 60 MILES PER HOUR

CHARLES H. PUGH, Ltd., Whitworth Works, Birmingham

Mr. Max Heinzel, riding a 2 h.p. N.S.U. at BROOKLANDS, on Wednesday, Nov. 26th, established the following RECORD:

Class A, 3 hrs., 135 m. 1101 yds. 45·21 m.p.h.

Lieut. Stewart, riding a 2¾ h.p. N.S.U. at BROOKLANDS, on Thursday, Nov. 20th, made the following RECORDS:

8 hours, 328 miles 184 yds.
9 hours, 369 miles 1454 yds
350 miles, 8 hours 34 min. 4⅘s.

ALL FITTED WITH THE SENSPRAY.

SUNBEAM

2¾ h.p.
3½ h.p.
6 h.p.
SUNBEAMS.

There is nothing to compare with these Machines for 1914 "The Motor Cycle" of Dec. 11th, says re the Sutton Coldfield trials on Dec. 6th

"The fastest time in the speed test was made by V. Busby on a 1914 model 3½ h.p. Sunbeam, and he wins the SUTTON CUP."

and

"Watson's (6 h.p. and sidecar) performance in the flexibility trial was a particularly fine one."

Write for 1914 Catalogue to—

JOHN MARSTON, LTD.,
11, SUNBEAMLAND, —— WOLVERHAMPTON.

London Showrooms: 57, Holborn Viaduct, E.C., and 157-158, Sloane Street (close to Sloane Square), S.W.

TRANSMISSION

N.S.U. RECORDS

On November 20th, Lieut. R. N. Stewart, riding a two-cyl. N.S.U. (54½ x 75 mm.=349 c.c.), established new records in Class B for the following distances and times:

350 miles ..	8 hrs. 32 min. 4⅘ sec.=41.01 m.p.h.
8 hours ...	328 miles 184 yards=41.00 m.p.h.
9 hours ..	369 miles 1,454 yards=41.09 m.p.h.

Of this performance, "The Motor Cycle," 27th Nov., says: "This ride was noteworthy as it was a genuine amateur attempt to verify Stewart's ability to ride nine hours at Brooklands to settle a sporting bet made by Stewart with his fellow officers in his regiment. He had no trade assistance whatever, and had his own orderly and servant to assist him. He ran most consistently from start to finish, and would doubtless have done much better but for the very high wind which prevailed all through the ride."

On Nov. 27th, Mr. Max Heinzel, riding a 2 h.p. N.S.U., at Brooklands, accomplished the following fine performance:

3 hrs. — 135 miles — 1,101 yards

averaging

Over 45 miles per hour.

MODELS FOR 1914

3½ h.p.
Twin-cylinder, 498 c.c., two-speed gear and free engine, belt drive.

6-7 h.p.
Twin-cylinder, 830 c.c., chain drive, three-speed countershaft gear, 26in. by 2½in. tyres.

7-9 h.p.
Twin-cylinder, 996 c.c., chain drive, three-speed countershaft gear, 28in. by 3in. tyres.

THE N.S.U. MOTOR Co., Ltd., Offices and Showrooms: 186, Great Portland Street, London, W. Goods and Repairs: 83-85, Bolsover Street, London, W.

A daring feat during the performance of the Klein troupe.

Carburetter Adjustment on a Big Twin.

I ride a 6 h.p. 1911 twin with B. and B. carburetter and sidecar attached, and I find that I cannot open the air at all except at very high speeds, *i.e.*, about 40-50 m.p.h. For all ordinary running, from 7 m.p.h. to 30 or so, I have the air lever closed and ride on the gas lever, and even at 30 m.p.h. do not open the gas more than a quarter. On any stiff rise, such as the Macclesfield-Buxton Road, over the Cat and Fiddle, I can take sidecar and passenger up on top gear (N.S.U. two-speed) with gas about half open and no air. The cycle, sidecar, passenger, and self weigh something over 500 lbs. I have never cared to run "all out," as the speed gets too much of a good thing on bumpy roads, even with gas half out. As my benzole consumption is about 50-60 m.p.g. only, it seems to me that the carburetter is at fault, although it is very handy—picks up at once and is easy to control. At the same time for traffic it seems a little too powerful. When running slowly on little gas only the rear cylinder fires; it seems that what is too thin a mixture for the front cylinder is all right for the rear one.—F.S.G.

It seems as if one of the following troubles occurs: (1.) The jet you are using is too small, or, contrariwise, the *main* air inlet is too large. An air funnel around the jet is the remedy in the latter case. (2.) Air is being sucked either in the neighbourhood of the slides or somewhere in the induction pipe. (3.) If the jet is large a small particle of grit or other foreign matter may have become wedged in the orifice, thus reducing the amount of petrol that passes through it, and so minimising the amount of gas that the engine will not take any air. This, however, seems very improbable, since you clearly state that you can attain a speed of over thirty-five miles an hour, also your petrol consumption is large enough to eliminate the possibility of your running on a small jet. Therefore we come to the conclusion that there is an air leak in your carburetter or induction pipe, yet at the same time it must be fairly minute, otherwise the engine would not pull so well on hills. The fact that only the rear cylinder fires when the engine is running slowly may be due to several things—either the contact points on the magneto are dirty and should be polished, or the sparking plug points of one cylinder are foul or have too wide a gap. What this seems to point to is that the air leak takes place where the induction pipe joins the front cylinder, and this air leak would naturally prevent your opening the air lever when running at medium speed.

READERS' REPLIES.

A Curious Complaint.

I should like to advise "E.M." (who writes in *The Motor Cycle* of November 27th) to take out his exhaust valves and carefully to examine the cylinder seatings for cracks facing the piston. The running of his machine fits my own case and another here exactly. In both cases it was found to be cracked seatings in both cylinders. The machines are the same year and make, excepting these are 7 h.p. The reason of this wholesale cracking is very simple, I think; the exhaust valves practically overlapping the piston top, there being next to no wall in between.—J.T.

Air Leaks.

Your correspondent "Twincy" in your issue of Dec. 4th, like others, has experienced difficulty in getting the front cylinder of his 6 h.p. twin to fire at less than about 20 m.p.h., and many suggestions have been brought forward at different times as to the cause. Some time ago I experienced the same trouble, and although the magneto had been overhauled by the makers the trouble continued. After much research I discovered that the platinum points did not separate equally for each cylinder, and that when breaking for the front cylinder there was not sufficient clearance, and consequently no spark at the plug at low speeds. I removed the metal block inside the contact breaker ring that operates the front cylinder and placed beneath it a piece of thin brown paper, screwed it again in place and the difficulty at once disappeared. Unless the armature and the contact breaker ring are absolutely dead centre this difficulty will arise. A hair's thickness will make all the difference to sparking at low speeds. This often accounts for difficulty in starting, I think. —Twin Spark.

EXPERIENCES WANTED.

"C. Cook" (Leeds).—Efficiency of the Levis and Connaught machines.

F.H." (Lower Walton.)—Oildag in motor cycle engines. Douglas in particular.

"J.A.D." (Essex).—Armstrong and other three-speed hubs for a 6 h.p. twin and 3½ h.p. single.

"H.W." (Glasgow).—5-6 h.p. Clyno sidecar combination. General reliability, consumption, and durability.

"A.A.B." (Finchley).—Running costs for about 5,000 miles of a 2¾ h.p. twin motor cycle, especially the Douglas; everything included.

"A.R." (Hull).—Duo cycle car, 1913. Reliability, petrol consumption, speed, whether able to keep the road at high speed, repairs, and wear and tear.

We have letters from the following readers unaccompanied by stamped addressed envelopes. If the senders will forward envelopes in accordance with our regulations their queries shall have attention: W. C. Pepper (Liverpool), J. Hanoer (Barry Dock), J. F. Sutcliffe (Littleborough), B.G.L.G. (no address), Thos. Miller (Duns., N.B.), and V. D. Dennis (Uppingham).

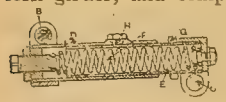
A group of motor cyclist trick riders, the Klein family, who are now appearing at the Alhambra Theatre, Leicester Square. The lightweight N.S.U. used by the troupe has to withstand exceptionally rough treatment.

PATENTS

By ERIC W. WALFORD, F.C.I.P.A.

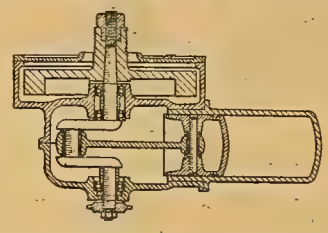
A Spring Fork Improvement.

This fork is of the well-known Druid type, but the upper links A are designed to afford a slight longitudinal movement in addition to the ordinary up and down motion. Each link is pivoted at B to the ball head clip, and at C to the fork girder, and comprises two telescopic parts D E connected by a tensional spring F. It will be readily seen that this construction affords the advantage stated, whilst in case of fracture of the spring F the link may be rendered rigid by tightening up the locking ring G against the outer telescopic member D, which will draw the inner member E to its limit position against the stud H.—O. Filkin, No. 23,400, 1912.



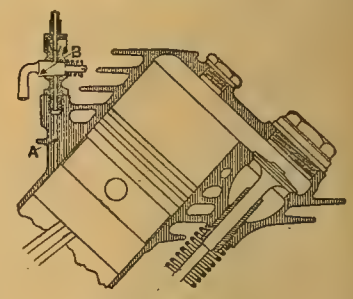
An Outside Flywheel Engine.

To overcome the chief objections to engines of this type, this inventor locates the flywheel in a special housing which carries the engine attachment lugs. The flywheel therefore lies in the central plane of the machine with the cylinder on one side and the pulley on the other. The flywheel is therefore out of the way of damage in the event of a side-slip, and cannot throw mud and oil. Further, the air supplied to the engine passes through the housing in order that it may be purified by centrifugal separation. As the air is rotated rapidly in the flywheel housing, dust, etc., is thrown outwards and passes away through outlets in the flywheel housing. Various bearing arrangements of the crank chamber are described. There may be one bearing between the crank and the pulley, or one on each side as shown, and there may be a third on the outer side of the flywheel housing.—J. E. Wilks, No. 6,988, 1913.



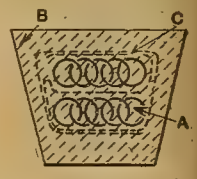
A Cylinder Priming Arrangement.

The ordinary injection tap in the cylinder head has the disadvantage, when used with a flat top piston, that a relatively large amount of petrol has to be injected before enough of it runs around the sides to free the piston. By the construction illustrated the injection orifice A is situated at some distance down the cylinder wall, so that the fuel injected comes directly upon the side of the piston. A cut-off tap is fitted at B.—Soc. Anon., H. and A. Dufaux et Cie., No. 5,882, 1913.



A Wire and Rubber Belt.

Instead of a core of canvas and a rubber casing this belt is formed of helical wire coils A, surrounded by a rubber casing B. In addition, the actual core of the belt may be wrapped in a canvas sheath C.—J. P. Higgins, No. 24,317, 1912.



Carburetter Atomisers.

The price of the motor cycle "Vapo" atomiser, which was described in our last issue, is 10s. 6d.

Well-known Rider's Appointment.

Arthur G. Fenn, who has been so well known as a competition rider on Humber and B.S.A. machines in the past, has been appointed sales manager to the Dew Engineering Co., Eynsford, Kent, makers of the D.E.W. cycle car.

Tyres in Ireland.

The Spencer-Moulton depot of 19, Crow Street, Liverpool, is being closed down, and the makers of this well-known tyre have appointed Mr. C. E. Jacob, of Dublin, Belfast and Cork, to be their managing agent in Ireland.

The G.N. Cyclecar in Spain.

In a recent Reliability Trial held by the Moto Club Deportivo in Spain, Senor J. Teixido, driving a G.N., secured a gold medal. It is interesting to note that he only took delivery of his machine the day before the trial.

Company Report.

The directors' report of the Palmer Tyre Limited, for the twelve months ended Sept. 30th, is to hand.

The 19th annual general meeting of the company will be held at the offices, 106, Cannon Street, E.C., to-day, the 18th inst., at 2 p.m. The accounts show a profit for the year of £13,044 2s. 8d., to which is to be added the balance brought forward from last year—£365 13s. 5d., making an available total of £13,409 16s. 1d. The directors recommend a dividend at the rate of fifteen per cent. per annum, and to carry forward £3,000 to reserve.

SPARKLETS

Montgomery Sidecars in London.

Owing to the greatly increased demand for Montgomery sidecars in the London district, this firm will shortly be making arrangements with the principal agencies to carry a stock of their sidecars. In the meantime Mr. A. P. Rey, of Great Portland Street, has a selection of Montgomery sidecar models in stock.

Auto-wheels in America.

A. L. Garford, who some years ago was a large saddle manufacturer in Ohio, but who has more recently been engaged in motor car manufacture, has, we hear, acquired the sole rights for the United States of America of the well-known Wall Auto-wheels, and will shortly commence making them in quantities in Ohio.

American Duty Tariffs.

Messrs. Davies, Turner and Co., Ltd., 52, Lime Street, London E.C., who are foreign carriers, inform us that they are still receiving enquiries from motor cycle makers and others concerning the new American duty tariff which shows that there are still many business firms unfamiliar with the duties payable. The firm still have a number of copies of a leaflet which gave particulars of these new duties on motor cycles, etc., and will send one to anyone interested so long as the stock lasts.

The Stag Cycle Car.

The Stag Co. inadvertently made a slight omission in giving us the price of the Stag cycle car described in last week's issue of *The Motor Cycle*. With spare wheel and cape cart hood the complete price is £95 11s.

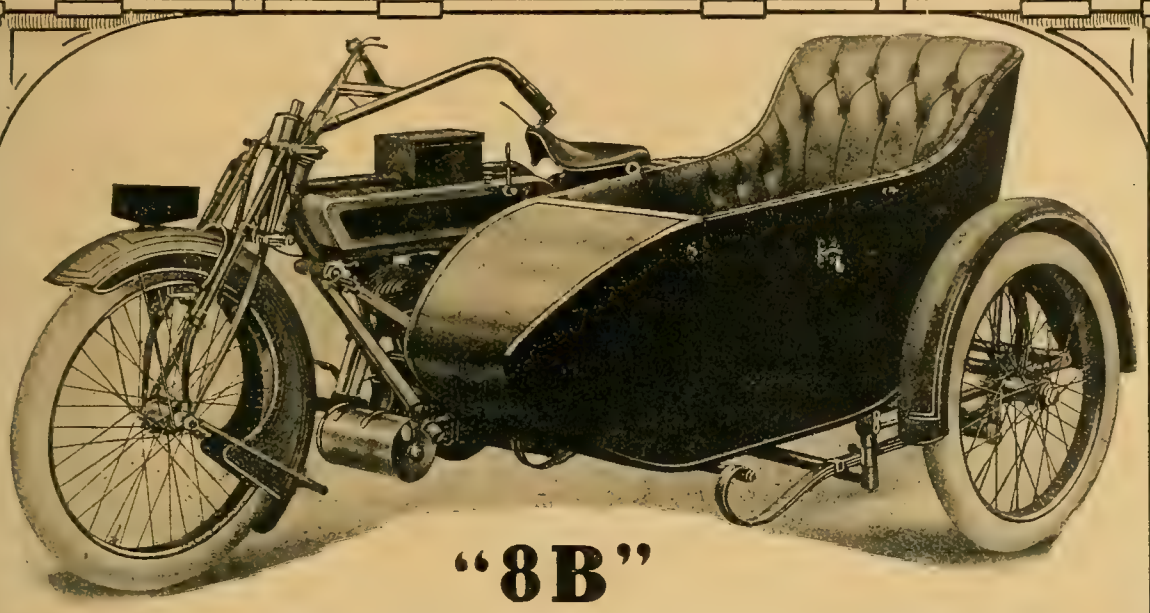
Catalogues Received.

"Hutchinson Tyres, 1914, for Motor Cycles and Cycle Cars." An illustrated booklet of all the Hutchinson specialities, including a full range of clothing.

"J.A.P. Models, and List of Some Successes gained on J.A.P. Models." (Messrs. J. A. Prestwich and Co., Northumberland Park, Tottenham, N.) A well illustrated catalogue of all the latest J.A.P. engines with diagrams showing the new system of lubrication, etc.

Ariel motor cycles are splendidly described in an attractively got-up catalogue, which reaches us from Ariel Works, Bournbrook, Birmingham. In addition to well illustrated descriptions of the 1914 models, many interesting photographs are given of events during 1913 in which Ariels have figured successfully.

Messrs. Wait and Co., Ltd., Belgrave Gate, Leicester, send us a catalogue of the well known Clyde motor cycles, which are made in three models for 1914, viz.: 2¾ h.p. single, 4 h.p. single, and 6-8 twin. Mr. Wait is one of the pioneers of the motor cycle movement, and, we believe, was the first manufacturer in this county to standardise magneto ignition on motor cycles. It follows, therefore, that great experience goes to making the latest Clyde a thoroughly reliable and workmanlike machine.



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The CRACK SIDECAR OUTFIT for 1914.

A BRIEF PERUSAL

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Three-speed countershaft gear box; silent chain drive, embodying shock absorber; metal to metal clutch; an effective system of lubrication to engine, chassis, gear box and clutch; kick starter; foot operated internal expanding brake on back wheel; car tyres all round, specially heavy on driving wheel; large pan seat, etc.

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THE 3½ h.p. Roller Bearing, Twin-cylinder, horizontally opposed A.B.C., with automatic lubrication, will give you

GREATER COMFORT,
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and its splendid finish will put your machine in a class quite by itself.

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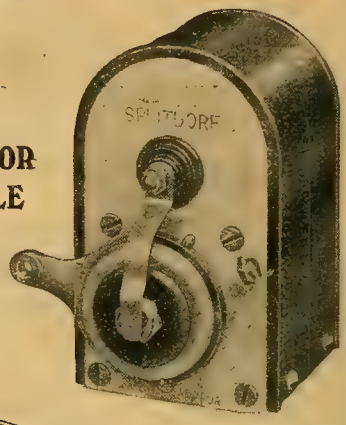

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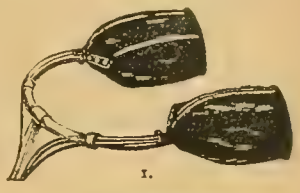
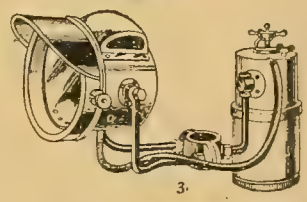

1.

2. Carrier Cushion for fitting over carrier, to provide a comfortable seat for a passenger. Made of leather, with Japanned top, and filled with Doe Hair. Size 15 x 7½in., and complete with four straps .. Each, **4/6.**

2.

3. The "Sovereign" Motor Cycle Lamp Set (as sketch)—Lamp Generator, and Bracket. Special price, complete.. **20/-**

4. Expanding Valise for Motor Cycle Carrier. Size 16 x 11 x 5½ins., expanding to 16 x 11 x 8ins. .. .. .. Each **26/6** Better quality **48/-**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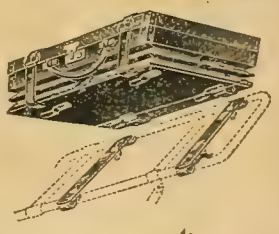
5. 30 Hour Motor Cycle Watch and Case (as sketch), lever movement. Dust and weather-proof. With guarantee .. **9/6.**

6. Jack for Sidecar, very light in weight and convenient for travelling, taking up little space **3/6**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7. Double-twist Motor Cycle Horn (as sketch). Powerful deep note. In nickel, with adjustable clip fastening .. .. .. **9/6.**

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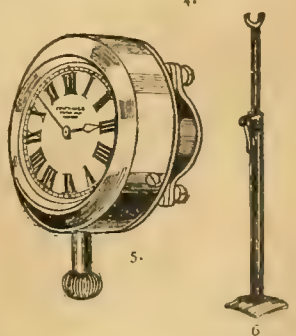
5.

6.

If you are unable to call, write for list of reduced prices of (1913 Model) Motor Cycles.

7.

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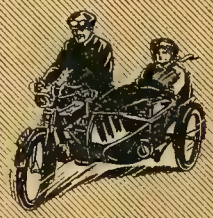

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We have placed a large contract for these splendid machines, and will supply for cash or extended payments, or will make a good allowance for your present machine in exchange.

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2½ h.p. models, **24 gns.** Delivery from stock. Two or three-speed models supplied also.

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Latest up-to-date pattern, low riding position, dropped top tube, back forks wide enough to take 3-speed hubs: **£1 12s. 6d.**

Set of malleable iron castings for Triumph pattern foot brace	1/6
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New 1913 Simms magneto, suit 3½ h.p. single cylinder, cost £5 10 ..... **£2 19 6**

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Bat.

BAT, 3½h.p., 1913, Armstrong 3-speed, grey T T. model, side valves, lamp, horn, tools, like new, with sidecar; £44.—Gregory, butcher, Ryecroft, Ashton-under-Lyne [4854

6h.p. Bat, chain, 2-speed late 1912, Canoelet sidecar, hood, carrier; £50; exchange cheap J.A.P. cycle car, Morgan preferred.—Ranger, 78, Walmer St., Rusholme, Manchester. [X9993

6h.p. Bat-Jap, late 1912, chain drive, 2-speed, fitted with Mills-Fulford sidecar, electric lamps, etc., co t complete £.5, everything perfect; any trial; must sell, best offer accepted.—57, Enstcott Hill, Swindon. [X127

8h.p. Bat Motor Cycle and sidecar, delivered Oct., 1912, only covered 3,090 miles, fully equipped, with all accessories and spare parts and tools, new tyre on back, good condition; trial given; price £50.—C. King and Co., 25, St. Leonard's Rd., Windsor. [4971

BAT-J.A.P., 6h.p., spring frame, £72; cane sidecar, £18; extras include automatic and hand pump lubrication, petrol filler electric head, side, rear lights, speedometer, Kempshall tyre, Rich's tube, tube case, pannier bag, valves complete, spare petrol tin, kept carefully private condition, run 3,500 and still using; outfit cost 100 gns., for £75, or near offer.—Thompson, 16 Sunbury Av., Newcastle-on-Tyne. [X129

Bradbury.

BRADBURY, 1914 models; deliveries from stock; exchanges quoted.—Collier, Westgate, Halifax. [0385

BRADBURY, 6h.p., 3½h.p., all 1914 models from stock; exchanges.—Cordingley, Haslingden. Tel: 2Y [5048

3½h.p. 1912 Bradbury, 2-speed, perfect; £34; seen by appointment.—Mountford 7, Norfolk Av., Stamford Hill, N. [4902

BRADBURY, 3½h.p., 1912 free engine, exceptional condition, accessories; bargain, £65.—Mebes, 156, Great Portland St., W. Tel.: 3426 Mayfair. [4967

BRADBURYS, 1914 models, best deliveries; easiest instalment terms; best exchange allowances.—Maudes, 136, Great Portland St., London, W. [4836

1912 3½h.p. Bradbury, 2-speed and clutch in back wheel, good condition; offers.—The Stamford Hill Motor Co., 128, High Rd., S. Tottenham. 'Phone: 1982 Tottenham. [X224

1913 3½h.p. Bradbury, chain drive, 2-speed, free engine, all accessories, splendid condition, 1,800 miles Millford sidecar; special bargain, 47 gns.; private owner.—J. Rollo, Eleot, Caversham, Reading. [X9581

1912 Bradbury, Armstrong 3-speed, lamp and horn, also sidecar, canoe shaped, cane body, Chater-Lea fittings, all in good condition; combination £40; separately £36 and £6 respectively; photograph on application, trial by appointment.—Morgan, Rathgar, Station Rd., Redhill. [X126

B.S.A.

B.S.A., 2-speed, 1913, unused; 50 gns.—Read's Garage, Sheerness. [4725

B.S.A., 1913, 2-speed, new tyres, 1in. belt, lamp, horn; £42.—Salmon, 6, Woodlands Av., Wanstead. [X9997

B.S.A., 1913 (late), 2-speed, 2½ tyres, drip feed, as new; 50 gns.—71, London Rd., St. Leonards. [X9946

B.S.A.—All 1914 models, best deliveries; deferred payments or exchanges.—Maudes, 136, Gt. Portland St., London, W. [4837

B.S.A., 1913, 2-speed model, chain drive, very good machine, been little used and well cared for, lamp, horn; £46.—Laytons, Bicester, Oxon. [X58

B.S.A., 1912, 3½h.p., 2-speed model excellent condition, complete with good lamp and horn; bargain, £33.—Laytons, Bicester, Oxon. [X49

B.S.A., 3½h.p., free engine, 1912 model, purchased brand new June, 1913 only ridden 500 miles, in absolutely new condition throughout, horn, tools, etc.; any examination; £34, or close offer.—Openshaw, Brooklands, Bury. [X8716

Calcott.

2½h.p. 1912 Calcott, splendid condition, very fast; £18 or near offer.—Spinks, Cross Hill, Norwold, Norfolk. [4891

Calthorpe.

1912½ 4½h.p. Calthorpe, Precision, 2-speed, free engine (countershaft), and Chater-Lea sidecar, reliability winner, little used; owner buying car; £45 cash.—Rain, 99, Howard Lane, Denton, Manchester. [X11

Campion.

CAMPION-J.A.P., 1912, 6h.p. twin combination, P and S. gears, just overhauled, all spares; £45.—A. Wagstaff, Bread Lane, Brinsley, Notts. [A9956

Centaur.

1912 2½h.p. Centaur Lightweight, a real topper, brand new; sacr. £34.—Cordingley, Haslingden. Tel.: 2Y. [4570

Chater-Lea.

1912 8h.p. Chater-Lea-Jap, 1913 Sensspray with Badcock's by-pass, 1913 S. and R 13 gn. sidecar, perfect condition, 2 lamps, horn pillion seat; £60.—Smith, 268, Gibbet St., Halifax. [X105

6h.p. Twin Chater-Lea, Palmer, with butted tubes, mag., Whittle, bargain, £18/10; 4½h.p. J.A.P., Chater-Lea, mag., studded tyres, J.A.P. clutch, bargain, £18/10; bought car.—241, Balfour Rd., Ilford. [5015

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4½ h.p. **QUADRANT,** new 1912 model	£35 0
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3 h.p. **P. & M.,** 2-speed gear	£10 0
1913 **REX** Sidette, cost £80	£40 10
3½ h.p. **REX,** spring forks, magneto	£10 10
3½ h.p. **BRADBURY,** 1912 model, with 2-speed gear and £11 coachbuilt Sidecar	£42 10
4 h.p. **ROC,** 2-speed gear, handle starting, with Sidecar	£20 0
4-cylinder **F.N.,** magneto	£15 10
5 h.p. **XL'ALL,** twin, nice order	£3 10
3½ h.p. **REX,** M.O.V., low built	£7 15
6 h.p. **BAT-J.A.P.,** P. and M. 2-speed	£35 10
3½ h.p. **REX,** 1909 model, magneto	£15 10
4 h.p. **J.A.P.,** fitted with 1913 Armstrong 3-speed gear	£22 10
3½ h.p. **HUMBER,** 1913, 3-speed model, done about 200 miles, complete with sidecar	£45 0
4½ h.p. Twin **MINERVA,** m.o.v., magneto	£12 10
3½ h.p. **REX,** 1908, 2-speed sidecar	£15 10
3½ h.p. **PREMIER,** 1912, 3-speed model, complete with Sidecar	£42 10
4 h.p. **ROC,** 2 speeds, handle-starting	£20 0
3½ h.p. **N.S.U.,** free engine, splendid order	£19 10
3½ h.p. **QUADRANT,** 1908, magneto	£15 10
2 h.p. **MOTOSACOCHE** 1910, magneto	£13 10
3½ h.p. **REX,** 1910 model	£17 10
Trica Chassis, fitted with 6½ h.p. W.C. engine 2 speeds, chain drive, nearly new Wood-Milne tyres, sprung frame, make splendid cycle car	£12 10
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3½ h.p. **N.S.U.,** m.o.v.	£8 15
2 h.p. **MOTO-REVE,** 2-speed gear	£16 10
8 h.p. **BAT-J.A.P.** 2 speeds, with £9 Sidecar	£39 10
3½ h.p. **REX,** m.o.v., low built	£7 15
6 h.p. **CLYNO,** 1912, with Sidecar	£45 0
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New Tool Rolls, each	6
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" 26 × 2½ " " "	£1 3 6
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Nearly new Binks Carburetter	£1 5 5
N.S.U. 2-speed Gear and Free Engine	£2 10 0
New Wicker Sidecar Body, side door	£1 9 6
Ditto, canoe front	19 3
Nearly new Coronet Sidecar	£4 10 0
Bosch Magneto, suit Triumph	£2 2 6
New Bosch Magneto, suit Triumph	
New Twin Bosch DAV Magneto 45°, 48°, and 50°	£2 19 6
New 1913 Armstrong Mark VII. 3-speed Gears. Delivery from stock. Trade supplied.	
New Coachbuilt Sidecar Body, side door	£3 10 0

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ENFIELD 1913 6 h.p. combination, 2 speeds, Stewart speedometer, Lucas horn **£66**

ZENITH 1913 6 h.p., kick start, late delivery, Portland £13 13s. Sidecar **£68**

REX 1913 brand new 6 h.p., and Portland £13 13s. Sidecar **£70**

RUDGE 1913 5 h.p. brand new combination, Portland "all cane" torpedo Sidecar **£65**

MATCHLESS 1913 8 h.p., chain drive, brand new, with Portland £12 12s. Sidecar. Special bargain **£74**

ENFIELD 1912 2¾ h.p. 2 speeds, ladies' model, open frame **£38**

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REX 1911 6 h.p., 2 speeds, Service Sidecar, good order **£35**

V.S. 1909 6 h.p. model, Mabon free-engine clutch, excellent order, new Portland £8 Sidecar **£23**

INDIAN 1911 7 h.p., 2 speeds and free, with rigid Sidecar **£40**

BRADBURY 1912 4 h.p., 2-sp., wicker Sidecar **£41**

BRADBURY 1911 3½ h.p., Mabon variable gear, wicker Sidecar, excellent order **£35**

N.S.U. 1912 3½ h.p., 2 speeds, excellent order, new Sidecar **£42**

SOLO MOUNTS.

DOUGLAS 1912 2¾ h.p., 2 speeds, kick start, excellent order **£38**

HUMBER 1912 2¾ h.p., twin, good tyres **£27**

V.S. 1910 5 h.p., 2 speeds, suit sidecar if necessary, magneto **£24**

N.S.U. 1908 3 h.p., 2 speeds, spring forks, very good solo mount **£15**

TRIUMPH 1911 3½ h.p., clutch model, Bosch mag. **£33**

DOT 5 h.p. 1910 twin, T.T. model, condition as new **£25**

ALCYON 5 h.p. twin, spring forks **£15**

MOTOSACOCHE 2 h.p. magneto, spring forks **£14**

REX 1909 5 h.p. twin, 2 speeds, as new **£25**

STEVENS 2½ h.p. magneto, B. & B., spring forks **£15**

ENFIELD 1910 2¾ h.p. model, twin, magneto **£20**

DOUGLAS 1910 2¾ h.p., twin, been overhauled **£25**

CHATER-J.A.P. 3½ h.p. magneto **£15**

DOUGLAS 2¾ h.p., Bosch, good order **£18**

BROWN 1908 3½ h.p., magneto, spring forks, stand **£18**

PHŒNIX 2¾ h.p., 2 speeds. Saxone forks. M.O.V. **£11**

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Practically new 10 h.p. **Phœnix** car, 3-seater, 1913 model, 5 lamps, Stepney, hood, screen, speedometer, excellent order throughout, cost £230. Bargain **£140**

Easy Payments Accepted. Cash offers considered.

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8 h.p. 3-speed Chater-Lea and Cane Spring Wheel Sidecar, with stand. Xl'all pan saddle, Jones 6 gn. speedometer, horn, Lucas lamp, spares, etc., completely overhauled, re-bushed, new chains and sprockets fitted, new gears, and all worn parts renewed; can be seen at Service Co.'s; new July, 1912, cost £110; owner selling on account of ill-health: £60.—Seton, 19, Eildon St., Edinburgh. [4930

Clarendon.

3 h.p. Clarendon, mag., B.B., spring forks; bargain, £11. 123, Wharf St., Leicester. [4963

Clyno.

5 h.p. 1912 Clyno, 2-speed gear, sidecar, in good order; £45, quick sale.—Taylor, Longroyd Bridge, Huddersfield. [4890

CLYNO, 5-6h.p., 1914 model, complete with Hercules sidecar; £85; delivery from stock.—Cordingley, Haslingden. Tel.: 2Y. [X7865

CLYNO, 1912, and sidecar, 2 lamps, speedometer, horn, exhaust whistle, spares, in splendid condition; £55.—Macdonald, 757, Lea Bridge Rd., Walthamstow. [4899

CLYNO, 1912½, sidecar, good condition, all accessories, spares, very fast; seen appointment; £50, or offer.—J. Quitman, Forestholme, Queen's Rd., Forest Hill, S.E. [4901

1913 5-6h.p. Clyno, 3 speeds, complete outfit, Clyno sidecar, grey, with hood, screen, spare wheel and tyre, grand outfit; £70.—Potter, the Clyno man, Leicester Grove, Leeds. [X70

CLYNO, 1912½, as new, twin 5-7h.p., complete with coachbuilt 16 gn. sidecar, speedometer, all refinements; £52.—Hurlin and Co., 295, Mare St., Hackney. Tel.: Dalston 2989. [0397

CLYNO, 5-6h.p., 2-speed gear, just like new, with Mills-Fulford spring wheel sidecar to match; would exchange lower power and cash; call and see it.—125, London Rd., Manchester. [0399

CLYNO, 1912, and Gloria sidecar, just been re-fitted, 2 lamp sets, horn, speedometer, back-rest, large luggage grid, many spares, including tyre and tube; £45.—Simonds, Sonning, South Woodford. [4978

Connaught.

CONNAUGHT, 1914 models; exchanges wanted; keen quotations.—Halifax Motor Exchange, Westgate, Halifax. [0386

CONNAUGHT, 2-stroke, only ridden 30 miles, not soiled; cost in November with extras £37, will sell £29.—Poole, fish merchant, High St., Cheltenham. [X175

CONNAUGHT, 2-stroke, 2½-3h.p., 1913½, done 1,500 good clean, 130 m.p.g., new Palmer cord, engine clean, all in fine condition, accessories; £26/10.—33 Fairholme Rd., West Kensington. 'Phone: 929 Hammersmith. [5014

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3 h.p. De Dion, T.T. bars, 1912 B.B. carburetter, low. Avon tyres, guaranteed perfect; bargain, £7/10.—Grocer, 49, St. Lenard's St., Bromley-by-Bow. [X23

Douglas.

DOUGLAS.—Don't get left, order now from Gourlay, Fallowfield, Manchester. [X7505

1913 Douglas, as new, Lucas, Cowey; £38.—Park, 18, Market St., Wigan. [4957

DOUGLAS, 1911 excellent condition, spares, and lamp; £20!—14, East Hill, Dartford. [4966

DOUGLAS, 1912, model G, new tyres, perfect order; £27.—Travess, Horton, Warlingham. [5018

GOURLAY is now booking orders for the great 3½ h.p. Douglas.—Fallowfield, Manchester. [X7506

DOUGLAS, 1913, T.T., brand new, shop-soiled; 38 gns.—L., 48, East St., Brighton. [X46

DOUGLAS, 1913, special T.T., complete; 40 gns.—Bannington, 301, North End Rd., London. [4934

DOUGLAS, 1914 models, in stock.—Gourlay, the great Douglas agent, Fallowfield, Manchester. [X7507

DOUGLAS.—Delivery all 1914 models immediately; exchanges.—Cordingley, Haslingden. Tel.: 2Y. [5049

DOUGLAS.—All 1914 models; cash or easy payments.—Maudes, 136, Great Portland St., London, W. [4838

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DOUGLAS, fine order, horn, tools, spares; appointment; £21.—Pritchard, Chichester Rd., Croydon. [4983

DOUGLAS, 1912, model P, condition like new, and little used; bargain, £34.—25, Railway Rd., Leigh, Lancs. [4948

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HUMBER, 1910, 3½h.p., good condition, with terpedo wicker sidecar, apron, cushion, Millers head light, horn, tools, etc: £24.—91, Baltic Rd., Sheffield. [X157

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INDIAN, red, 3½h.p., 2-speed, free engine, 1911 (late), in very good order, fitted with 1913 Pilot jet, lamp, etc.; £31.—Mallard Motor Co., Ltd., Berry St., Liverpool. [X9991

INDIAN, 7h.p., 1913, new April, Lucas horn and head lamp, speedometer, tools, Mills-Fulford coachbuilt sidecar, back-rest saddle, 2 speeds, good as new; £69; any trial.—Rev. Nicholls, c/o 133, Devonshire St., Sheffield. [X9142

INDIAN, 7h.p., 1913, 2-speed, free engine, magnificent red coachbuilt sidecar, all accessories, valuable spares, including 2 chains, valves, tyre, tube; sacrifice £66.—Bridgeman, Roehampton Lodge, Roehampton Lane, Putney. [4959

Ivy-Precision.

IVY-PRECISION, 1912, 3½h.p., lamp set, horn, perfect order; £22/10.—Peacock, 274, High Rd., Balham. [4937

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JAMES, 4h.p., clutch model, and sidecar, in splendid condition; £26/10.—The Walsall Garage, Walsall. [X9965

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J.A.P.-CAMPION, 1913, 4h.p., 3-speed model, splendid order; £30, bargain.—Holland, Clarendon St., Coventry. [X121

J.A.P., July, 1913, 2¾h.p., very fast, spare belt in case, spare tube, mirror, watch, tools, Pillion seat, 6 months' insurance; £35, or offer, cost £50.—44, Perland Rd., Canonbury, London. [4853

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2¾h.p Kerry, low, Whittle, B. and B., Hellesen; £4/15; ride away.—47, Leigh Rd., East Ham. [4976

1911 Kerry-Abingdon, 3½h.p., complete, lamp, horn, good serviceable motor; £23.—Robinson's, Green St., Cambridge. [5035

KERRY-ABINGDON, 1911½, 2 speeds, 1912 sidecar, excellent condition; £32; not Sundays.—72, Shakespeare Rd., Brixton. [3829

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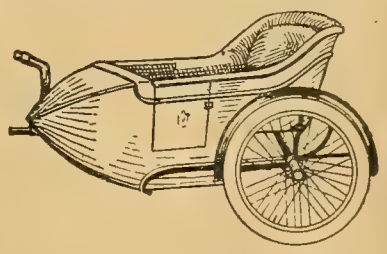

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2¼h.p. Levis, cost over £35, with extras, done 600, one puncture; £25.—Brown, 56, Bewsey St., Warrington. [X9941

2¼h.p. Levis, nice running condition, go practically anywhere; trial, appointment, seen any time: must sell, sacrifice, £21.—Ruston, 4, Minehead Rd., Streatham Common. [X187

Matchless.

1911 Matchless, 3½h.p. J.A.P. engine, tyres, engine excellent; £25.—Robinson's, Green St., Cambridge. [5034

MATCHLESS, 1914 models.—Quick delivery from the largest Lancashire agent, Cordingley, Haslingden. Tel.: 2Y. [X7864

7h.p. Matchless, 3-speed, chain drive, the very latest, with Hercules coachbuilt sidecar; £88.—Cordingley, Haslingden. Tel.: 2Y. [X7873

£25.—Matchless, 3½h.p., Armstrong 3-speed; good reason for selling; photo, particulars.—Smith, Wye Villa, Bridge St., Hereford. [X176a

6h.p. Matchless, 1913, 6-speed model, dropped bars, Lucas lamp, Jones speedometer, horn; £50.—Hoffmann, 34, High St., Haverhill. [4861

1912½ 6h.p. 2-speed Matchless, Montgomery sidecar, new Cowey, P. and H. lamp, horn, etc.; £55.—Hilton, Foxhall Sq., Blackpool. [X107

MATCHLESS, 6h.p., 1913 Gradua gear, excellent condition, not done 5,000, accessories, 2 belts; what offers?—Dr. Mackenzie, Millken, Johnstone. [X9945

MATCHLESS, 1914 model, 8h.p., 3-speed, silent chain drive, with coachbuilt sidecar, only used in competitions; a bargain, £70.—Guest, 89, New Rd., Woolwich. [X27

MATCHLESS, 1912½, 6h.p., 2-speed, Montgomery sidecar, lamp, horn, Jones speedometer, new Dunlop tyres, perfect condition; £55.—Raffel, Bowling Green Hotel, Carlisle. [X9859

MATCHLESS 1913 Motor Cycle, 8h.p., 2-speed gear, double belt drive, with Mills-Fulford cane sidecar, Lucas lamp, horn, spares, etc.; £65.—Morgan, 18, Herbert Rd., Plumstead. [X28

1913 Matchless, 3½h.p. twin, Armstrong counter-shaft 3-speed, free engine, lamp, horn, spare belt and bag, condition almost as new, complete; £47/10.—Robinson's, Green St., Cambridge. [5031

MATCHLESS, 1913, 3½h.p. twin, 3-speed, free engine, kick starter, counter-shaft, ridden 1,500 miles, excellent condition demonstration machine; £47/10; with accessories.—Apply, F. Dew, Heyford, Banbury. [X119

8h.p. Matchless, 1912, 2-speed, just returned from makers completely overhauled, tank, etc., re-enamelled, Cowey, King of the Road, 20 gn. Gloria sidecar, new 70/- tyre and spare tubes, etc.; £60, or nearest offer during the week Dec. 4th-11th.—Shorthouse, Hampton, Middlesex. 'Phone: 247 Molesey. [0565

1913½ Matchless Combination, 8h.p., double belt drive, 2-speed, kick starter, heavy Kempshall cycle car tyres all wheels, 2 lamps, horn, done about 1,000, unscratched, special trials machine, with picked engine, 3 gallon tank, etc.; £65 cash; consider exchange.—'Phone: 244 Gerrard.—Gayford, 20, Woodside Rd., South Norwood. [5004

Minerva.

4½h.p. Twin Minerva, h.b.c., Bosch, Druid forks, Roc 2-speed gear, B. and B.; £20.—Mitchell, 14, Highfield Villas, Kendal. [X9948

MINERVA, 2¾h.p., perfect condition, all accessories, B. and B. carburetter; £11.—Kal Ellis, Terrington St. Clement, King's Lynn. [X9585

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TWIN M.M.C. Mag. Machine, perfect running order; £17, bargain.—Rich, Shifnal, Salop. [X9950

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MOTO-REVE 2½h.p. Twin, mag., B. and B., engine, belt, tyres as new; £14/10, genuine bargain.—Tooth, 12, Winchester Mews, Swiss Cottage, N.W. [X45

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1912 Motosacoche, 2½h.p., capital condition; £17/10.—Sharples, 36, Bolton Rd., Walkden. [X169

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NEW Hudson, 1912, 2¾h.p., 3 speeds, good order; £26.—P. J. Evans, John Bright St., Birmingham. [X62

NEW Hudson-Jap, 1912, free engine, 3-speed, new May, 1913, all accessories, perfect condition; £25, no offer.—418, Old Kent Rd. [X9954

NEW Hudson, 4h.p., 1912, 3-speed, new sidecar, fittings, machine guaranteed; £38, or best offer.—60a, Trinity Rd., Balham, Battersea 1528. [4850

NEW Hudson, 6h.p., 1914 models, with Portland sidecar; 74 gns.; exchanges or easy payments.—Maudes, 136, Great Portland St., London, W. [4841

NEW Hudson, late 1913, 3-speed, free engine, kick starter, Canoelet sidecar, Lucas lamp and horn, spare engine chain, spare belt, valve, tools, etc.; £54.—Mallard Motor Co., Ltd., Berry St., Liverpool. [X9990

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The Trade and the Trials.

NEXT year manufacturers will not collectively support any particular one-day trial as in the past. This decision is the outcome of a meeting held last week to consider the policy of members of the Cycle and Motor Cycle Manufacturers' and Traders' Union towards competitions in 1914. It will be recalled that in 1913, twelve of the most important events were selected for unanimous support by members of the Union, which body includes nearly all the leading manufacturers in this country. But this scheme did not give general satisfaction in practice. In selecting the events, the main object was to distribute support on a geographical basis over the country, and by so doing districts in which individual manufacturers were particularly interested and would like to have supported open local events were debarred from them by reason of the compact which had been formed. For next year, the members of the Union have agreed to have a freer hand, though still confining their support to twelve events. In other words, it has been resolved that each individual manufacturer may select whichever twelve events he would prefer to support in 1914, and naturally in so doing a manufacturer will give some preference to clubs in districts in which he has strong trade connections.

In some respects we regard it as a retrograde step, as it will have the effect of increasing rather than decreasing the number of open events in 1914, seeing that any new and practically unheard of club may organise an open event, whether competent or otherwise to do so, and, further, may possibly receive trade support. During 1913, the twelve events selected by the manufacturers were generally regarded as the important events of the year, and those who closely followed competitions were thus able to place a relative degree of importance upon them. A club announcement that the event is "trade supported" will convey nothing in 1914, and it will be interesting to see if in twelve months' time the manufacturers revert to their 1913 policy. In view of the repeated grumbles during the passing year as to the large number of competitions it was almost necessary for manufacturers to support, the new decision is bound to cause some consternation, as it is obvious that the effect will be to increase rather than to decrease the number of competitions during 1914.

May Good Luck go with them.

AN eminent Roman lawyer, when analysing a legal case, invariably put the question *Cui bono?* And in modern English that is equivalent to "Who is getting anything out of this?" Now we fancy that among the thousands of persons who on Boxing Night witness the departure of the hardy voyagers from Staines on their way to Exeter and back a good number will put this same question: *Cui bono?* The answer is simple and terse: Nobody. The masses in this country have grown so accustomed to have their sports and games played vicariously that they have largely become lookers-on instead of performers, and thus the prospect of over a couple of hundred stalwarts prepared to suffer a very considerable amount of personal discomfort, and even pay out good money to do so, is one that is difficult of assimilation by the ordinary crowd. For, intrinsically, the rewards are paltry. A gold medal can be picked up almost anywhere at far less trouble and expense—so obviously it is not the awards that they go for. Why, then, do these men go "into the dark," as Mr. W. Cooper (who, by the way, first suggested the Christmas reliability trial in the columns of this journal) describes it on another page? Well, we rather think that all said and done, the real reason is that love of adventure which has gone so far to make our country what it is, and we think it is an excellent thing to find such a spirit so awake and enthusiastic in a time which croakers describe as a "flabby age." As a test of machines this trial pales before its severity as a test of men, but we feel quite confident that, unless actually snowed under, the great majority will come through smiling for their gold medals, and right well will they deserve them.

The Story of a Christmas Present.

TOLD IN SEVEN LETTERS, FOUR WIRES, AND A PRESS CUTTING.

I.

Laburnum Cottage,
Witherington Furze, Herts.
December 18th, 1913.

My Dear Nephew,—I have neither seen you nor wished to see you for the last six years. I trust I can forgive as a Christian should, but I could not forget how you tied Tabby's and Carlo's tails together. Carlo, as your dear mother must have told you, has gone to his last long home, but darling Tabby has never been the same cat since. Often, as she lies meditating by my parlour fire, she lifts her poor scarred head to cast such a pathetic glance at me, and I am sure, if she could talk, she would say, "Why, oh why, dearest mistress, did you invite that Monster of Iniquity to stay with us?"

However, you are a man now, and I trust you have put away childish things. I was delighted to see in to-day's *Morning Post* that you have won a scholarship at Oxford. I hope this means that you are a reformed character, and that you have decided to follow in your departed father's footsteps, and join the ministry. If this is so, I shall be happy to make up to you for the birthday and Christmas presents which I felt it my duty to withhold after your cruelty to my cat. At the rate of two five pound notes a year the sum would amount to £50, and I believe this would buy the very fine theological library left by our late vicar, besides coming in very useful for his widow and orphans, who are left in deplorable poverty. If you have no special plans for Christmas, will you spend it with me, when you can also view the library?

With my love to your dear mother,

Your affectionate Aunt,
PRISCILLA HOPKINS.

II.

St. Ambrose College, Oxon,
Dec. 19, 1913.

Dear Auntie,—Always said you were a sport. Hope Tabbie bears no malice really. Sorry cannot come for Christmas. Jenkins and several other men are going down home for Mabel's coming-out dance. Will look you up some time during the vac. per motor—Jenkins has a racer. You've made one bloomer. Haven't decided yet which profession to adorn. Little premature to buy the reverend's library under the circs. Jenkins says marriage is the only profession I'm fit for, but fear quality of wives procurable at £50 is low. I really want to be an engineer, and Mother thinks a motor bicycle would give me splendid practical experience. Oh, auntie, make it a motor bicycle, do! and I'll buy you two new cats—the long woolly sort with green eyes!

Yours till we need remagnetising,
AUBREY HOPKINS.

P.S.—Go easy with the wassail this Yuletide!

III.

Laburnum Cottage,
Dec. 20, 1913.

Nephew,—The flippancy of your lamentable epistle has made me perfectly ill. Your gibes at the holy estate of matrimony, your unnatural callousness towards my deep affection for my faithful four-footed companion, your suggestion that a respectable spinster like myself could be guilty of carousal, compel me to recognise that your old Adam is still rooted deep. I shall carry out my intention of purchasing our late vicar's library, but I shall present it to the local cottage hospital; nor shall I add to your sins by providing you with funds which you would obviously waste in riotous living. As for motor bicycles, I cannot sufficiently express my detestation of those malodorous, tympanum-perturbing engines of Satan.

PRISCILLA HOPKINS.

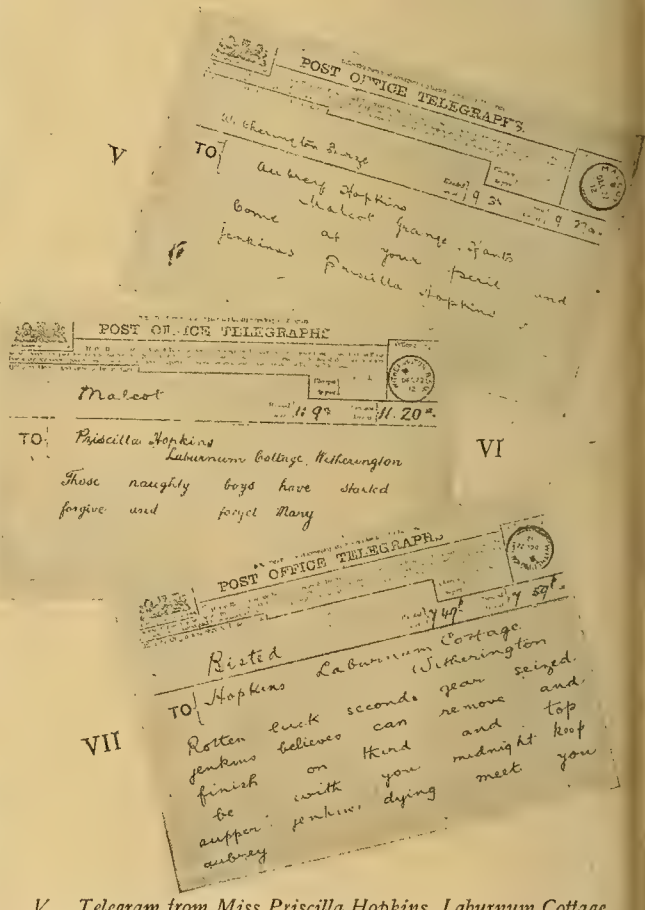
P.S.—If you bring the person Jenkins, Florence will inform you that I am "Not at Home."

IV.

Malcot Grange, Hants,
December 21st, 1913.

Dear Auntie,—We'd much better kiss and be friends—isn't that what Christmas means? We won't say another word about the motor bicycle, and by all means buy the vicar's library, and present it to the cottage hospital—daresay the patients will digest more of it than I should. But the Mater agrees with me that we're not going to let you spend another lonely Christmas. Jenkins and I are going to motor over to-morrow to fetch you down here for the festive season. Pack a ball dress, and foot it with the best at Mabel's dance; get your thickest ulster out of camphor; for the old Mercédès can move, and it'll be a long cold drive.

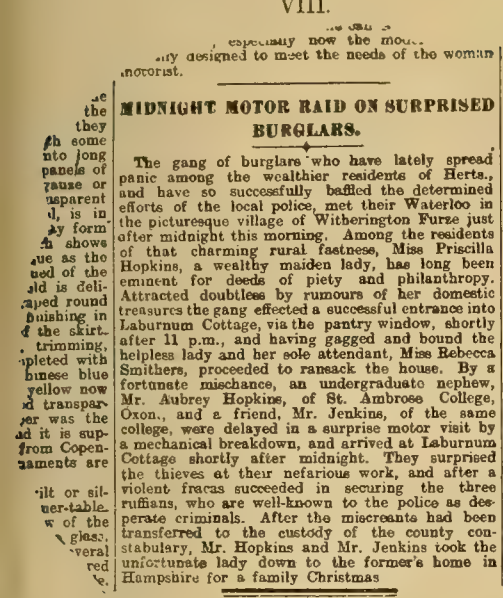
Your penitent nephew,
AUBREY.



V. Telegram from Miss Priscilla Hopkins, Laburnum Cottage.
VI. Telegram from Mary Hopkins, Malcot Grange, Herts.
VII. Telegram from Aubrey Hopkins.

The Story of a Christmas Present.—

VIII.



especially now the most
ally designed to meet the needs of the woman
motorist.

MIDNIGHT MOTOR RAID ON SURPRISED BURGLARS.

The gang of burglars who have lately spread panic among the wealthier residents of Herts., and have so successfully baffled the determined efforts of the local police, met their Waterloo in the picturesque village of Witherington Furze just after midnight this morning. Among the residents of that charming rural fastness, Miss Priscilla Hopkins, a wealthy maiden lady, has long been eminent for deeds of piety and philanthropy. Attracted doubtless by rumours of her domestic treasures the gang effected a successful entrance into Laburnum Cottage, via the pantry window, shortly after 11 p.m., and having gagged and bound the helpless lady and her sole attendant, Miss Rebecca Smithers, proceeded to ransack the house. By a fortunate mischance, an undergraduate nephew, Mr. Aubrey Hopkins, of St. Ambrose College, Oxon., and a friend, Mr. Jenkins, of the same college, were delayed in a surprise motor visit by a mechanical breakdown, and arrived at Laburnum Cottage shortly after midnight. They surprised the thieves at their nefarious work, and after a violent fracas succeeded in securing the three ruffians, who are well-known to the police as desperate criminals. After the miscreants had been transferred to the custody of the county constabulary, Mr. Hopkins and Mr. Jenkins took the unfortunate lady down to the former's home in Hampshire for a family Christmas

Malcot Grange, Hants,
December 26th, 1913.

To the Managing Director,
Blizzard Motor Cycle Co., Coventry.

Dear Sir,—I desire to present my nephew, Mr. Aubrey Hopkins, with a motor bicycle, and I am credibly assured that you make a safe and reliable type. As he is young and reckless, it should not be speedy, and in the interests of the public it is obviously desirable that the engine should run very silently, and that the brakes should be exceedingly substantial. Will you kindly inform me of your terms for a machine not exceeding one horse power? I should add that when I mention one horse power, I have in mind a quiet cob, not a thoroughbred racehorse.

Yours very faithfully,
PRISCILLA HOPKINS.

IX.

Malcot, December 26th.

T. S. Brooklands, Esq., Managing Director,
Blizzard Motor Cycle Co., Coventry.

Dear Tom,—You mayn't know I have an aunt who's simply rolling? Well, old Jenkins and I saved her from some burglars this week, and I guess from sundry hints that she's writing to you about a motor bike for me as a reward. She's sure to ask for one that won't go more than a Six Days' schedule crawl. Well, *you* know that the 6 h.p. Brooklands model is the tip for me, but when you get her enquiry, paint it as a motor sausage, there's a pal.

Yours till our jets choke,
AUBREY.

X.

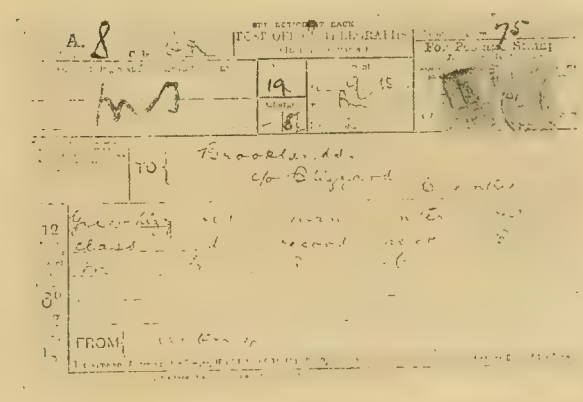
Blizzard Motor Cycle Co., Coventry,
December 27th, 1913.

Dear Madam,—We are overburdened with orders just at present, but we are always anxious to oblige so distinguished a client as yourself, and esteem ourselves fortunate in having at this moment in stock a ¼ h.p. runabout, designed expressly for my own daughter, and thrown on the market because my wife has decided to buy her a Shetland pony instead. It is extremely silent and docile, and has never been known to exceed five miles an hour on the road. I shall be happy, under the special circumstances, to accept the sum of sixty pounds (£60) for this machine, and I am sending it down per passenger train to-morrow for your inspection and approval. Hoping to be favoured with your esteemed order, I am, dear Madam, yours faithfully,

T. S. BROOKLANDS, Managing Director.

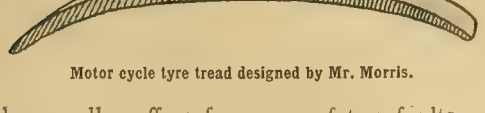
P.S.—I may add a little technical information for Mr. Aubrey Hopkins's information. The engine is of our 1914 1,000 c.c. type, equipped with overhead valves, which produce a marked improvement in silence and docility.

XI.



NARROW THICK TYRE TREADS.

"Ixion" writes as follows: "Mr. Morris, of Sherrard Street, Melton Mowbray, has sent me a section of a new tyre tread which he proposes to place on the market, a sketch of which I append. He is in full sympathy with the demand for stouter and more durable tyres than the old 2¼in. standard type, but considers that the real desideratum is *depth* of tread rather than *width* of tread. He points out that a 3in. tyre, as applied to a motor



Motor cycle tyre tread designed by Mr. Morris.

bicycle, usually suffers from one of two faults; either the bulk of its cross section is out of contact with the road, in which case it might as well be narrower—the user is paying for non-effective rubber, in fact; or else the whole cross-section is in road contact, which implies that the tyre is under-inflated and will roll, or that the walls of the casing are too nearly vertical, and the internal strains will soon break them up. His section indicates an alternative ideal—the very thick tread with a narrow road contact and tapered walls. His idea is scarcely as new as he fancies. To quote a single instance, I once had a pair of tyres made by a small maker at Henstridge (whose name I have stupidly forgotten) which were identical with his, except that they were far more substantial, and that the tread had cross grooves like the Dunlop car patterns, to ensure a better longitudinal grip. These tyres were the most durable pair I ever possessed, and I cannot think why I never repeated the order—unconscious insanity, evidently. Possibly some of the larger tyre firms have corrective ideas on the subject, if that is so, I have no doubt readers would be glad to hear what they are."

OCCASIONAL COMMENTS

BY "IXION"

Golf Bag Clips.

Apropos of a recent query anent carrying golf bags on a motor bicycle, the professional at a Midland clubhouse showed me some ingenious fittings sold by Halkin and Co., of 8, Portland Street, Southampton, which effect their purpose quite neatly. The links garage incidentally reminded me of certain Show critiques on the lack of luggage accommodation in cycle cars and light cars. The shed housed eight cycle cars and light four-wheelers, ranging from a Morris-Oxford to a Morgan, and all of them had plenty of weighty articles lying in the hood, on top of the mica window!

Dull Driving.

The other day I rolled up to a certain hostelry in a brand new light car, disfigured—I use the word advisedly—by an automatic carburetter and a fixed-point magneto. Several motor cyclists, engaged in personal lubrication, evinced obvious envy of my borrowed vehicle, and inspired me to denounce its monotony. It was no fun to drive—nothing to do but press a pedal, hard for speed, gently for a ladylike purr of the sort that lets your non-skids sizzle gently over wood paving. Even on a freak hill there is little to be done but engage lowest gear, see that the oil is circulating, and wrench the wheel at corners; whether she goes up or not, the chauffeur hardly feels responsible—he is unashamed by failure, unthrilled by success, unless, indeed, he has gone all out at a hair-pin and conquered it by double-skidding without loss of way. As I was thus descanting, a very grimy individual clad in fawn paramatta and carbon smears launched a similar diatribe against the standard 3½ h.p. roadster bicycle. Driving, he considered, was a dying art; the modern motor cyclist (speaking of tourists, of course) simply tugs back his lever to the last notch in the quadrant, and lets his engine "rev." These 12 to 1 gears have deprived driving of its joys, and so forth. The orator, on being challenged, confessed that he lived in the hilliest heart of Devon, and owned a 6 h.p. T.T. Bat, normally geared 3½ to 1. I watched him trickle through a mile or so of the thickest parts of Birmingham on a Saturday night, and the spectacle revived penitent memories of days when I could have done the same, and enjoyed it. But I fear me much that free engines and three-speed hubs have robbed my hand of its cunning. I should not care to cross London from Bromley to Stanmore on a single-geared racer as once I used to do. I think I must buy some pre-historic relic to get my hand in again.

Rear Rim Brakes.

Messrs. Rudge-Whitworth, Ltd., remind me that they have not withdrawn their original belt rim brake, which is mounted outside the belt rim; it is still fitted to the fixed and free engine roadsters, two models which I have not ridden recently; but it is so mounted that the whole surface of the brake floats into place, in lieu of one end being jerked rigidly into the V flange. Speaking of the Rudge, I should not be surprised if the refinement illustrated on page 1678 (issue of December 11th) proved just what is wanted to steady the powerful engines of the "oversize" single-cylinders, especially when they have ultra-long piston strokes. The sketch shows that the top of the cylinder is anchored to the frame by two short bracing clips. The cylinders of big engines on cars enjoy a certain amount of bracing together from the water and exhaust connections, whereas some lofty motor cycle engines are only anchored at their base. The idea is likely to be imitated, and may remove the reproach of a slight additional vibration from the 500-750 c.c. singles.

Cycle Car Tyres and Belts.

All I hear tends to suggest that both belts and tyres are lasting about double the mileage which prophets anticipated on the modern cycle car. 8,000 miles would be a truly phenomenal mileage for either a belt or a cover on any motor bicycle, but my friends do not seem to consider it out of the way on a cycle-car—unless, of course, one belt drops off, when a mileage of 100 is perfectly feasible! Does this suggest any changes in motor bicycle design? Hardly. If we increase the size of motor cycle tyres we shall sacrifice a percentage of our steadiness, for I am sure that a 3in. tyre does not bite through grease so keenly as a 2¼in. In respect of belts, the cycle car which obtains good mileages has belts from 10ft. to 13ft. 6in. long, with belt centres perhaps 5ft. apart, and we cannot increase the distance between belt centres on a motor bicycle unless we copy the new Zenith, and put a counter-shaft where our magnetos usually grow. The two-step drive has already given us the benefit of bigger pulleys and larger contact areas, but I do not see how we can obtain the slackness which long centres permit; here we must envy the cycle car without being able to imitate it.

Warm Feet.

The correspondence on the need of better protection from bad weather has brought cold feet into high relief as the chief bugbear of winter riding. It is easy to keep the rest of one's anatomy warm, for handle-bar muffs provide for the hands, and sufficient jaeger and leather does the rest; but the feet are the very deuce. It is possible to maintain a partial circulation by procuring an abnormally capacious pair of waterproof boots, wearing three pairs of socks inside them and snow boots over all, but this method has two main drawbacks; the feet are too warm during temporary dismounts, *e.g.*, if one stops at an inn for a meal; and the job of removing the overshoes or waders gets the hands (or gloves) into an appalling mess. I believe the only practical solution is to fix

casional Comments.—

e front half of a pair of big gaitered washing clogs the footrests. Some of the accessory dealers sell avy wooden-soled topboots, intended for wear by auffeurs when hosing down a car on a washing floor. the back half of such a topboot were removed d the fore portion attached to the footrests one uld keep one's feet warm without the risk of over-ating them during meals, and without making oneself thily dirty by removing the otherwise indispensable ershoe. Will some stalwart spirit try the tip in the xeter run, or will some accessory dealer try his luck th a sample gross? Nobody seems anxious to anufacture Mr. A. V. Roe's canoe-bodied two-heeler design, as illustrated in these columns eighteen onths ago, and I think the half-boot footrest is the xt best thing. It is rubbish to grumble about the st of one's clothing getting dirty; the portions of iment which cover our trunks and thighs get dirtier summer than in winter, if the back mudguarding any better than so-so. By the way, in winter I ually become inspired by a longing which I have never ard vented by anyone else. I sigh for a hand-erated rear brake. I find myself sliding about on easy smooth paving; down and out go my feet when e back wheel is obviously unequal to the task of keep-g the machine straight; a cart or taxi dashes out and ses the gap in the traffic which I was on the point threading; I dare not use my front brake for fear provoking a tremendous skid, and my left foot has grope wildly back on to the footrest in search of pedal brake. I suppose cleverer men would keep ir feet on the rests. But, personally, I sigh for and-operated rear brake every winter, as ardently I sigh for a handle-bar clutch in the summer when m fooling about on the freak hills of a six day l, and my mount is afflicted with a weeny little tch pedal. I confess—with some shamefacedness hat in the absence of a usable hand brake, I often gotiate really bad traffic over the winter grease on ond gear; my bicycle can do 40 m.p.h. on second r when I let it rev., and the friction on that gear h the throttle shut provides a magnificent stopper. t I dislike the practice.

Some Sidecars Don't Skid.

At last I have received a justification of my own verdict that sidecars don't skid, coupled with an explanation of the contrary opinion, supported by many of my correspondents. No less an authority than Hugh Gibson (who can claim a sidecar mileage of six figures) agrees quite emphatically that the old-fashioned rigid sidecar with three-point suspension *never* skids. He goes so far as to say his own sidecars have never deviated from the straight path except on the six inches of grease which composed the second corner of Porlock Hill in the 1912 Trials, and "skid" is hardly the word to apply to the spectacular gyrations we witnessed there, for few machines ever bit through the grease at all—it was too deep. Mr. Gibson, however, admits that the modern sidecar, equipped with a heavy luxurious coach-built body, with front and rear springing devices, possesses a certain liability to roll and swing, and that these vices are accentuated on hairpin corners, acute cambers, and slimy surfaces. Even so, he questions whether the heaviest and best insulated sidecar ever suffers from a really unprovoked and uncontrolled skid; he thinks nervous and imaginative drivers are apt to exaggerate these rollings and swingings, and the moderate back wheel wobbles they inspire, into genuine skids. He is ready to assert emphatically that the plain old-fashioned rigid sidecar, with a diagonal strut extending from the seat-pillar out towards the sidecar axle, is as skid-proof as ever. This exactly confirms my own experiences. I have never had a sidecar skid, and my experience is limited to the cheap and simple types, so far as ownership is concerned. When I have temporarily adorned the chair of a slap-up £100 outfit, I have felt rather than seen trivial oscillations which suggested that the back wheel was sliding a very few inches, but I have never been alarmed by what could rank as a genuine skid. I have turned once round on bicycles times without number, and I have turned twice round and once over on four-wheelers. I have also slid round at right angles on a tricar with a single wheel astern, but never yet have I sampled a genuine skid either on a De Dion type of tricycle, with two wheels astern, or on its half-cousin, the rigid sidecar.

A group of owners of 6 h.p. Enfield sidecar combinations who campeted in the recent 200 mile trial at the Cape Peninsula. We understand that all the riders were successful. The winner, Mr. Prillevritz, is at the extreme right.

INTO THE DARK.

By W. COOPER.

A Vivid Impression of Riding through the Winter Night.

INTO the dark! You stand on the kerb in the drizzling sleet on Boxing night, and, as we put off into the dark and you wish us "God-speed," you add as an afterthought, "Mad! Absolutely mad!"

A biting nor'-easter, cruel, merciless, and penetrating, strikes us as we set out for the south-west. We leave behind us home and loved ones, warmth, comfort, and even luxury.

Why do we go? There is no compulsion with the amateur—we please ourselves.

The sharp cackle of the exhaust sounds healthy in the wintry blast, and we wonder to what extent the music will have lost its tune 'ere we check in on our return twenty hours hence. Twenty hours! . . . We sometimes feel as if we would rather not go on, yet we continue all the same

It takes some time to settle down to the work before us, and we are well on the way ere we realise the immensity of our self-imposed task. At first the work impels the utmost care, but as time passes we gain more confidence in ourselves. We do not feel so much alone as we did, for are we not in company, mentally, with those we left around the fireside—those whose young eyes peered up into ours and seemed to ask, "Why do you go?"

Outward and onward into the impenetrable darkness. The bright white acetylene lamp lights the highway a fair distance ahead, but no winking beacon light marks the direction of our goal. Care is the watchword, for an error of judgment for one brief second might spell disaster, but tremble not; we feel as secure as you do with your head half-buried in your downy pillow. As the hours roll on, motor and master become knit as one: each seems to sympathise with the other, and the trusted steed's responsiveness echoes "All is well!"

Mile upon mile across the dreary Salisbury Plain. Only the language of the engine denotes whether uphill or down. We left the start one minute before the second man, yet no sound reaches our ears of those who follow in our wake. Apart from the click of the tappets, the only audible noise is the swish! swish! of the snowy slush as the wheels plough through like an ocean greyhound through the spray. The clouds break for a moment, and the position of the moon indicates that it is near midnight.

Through the Slumbering Hamlets.

We pass through many an old-world village, where the heavily-thatched roofs almost kiss Mother Earth, and where, in the night, no sign of life is apparent, except, perhaps, "Robert" sheltering from the elements 'neath the portals of the principal inn.

The main line crosses over the road at the far end of the village, and we enter the archway as the express crosses over the huge span of granite. At other times the modest 3½ h.p. would create sufficient evidence of its presence, but now, as the roaring express rushes on above us, we wonder where the silencing question began, and where it will end.

Into the dark. Round and round. The road seems to have taken a circular course. The engine calls for much more gas. Yes, we know. This is the hill that concerned us most, and at the "S" bend a cruel wall seems as if it were coming right up to the very lamp glass. All out! Surely this is the moment when none but strong nerves need hope for success. Mad—absolutely mad! And accelerating as we grip the bars, we literally force the machine over to the maximum angle.

Safely round, but still ascending, at length we reach the summit, and at this juncture heave a sigh of thankfulness.

A faint streak of grey in the east denotes the approach of dawn. We shall soon reach the outward limit. Every mile brings more light, and yawn follows yawn. Soon the spires of the cathedral city glint through the distance, and our spirits are lifted beyond measure, while we almost grow careless at the certainty of a successful outward run. Over the tramlines, through the gathered concourse; then a graceful curve into headquarters. How heroic we feel, yet we have won no Victoria Cross!

Scarcely out of the saddle ere others arrive. Oh, if we had only known they were so near in the still hours of the night. Refreshment for man and machine is the order of the moment, and soon we toe the line again for the second half.

Homeward Bound.

Outwards and homewards. We are only about 160 miles from home. The young folks have just had breakfast, and their prattle fills the nursery. The large wooden "Humberette" is being loaded up with teddy bears ready for the up and down journey from hall door to kitchen, disturbing everything along the route. It's wonderful how our thoughts revert to home the farther we are away.

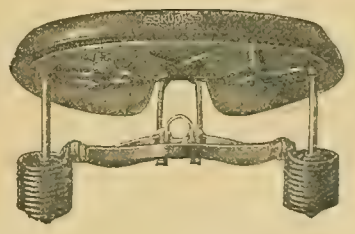
Crackle, crackle! The puddles have a thin crust of ice on the crowns, and the morning is fresh and crisp. Once again through the same old villages, and when we examine the road surfaces we marvel how we rode through the night. Nearer and nearer to our goal as the day wears on. In the afternoon the winter sun tingles our cheeks. This is the most dangerous time of the whole journey, for the call of nature for sleep seems almost irresistible. Bump, bump, we are off the road and must have slept for a second or two.

BROOKS

and the Saddle question.

First—you want a skilfully-made seat—here we show you that portion of the BROOKS B170—anatomically shaped, it is made from the finest selected leather, luxuriously padded, and finished in that style peculiar to BROOKS productions, and meaning perfect wear and perfect comfort.

Then—you require springs, elastic yet steady in their action, and this view shows you one position of the BROOKS PATENT COMPOUND SPRINGS, an exclusive feature of the BROOKS, which absorb both shock and recoil, and, being placed so far apart, ensure an unequalled lateral steadiness.



And then—you'll ask for something simple and strong, with a minimum of weight, and this view emphasizes all these points, and shows clearly the clean and smart construction of the under-framing.

"BROOKS and the Saddle question"—in truth, this model is a perfect answer, and comparison will make that fact still more apparent—and—

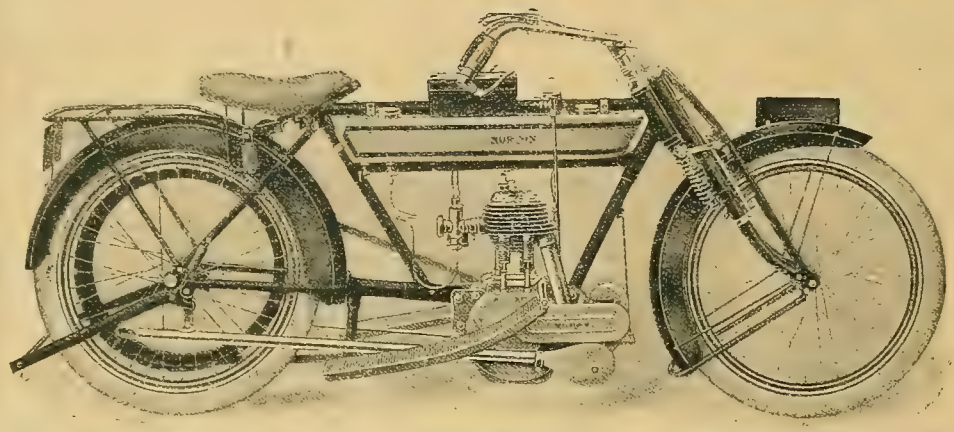
When there's a better saddle than the BROOKS B170, well—BROOKS WILL MAKE IT.

Now let us send you the BROOKS BOOK—it's free

J. B. BROOKS & CO., LTD.,
49, Criterion Wks., Birmingham.

YES! VERY NICE!! BUT HOW D'YOU CLEAN IT?

NOW MY NORTON!



NORTON MOTORS, BIRMINGHAM.

London—
ROBERTSONS,
Gt. Portland Street.

REDUCTION IN PRICE

OF

PALMER MOTOR CYCLE TYRES

		26x2¼
CORD TYRE (Strongest and Best)	per cover	38/6
HEAVY FABRIC TYRE (second only to the Palmer Cord)	,,	34/4
ORDINARY FABRIC TYRE (for light machines)	,,	25/4
PRIVATEER (a good cheap tyre)	,,	23/3

A Tyre to suit every class of rider.

The above-mentioned tyres are absolutely the best possible value ever offered to the motor cycle owner, and can be relied upon for durability and efficiency.

Write for Illustrated Booklet—

THE PALMER TYRE LTD., 119, 121, 123, Shaftesbury Avenue, LONDON, W.C.

MOTOR CYCLE DEPOT: 103, St. John Street, Clerkenwell, E.C.

Into the Dark.—

On and on into the evening, the sun sinks low, and the darkness creeps on once more. We fancy we can already see the crowd assembled to welcome us home.

At length we sight the finish, and "Here's one" we hear someone say, and in another moment we spy you on the kerb side, more convinced than ever that we are "mad, absolutely mad."

The Fruits of our "Madness."

On a bright summer morning when the genial sunshine bathes the countryside, dispelling the dew and calling the butterflies, you set off from home for the whole long day. Hour after hour you ride, and the absence of trouble grows almost monotonous. Whence came this wonderful reliability? Not because of some speed record set up at Brooklands. No, dear reader, you experience this reliability because we went into the dark.

It may be that you ride on after lighting up time, but you can rely upon your lamp. Again, no noonday ride with the butterflies perfected that lamp for you. You may have to return next day over wet greasy roads, yet your non-skids give you confidence, and it was not the tarred billiard table surface that called for the non-skids; it was because we went "outward and onward." And thus we might continue to dwell on the boons that have been brought to thousands by the rough riders who plough the furrow in the night.

Enter the trials yourself, and when you have tasted the glories of "war" you will know how to answer those who ask you, "Why do you go?"

At the watersplash at the foot of Grimes Hill in the Birmingham M.C.C. open cycle car trial. The competitor is Vernon Busby on an 8 h.p. Morgan.

AN IMPORTANT GERMAN WHITSUNTIDE EVENT.

For next Whitsuntide an important reliability trial for all types of motor cycles and passenger machines has been arranged by the Viennese Oesterreichischer Motorfahrer Club and the Berlin Allgemeiner Deutscher Automobil Klub, which will prove one of the most noteworthy Continental events of the year, and will be run over a distance of 439 miles.

There will be no difficulty in crossing the frontiers, as the authorities, both Austrian and Germans, are lending every assistance possible to the promoters of the trial. Competitors will start from Vienna on May 31st and the first trip will be to Breslau, a distance of 257 miles. On June 1st they will travel to Berlin, another 202 miles, where the finish has been arranged, and a great reception held.

The detailed propositions and regulations of the race are not yet ready, but it is certain that it will be run on Federation rules and class limits.

Austrian and German sportsmen hope to see a representative British entry (in which case all possible assistance will be rendered to participants, the Austrian correspondent of *The Motor Cycle* putting himself entirely at their disposal), not only in view of the many handsome prizes, but for the purpose of popularising the pastime in countries which are still far behind England.

The cycle car classes, it is to be hoped, will comprise a very good entry of German and Austrian machines, and it is here particularly that British entries are looked for; especially some of the simpler machines, as Morgan, Dee, G.N. and Dew, would cause great interest in Germany.

A Rescue, An Argument, And a Conversion.

RETURNING home about ten o'clock one night in Christmas week, I felt well satisfied with the world. It was a clear moonlit night, the roads were bone dry, and my machine was running delightfully. As I slowed down for some cross roads and swung round the corner, the beam from my lamp fell on the figure of a woman running swiftly some distance in front of me. I saw her turn to look on hearing the sound of my engine and immediately proceed into the middle of the road, holding out her arm as a signal for me to stop. "Hullo," thought I, "this looks like an adventure," and I halted obediently.

I saw without displeasure that she was a distinctly pretty girl. So much I could discern, although her hat was awry and her hair dishevelled. Her whole aspect, in fact, revealed excitement and agitation, which, together with her breathlessness, seemed to rob her for the moment of the power of speech. So I tried to break the ice.

"Er—can I do anything for you?" I asked, with my most reassuring smile.

"Oh," she panted, "I don't know how to ask you. It seems such an awful thing to ask. But can you—can you take me on your carrier for a little way?"

Here was a congenial task, though personally I prefer a sidecar for passenger carrying. "I'll be very glad indeed to do so—to take you wherever you like," I told her truthfully. "Will you come on now?"

"It's very kind of you," she stated. "I don't know what you must think of me for troubling you in this way. But it's so late—and I had a long way to go—and I got frightened."

At this point I became aware of the sound of running feet behind us, and rustic voices uplifted. I looked round, and a brilliant glow in the sky attracted my attention. I knew there was a village less than a mile away, and surmised that one of the cottages there must be on fire. As I gazed at this phenomenon, the runners came into view. There appeared to be seven or eight of them, carrying lanterns, and they exhorted each other as they came.

"Hullo, there seems to be some excitement," said I. "I suppose there's a fire in the village, and those lads are going for the brigade. I'll ask them what's happened exactly."

My companion unexpectedly gave a little shriek and caught hold of my arm. "Please don't wait," she begged earnestly. "Please let's start now—at once! I mean—I do so want to get home!"

She seemed almost hysterical, and, with a final glance at the rapidly approaching lanterns, I hastened to start the engine and let in the clutch. As we moved off I heard a great shout—of anger, as it seemed—and dimly wondered. Above the healthy bark of the engine others came to my ears until we had left the runners far behind.

A Militant Suffragette.

Presently I turned my head to look at the yellow glow in the sky, now much fainter, and found my passenger also gazing fixedly in the same direction. In reply to my questions, she assured me that she was quite comfortable and not at all cold. Then there was a silence, and an interval of reflection on my part. Just as we passed a group of youths, who shouted "Merry Christmas!" to us, a startling idea flashed into my mind. My companion, incredible as it seemed, was a militant suffragette!

Now, while my opinions on many subjects—such as singles *versus* twins and the problem of Ulster—are uncertain and lack conviction, there is one point on which I had definitely made up my mind, namely, that these ladies who go about burning and destroying property as a means of consummating "votes for women" are dangerous criminals, and should be treated as such, and left to "hunger strike" if they wish. The thought of helping one to escape from the consequences of her misdeeds was decidedly repugnant to me. My righteous indignation struggled with my sense of chivalry. Of course, I argued, it did not follow that my supposition was correct. But the fire and the shouts of the pursuers and her agitation seemed to point very plainly to this conclusion. I was wondering whether the circumstantial evidence was complete enough when her fluttering scarf caught my eye in the moonlight. Its colours, I felt almost sure, were the deadly purple, green, and white. At that I closed the throttle with decision, and we stopped near a little pond, now coated with a thin sheet of ice, by the side of which stood a cluster of tall trees.

"This is as far as you want to take me, isn't it?" she said. She was now quite composed, and smiled at me prettily. "Thank you *so* much for the lift. I've not got far to go now."

"I really stopped because I wanted to ask you something," I answered. "Are you a militant suffragette, and did you cause that fire we saw back there? I should rather like to know."

There was a gasp and a pause. "Certainly I believe in votes for women," she replied in a small voice. "I think they're better fitted to have them than most men. Don't you?"

"Never mind what I think, I said, "that's not answering my question, is it?"

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—NOW, while you think of it—drop us a postcard for the name and address of our nearest Demonstration Agent, who will give you all particulars of the A.C. Light Car and the A.C. Sociable, and take you for trial runs. We have agents all over the country, so that there is almost sure to be one conveniently near you.

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". . . . . we had left the runners far behind . . . . . Presently I turned my head to look at the yellow glow in the sky, now much fainter, and found my passenger also gazing fixedly in the same direction."

A Rescue, an Argument, and a Conversion.—

"I don't see that you've any right at all to ask me," she said coldly. "But if you're so anxious to know, I have struck my first blow for the cause to-night. I cycled over to that village about two hours ago to set fire to an old barn that I had noticed. There were some cows in the same field and I had to wait for them to move away. Then the thatch was so wet that it wouldn't burn until I had used dozens of matches and nearly all my paraffin. At last I got it alight and was spreading about some of our literature when I saw two men coming towards me, yelling. And they came from the direction where my bicycle was, so I had to run away without it chased by the crowd you saw just now —I've never run so fast before. They might have caught me if you hadn't happened to come along. I suppose you're sorry they didn't," she finished defiantly. "You think it's a great pity you stopped when I asked you to!"

I spare the reader the arguments with which I condemned and she defended her action. Any passers-by would have been highly amused to behold at that hour a motor cycle on its stand and two people beside it discussing heatedly the ethics of militant suffragism. "Well," said the girl finally, "what do you want to do with me? Give me in charge at the nearest police station?"

I said that I intended, having suitably admonished her, to fulfil my original intention of taking her home. But she would not hear of this. Now that she knew what I thought of her, she said, she refused absolutely to come with me. My expostulations had no effect except to make her angry.

"But your people—surely they'll be expecting you before this?" I ventured.

"Yes," she admitted, "they will. But I can't help that. I've quite made up my mind to walk. Good-night, and thank you again for the lift—and your lecture."

"Well, if you're determined," I said, with a sudden feeling of disappointment, "it's no use my saying anything more. So good-night, and a merry Christmas, and a pleasant walk."

Once in the saddle I opened the throttle wide and shot off down that road like a projectile, but I felt far from easy in my mind. Suffragette or not, I did not like the thought of leaving her to walk some four miles alone at that time of night. It occurred to me that perhaps she had enough to worry her in the loss of her bicycle without needing my lecture, as she had called it, and that I might have "slated" her overmuch. In any case, I was sorry we had quarrelled. Could I go back and tell her so, with apologies, and try to induce her to finish her interrupted "joy-ride"? I pondered the point so deeply that I was nearly running into the hedge. Probably I should get severely snubbed for my pains. Still there was the chance that after walking a little way she had changed her mind, or would at least be amenable to persuasion. I decided to risk it.

Reconciliation.

So I turned and sped back again, while the waning moon seemed to smile satirically. And as I approached the spot where we had parted I saw her, and a man walking by her side. Obviously she was trying to escape from him, and for a moment I wondered if he might be one of the pursuing villagers. But as I drew nearer his unsteady gait declared him a belated reveller who had emerged, I presumed, from one of the side lanes. So extreme was his condition that he did not even seem to be aware of my arrival till I took him gently but firmly by the coat collar and ordered him to depart solo. This he presently did, after an ineffective and unscientific attempt at resistance.

"So perish all poltroons!" I said to the girl. "Did he annoy you much?"

"Oh!" she cried indignantly, "he—he wanted to kiss me, I think. Aren't all men brutes?"

"Present company excepted, I hope?" I suggested.

"Oh, I suppose so," she said, after a not very complimentary pause. "Did you come back to try and persuade me to come on your carrier again? Because, if so, I will, in spite of what I said. I want to get home as soon as I can and try to forget all that's happened this evening."

"Then that's all right," I said. "Take a seat, please. I'm awfully glad I came back." And I was. With difficulty I restrained an inclination to sing as we moved off once more. Somehow the evils of incendiarism had receded quite into the background. I have seldom known four miles pass so quickly, although I purposely kept the speed low. When we arrived at her home, she said good-night very graciously, and consented to see me again, "but not," as she said, "to argue about militancy—please!"

. . . . . .

Really, there is nothing else to write, except that she now takes, as I have good opportunities of knowing, only a lukewarm interest in "the cause," and certainly would not set anything alight in order to further it; and that a few days later our leading local weekly "rag" contained this paragraph:

"A suffragette outrage was perpetrated in the little village of —— on the night of Christmas Eve, resulting in the partial destruction by fire of a barn belonging to Mr. ——, a local farmer. One of the women concerned in it was alarmed by two passers-by, who had noticed the flames and were proceeding to investigate. With a number of other inhabitants they gave chase for half-a-mile, and would doubtless have captured the incendiary if she had not been met by a male accomplice with a motor cycle, who rode away with her. Meanwhile, other helpers had succeeded in getting the fire under control. A number of suffragist pamphlets were found near the scene of the outrage. Later, a lady's bicycle was also found under an adjacent hedge, but with no clue as to its owner. We understand that Mr. —— intends to keep this machine as some little compensation for the damage done, unless (as is not likely) a personal application is made for its return."

. . . . . .

No; we both agree he may keep the bicycle!

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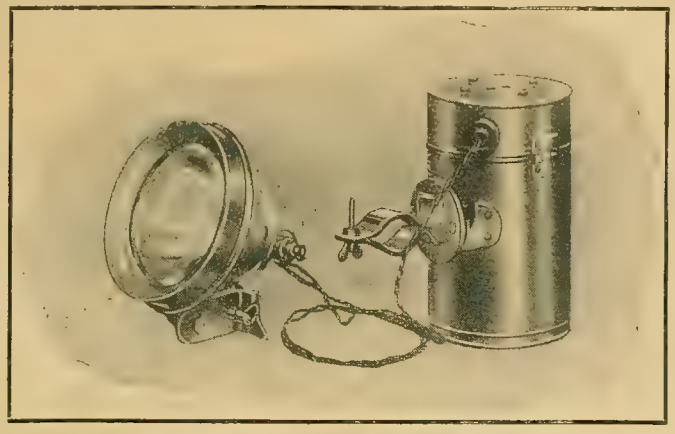

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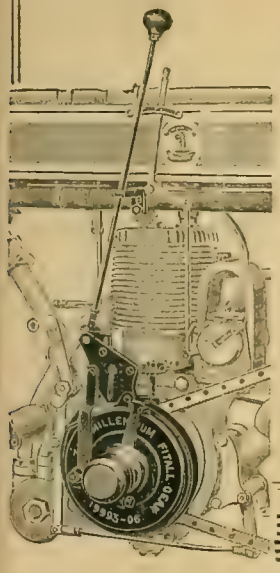

cannot be over-estimated. Moreover, they can hardly fail to appeal to you. The "Fitall" gives two speeds and free engine, all the changes being made by one lever. Simplicity itself, and absolutely reliable. It is a greater power saver and therefore a money saver. The "Fitall" can be quickly fitted to almost any make of motor cycle without structural alteration.

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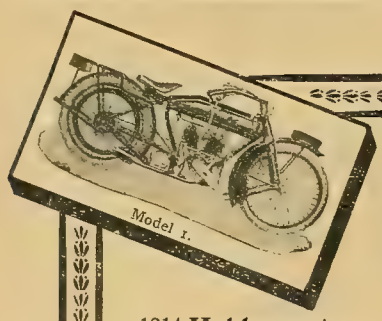

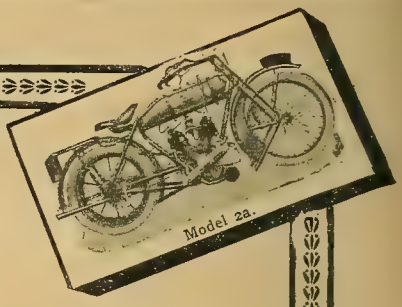

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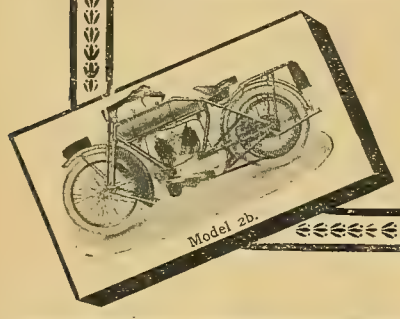

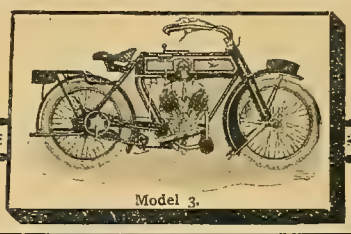

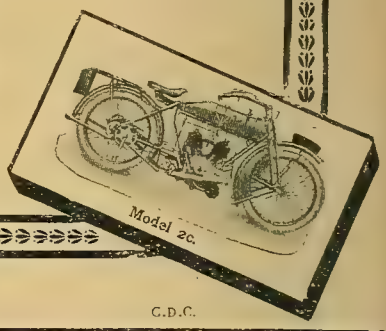

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Copy of Letter from Chairman of Competitions Committee A.C.U.

November 13th, 1913. Carew, Walton-on-Hill, Surrey.

Sirs,

Having used a "Watford" Speedometer during the past year, fitted to three different makes of motor vehicles, a "Bayard" light car, a "G.W.K." cycle car and a "Premier" motor bicycle, I should like to say that I have found your speed indicator the most reliable, accurate, and generally satisfactory that I have ever used.

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I am, yours faithfully
(Signed) E. Percy Greenhill,
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LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

A Tip for Winter Riding.

Sir,—Some time ago I noticed an enquiry in your columns *re* keeping a motor cycle in the winter. I have been shown a 1911 Bradbury which looked as if it had just been bought from the makers. I have now tried the same method on my Triumph, which I am using daily, and, after six weeks' trial, I cannot speak too highly of this "winter tip." It is a shilling tin of cylinder Robbialac applied over the cylinder, exhaust, silencer, and all bright parts; it gives the metal a gunmetal finish, and does not wear off. Mud, grease and wet have no appreciable effect on such a surface.

M. HARWOOD.

Do Sidecars Skid?

Sir,—The opinions which have been expressed on this subject are of a somewhat contradictory nature, and the real solution, I venture to suggest, can only be arrived at by taking into consideration the weight of machine and sidecar, width of wheelbase, and type of tyre used.

From my own extended experience with a 3½ h.p. free engine Triumph and light sidecar attached to the machine as closely as possible, and shod with a smooth tyre, I have no hesitation in stating that on roads in a certain condition the combination will skid on the slightest provocation, and on slimy wood-paved roads may be made to skid perceptibly by swaying the body to and fro. I have not experienced skidding whilst riding down hill, though when making a frantic rush at a hill with loose and wet surface the machine has performed most extraordinary gyrations in a vain endeavour to take the hill broadside on. On the other hand, a machine and sidecar with wide wheelbase, low body, and shod with a non-skid tyre, is practically immune from skidding, assuming, of course, the sidecar is correctly adjusted.

In every case the personal factor must be considered, for a machine which is quite docile and tractable in the hands of its owner may give good food for thought to the person who might unwarily venture upon it without being acquainted with its little idiosyncrasies. D. NICHOLLS.

Ice in the Carburetter.

Sir,—A few days ago whilst I was riding in the country, and after I had covered some fifteen miles at about twenty-five miles an hour, my mount (Douglas R, with standard carburetter) began quite suddenly to lose power, showing marked symptoms of engine starvation. Opening the throttle caused the engine to flag still more; closing it slightly caused the engine to pick up again for about a hundred yards, when it again began to fall off.

On dismounting to examine the carburetter I found to my astonishment that the upper part of the jet chamber had become almost filled by a cylindrical piece of ice firmly adherent to the lowermost coil of the throttle spring and extending down into the chamber to a distance of about three-quarters of an inch. So firmly was it attached that I had to cut it out with a knife, after doing which I proceeded on my way rejoicing.

The morning was cold and raw and damp, but not frosty, nor had there been any frost for some days previously. I had had no trouble whatever in starting up in the morning, and the machine is in daily use.

The fuel I was using was Birchenwood spirit, which, I believe, is benzole 90%.

I should be glad to receive any enlightenment as to the cause of the phenomenon. JAS. M. SCOTT.

Bent Sparking Plug Points.

Sir,—Whilst riding my 3½ h.p. single the other day with the throttle almost full open, the belt pulled through at the fastener, the result being that the engine raced for a few seconds. When I had mended the belt, imagine my surprise, when the engine refused to fire. On removing the sparking plug I found that the points had been bent all out of shape. When I put the plug in there was quite ⅛in. between the plug and the inlet valve at the top of its stroke, and the inlet spring is quite as strong as the makers advise.

The only solution I can give is that with the abnormal speed of the engine, the inlet valve must have bounced off the tappet, and so hit the plug.

I wonder if any other of your readers has experienced this trouble? R.S.

Two-stroke Lubrication.

Sir,—In reply to "Two-stroke's" letter, I am sorry that I cannot give the details of how Mr. Garrard lubricated his four-stroke engines. The subject was described and discussed in the press at the time, and I was interested and wrote Mr. Garrard as to whether any special oil was necessary. He very kindly sent me a tin of that which he used to try, but pressure of business prevented the experimenting which I had promised myself. Mr. Garrard, however, is too practical an engineer not to have considered all the conditions, and I have no doubt he had provided for the lubrication of the big end, etc.

He is still doing good service to the motor world, and it would be interesting if he would throw some light on the subject. There would, however, not seem to be any great objection to drawing the mixture through the crank case, failing other methods, and so gain just the same result in one type as in the other. A. C. DAVISON.

The Bantamweight Class.

Sir,—I have read with interest "Ixion's" remarks on small four-stroke engines, published in your issue of the 4th December.

I would inform "Ixion" that, having ridden a 2½ h.p. New Hudson fitted with 70 × 76 J.A.P. engine, I have found none of the evils he mentions.

I have ridden this machine for two and a half years and covered upwards of 12,000 miles.

For the first eighteen months I ran the machine *without* a speed gear, and after twelve months' wear undertook a Welsh tour. With the aid of the adjustable pulley and a worn belt, giving me a 7½ to 1 gear, I used to climb daily the long Dinas to Dolgelly Hill; I also climbed the mountain road from Maentwrog to Llandilocs, and succeeded in reaching the top of the famous Bwlch-y-Groes Pass by taking it in sections and hard pedalling. As a result of this tour I eventually fitted a three-speed gear, in view of future tours in mountainous country. It was only when nearing the 10,000th mile that the power began to fall off; and in July last I had the engine re-bushed and a new piston fitted.

At the present moment the engine is going better than ever and develops its usual power. I can average twenty miles per hour, and on several occasions have covered the hundred and seven miles from Bath to my house in five hours exact.

As I use my machine for touring and long distance riding I should have a more powerful machine next time, to enable me to increase my average speed and also for occasional sidecar work.

To sum up I would state that (1) the power *is* absolutely maintained over satisfactory mileage; (2) little piston ring wear, valve pitting, etc., do not affect the power on the 2½ h.p. any more than on other types—I grind in valves about every 1,000 miles; and (3) overheating, valve trouble, and plug troubles are nil.

The disadvantage of a small engine pulley is shown by my using up two belts a year, the approximate life of a belt being just over 2,000 miles.

A second disadvantage is that for touring and long distance riding, a higher average speed would be desirable.

Since fitting the three-speed gear there is only one hill I have failed on, and that is Arms Hill, Henley. Such hills as Kop, Whiteleaf, and Pink Hill, near Princes Risborough. I can take on the run. I have no interest in either the J.A.P. or New Hudson firms. S. W. H. TURNER.

The Effect of Benzole on Valves.

Sir,—Having been a constant user of benzole for six months I am interested in other people's views of it, and notice that F. W. Wagner has, apparently, had a disheartening experience For the exhaust valve to be so badly burnt after using only four gallons is extraordinary, and indicates that the benzole was exceedingly badly washed. I have not examined my exhaust valves, but the compression and running are as good now as six months ago, and I am using the bicycle daily on a very heavy road. I may state that I have not had my plug out for two months. In view of the statements that benzole makes starting difficult in cold weather, I may mention that, during a recent snowstorm in which I was forced to ride, the engine—which is a 4¼ h.p. Precision single-cylinder—started up on the second revolution.

If I am not taking up too much space, I should like to make a suggestion as to why more air is required for benzole. My suggestion is this. Benzole has a higher viscosity than petrol, and, consequently, would form a larger bead on the jet, thus offering a greater surface for evaporation, and, unless the throttle were eased off or the air increased, the percentage of benzole in the mixture would be higher than the upper limit for explosion, thus causing a deposit of carbon through incomplete combustion. I do not advance this as a reason, but merely throw it out as a suggestion. If any of your readers know the explosive limits of benzole and petrol I should like to hear what they are.

F. J. POPHAM.

Sir,—I have had a similar experience with benzole to your correspondent Mr. F. W. Wagner. I filled up the tank of my 3½ h.p. Rudge-multi with one gallon of benzole, there being already nearly half a gallon of petrol in the tank. The benzole was of a well-known brand, bought at a large garage, and cost as much as second-grade petrol.

At first the running of the engine was decidedly smoother, and it would not knock, but after some forty miles at an average speed of about twenty-five miles an hour the engine showed all the symptoms of bad overheating and loss of compression. This was not due to an over rich mixture, as the best results were obtained with the air supply of the 1913 pattern Senspray carburetter partly closed.

On arriving at my destination, after covering a total distance of sixty miles on this fuel, I removed the valves, to find the exhaust valve so badly burnt as to be of no further use, three large chips having disappeared from its face. The thin flat ends of the electrodes of the Bosch plug had also disappeared. The exhaust valve had been used previously for 5,000 miles with petrol, and was in excellent condition before the benzole was used.

Another curious effect of benzole was that it dissolved the soap used in one place to secure a petrol-tight joint, and caused choking of the jet.

I have not used any benzole since, and should like some assurance that trouble with valves and plugs is not a usual consequence of its use before trying it again.

F. C. C. KENNEDY.

Engine-shaft Gears.

Sir,—May I endorse the remarks made in your issue of Nov. 27th by "AF 274." Until I got my present machine a few months ago I used an N.S.U. gear and always found this most satisfactory.

The only renewals in 3½ years were one new belt pulley, a set of new pinions and bushes, and one low gear clutch plate. The first item would have been necessary in any case, and the two latter together cost about five shillings. I did not find that the weight of the gear had any appreciable effect on the engine bearings; in fact, they were never renewed while I had the machine, and were in fair condition when I sold it. The only grumble I had about the whole thing was the "coffee grinding" lever for changing the gear, and when I was able to get over this by obtaining a set of handle-bar control fittings I considered that I had found my ideal gear for solo and occasional sidecar work. So much so that I am ordering a new gear and control for my new mount, as I did not see anything at Olympia to improve upon it. I am certain that anyone who has once used a handle-bar controlled gear would never go back to either foot or tank control.

May I add the usual disclaimer. EPICYCLIC.

Tyre Luck.

Sir,—Now that modern machines are so absolutely reliable, motor cyclists probably experience more trouble with their tyres than with any other part of their mount. This being the case, a few hints from a hard road-rider may not be out of place.

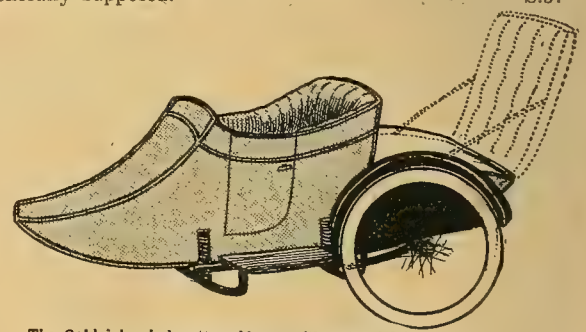
I first take the tubes, and make sure that they are air-tight, replacing any suspicious looking patches. Then I pour about a wineglassful of water into each of them through the valve hole. I have never seen this recommended before in these columns, but it is really a splendid plan, as it keeps the tube in fine condition. Water is a well-known preservative of rubber, and tubes with a little water in them will, barring accidents, last for years. It keeps them soft and pliable, and they are therefore much less likely to be pinched. The idea has one other advantage, as when the tube is punctured, the water is immediately forced out through the hole, and it is thus an easy matter to locate the spot which requires attention. Moreover, a little water put in any spare tubes will effectually prevent them from perishing.

At the end of about every three or four hundred miles running, I examine the outer covers very carefully, pick out any flints which may be embedded in the rubber and fill up all the cuts.

By taking these measures, and with a reasonable amount of good fortune, I think any motor cyclist may count on being able to avoid any serious tyre trouble.

A ROUGH RIDER.

Sir,—Being interested in tyre wear, I have always read correspondence about this in *The Motor Cycle*, and am surprised at the different accounts given of mileage done, the divergence of distance being so great. I took to motoring two years ago, and after reading "Ixion's" advice, advising heavier tyres, I ordered the heaviest 3in. tyre that could be fitted to driving wheel in place of the two-inch cover which was standard. A Clincher Dreadnought was put in at an extra cost of 26s. My machine is a 2½ h.p. A.J.S. chain drive. I rode it nearly 7,000 miles and then had it retreaded. The ridges on the retread were worn off in 1,000 miles, but the tyre itself seems as good as new. I hope to ride it another 5,000 miles. As far as one can see the beading and lining are intact. The studs on my front Hutchinson hardly show any sign of wear after 8,000 miles. Even allowing for the different h.p. and weights, there must be something wrong to get such poor results. I have always read that chain drive is very destructive to tyres, but I begin to doubt if the chain is such an evil factor as generally supposed. S.J.



The Oakleigh wind cutter sidecar with extra folding seat at the rear.
(It is referred to on page 1742.)

Speedometer Drive.

Sir,—In your issue of December 11th there is a letter by "Wheelslip." I had a curious experience about a year ago. I was running fairly fast over Northumberland and Durham roads on a Triumph solo. Although the machine did not tend to skid unusually on the greasy roads, yet whenever I came to a dry patch under trees, the beat of the engine noticeably slowed, showing that there must have been a considerable amount of back wheel slip when on the wet portions. This shows that under certain conditions a rear-driven speedometer flatters one's pace. J. REED.

Benzole.

Sir,—I found my exhaust valve burned away a few weeks ago, but traced it, not to the benzole, but to the adjustable tappet having unscrewed, and so prevented the valve seating. I have just looked at the valve and find that it is slightly pitted after 300 miles running. The seating is perfect. Benzole is so much nicer to run on than petrol that it will take more than pitted valves to stop me using it. I have found no other drawbacks in some thousands of miles.

Can anyone help me here? I have just had fitted to the 1913 P. and M. carburetter a pilot jet, advertised in your paper. It gives very slow running in free engine and traffic, but (using benzole) thick, black smoke pours from the silencer at every explosion when ticking over on the pilot jet in "free." How can I prevent the smoke? It soots up the valves, but the soot is easily wiped off with a rag, leaving a clean surface. STUMPED.

[We think that other readers, who have suggested that their valves have been burnt out by benzole in an incredibly short mileage, will find the true explanation to be on the lines of the above letter.—ED.]

A Cornish Reader's Sidecar.

Sir,—Having been a constant reader of your valuable paper for the past three years, I thought the enclosed photograph of myself, with my son, and my 3½ h.p. Bradbury sidecar combination might interest you and your readers.

I have been a motor cyclist for the last five years, but have not ridden a more reliable machine than my present mount, "the Bradbury" (which, by the way, is my third

steed). During nine months every-day use in all weathers I have not had the slightest trouble with regard to the power of my machine, the only involuntary stop being a choked jet. It takes two of us anywhere, which is saying a good bit considering the hills we encounter in Cornwall. I find the sidecar combination a boon to me in my professional duties. I might state I have no interest whatever with the Bradbury Co., other than a satisfied user.

ALFRED WORTH.

Rear Lights.

Sir,—The present chaotic state of affairs is most dangerous to every one who has to move about the country at more than six miles per hour. Let me give one instance from my own personal experience. I was riding a motor cycle early one evening along a main road in the vicinity of Hereford when I saw in front of me a white bare light which appeared to be carried by someone approaching in an open trap. In two or three seconds I found myself running into the tail of an empty timber carriage. By a stroke of luck only was I able to avoid the vehicle, the ditch, and the man leading the shaft horse—one of three hitched to the waggon. On the fore part of the vehicle was perched a man holding in his right hand a hurricane lamp showing white all round, at a distance of a good many feet from the pole tail. For such a state of things as this to be permitted anywhere, especially on main roads, is atrocious. If the police were to insist on every vehicle showing a red rear light instead of prosecuting motor cyclists unnecessarily, as they have been doing lately in Herefordshire, all sections of the travelling public would be able to move about the country after dark in safety. CJ 1363

Weatherproof Finish.

Sir,—As I wandered about the Show, through avenue after avenue of machines that—however perfect their mechanism—looked more suitable for a glass case than the road, I wondered why makers did not finish their machines with some view to the work that would be expected from them. In fact, some machines were so brilliantly "got up" that we might suspect their makers of pushing "side lines" in metal polish or plate powder.

Nickel plating, nickel plating, everywhere, hubs, rims, spokes, footrests, and engine parts, all must be nickel plated; but why? It seems like sending navvies to work with patent leather boots and silver plated picks. These "all highly polished" might suit the merchant who goes for a five mile walk to see that there is no mud about before he ventures out with his crock, but there must be a large number of people like myself, who use their motor cycles chiefly for professional or business purposes, and to them nickel plating and the cleaning of it is the greatest nuisance.

Makers are usually keen on showing the economy in the upkeep of their productions, but they never take into consideration that not most insignificant item on the balance sheet, viz., cleaning.

The really serviceable mount should be impervious to weather conditions, and the cleaning of a motor cycle should be done, as is the case with a car or a trap, with a hose pipe.

W. F. BURTLE.

Colonial Models.

Sir,—*The Motor Cycle* of the 30th October is perhaps the most interesting publication, from a colonial point of view, that has come before the public for some time. Not only does it give many illustrations and detailed descriptions of 1914 models, but it gives splendid illustrations of machines specially constructed for use in the Colonies. The Ariel, Arno, Rudge, Bradbury, New Hudson, Premier, and Triumph are amongst the machines dealt with in your paper, yet to the colonial rider they have all the same fault. The silencer, and in the case of some of the models the magneto, is placed in such a position that in traversing rough rocky ground like that met with in this district, and I might say in most parts of South Africa, these fittings are sure to get damaged. When travelling over bad roads at a slow pace the front wheel drops into a sluit made by a recent rainstorm, and the silencer and magneto have to stand the full brunt of the knock, with the inevitable result. One rider in this district who rides a well-known and reliable British machine has had his silencer smashed three times in the last four months. Needless to say, his next mount must have the silencer and magneto elsewhere, and surely our manufacturers can find some other position for these parts, especially in machines destined for oversea.

I am speaking from experience and write this letter after having discussed the subject with many riders.

There has been some discussion in your paper *re* the prices charged for British machines in New Zealand. In Johannesburg the Triumph and B.S.A. free engine and three-speed models cost £77 10s., and the 6 h.p. Royal Enfield £95; the latter fitted with sidecar £112 10s.

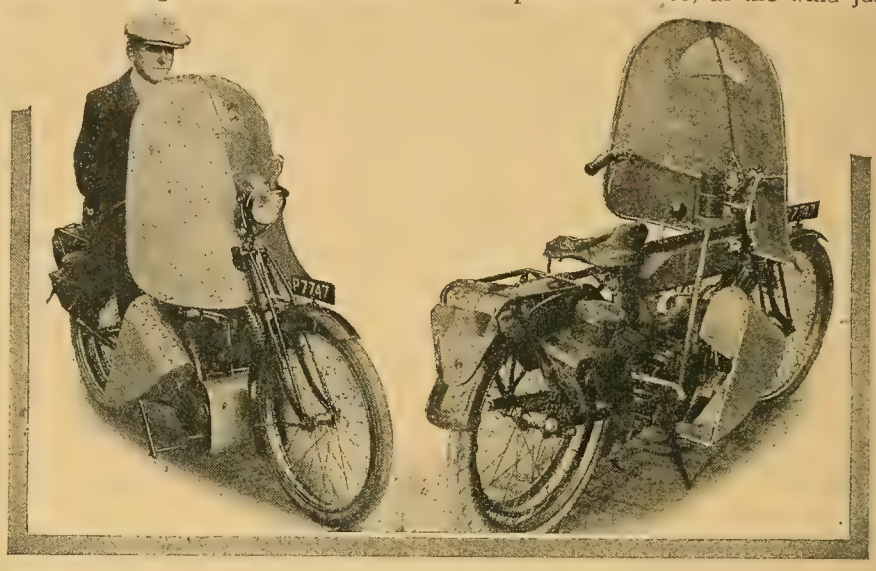
Ermelo, Transvaal, S.A. AN AFRICANDER.

Weatherproof Motor Cycles.

WITH the advent of the winter season, and its consequent bad weather, many motor cyclists give up the idea of using their machines, owing to lack of protection from the elements.

There are, however, a large number of motor cyclists who find their machines far too useful and so use them all the year round in all weathers, and the necessity for adequate protection is keenly felt.

Having occasion to use a motor cycle fairly extensively in the winter, the writer has recently been experimenting with the weather-protecting device, shown in the photographs, fitted to a 3½ h.p. Zenith. It consists of a ⅜in. steel tube framework with fabric drawn over it; the fabric is drawn tight like an aeroplane wing.



Screens to protect the rider from wind and rain as fitted to A. V. Roe's 3½ h.p. Zenith.

It would appear that the head-resistance must be great and so slow up the machine, but at normal speeds in a calm, its slowing effect is practically unnoticeable. As a matter of fact, the shield and rider together form a streamline body, as the air carries on to the rider's side, that is to say, the head-resistance of the screen is less with a rider sitting some two feet behind than it would be for the screen alone. Strong head winds certainly slow the machine, for without the shield most riders would bend down and plough through. One has naturally to be ready for side winds at windy corners, but the disturbing effect on the steering is not so bad as one would imagine.

Since the photographs were taken, a detachable top piece with a round glass window has been fitted to protect the face, as the wind just caught the forehead, but this could be avoided by sitting further back and bending down slightly. Altogether, the writer has done about 1,000 miles with this protective device, chiefly in the Manchester, Kent, and Surrey districts.

By bending down, one can completely hide behind the screen and see through the Cellon window. It must be rather a curious sight to see this unusual combination bowling along, judging from the puzzled expressions of approaching motorists. Some look over or round their glass wind screen to make sure the glass is not deceiving them, with an expression as much as to say, "What in the world is this coming along."

It seems to cause as much curiosity as the first motor car must have done. Being new, it is naturally looked upon by many as some foolish freak. One wise man said, "Well, I suppose it is some use." Another thought it was put there for racing purposes.

One perhaps appreciates the screen most when it is pouring with rain or when it is bitterly cold.

A. V. ROE.

BRISTOL-LAND'S END TRIAL.

CONSIDERING that there are many other important Christmas events, the Bristol Motor Cycle Club must be congratulated on an excellent entry of forty-five riders, whose names will be found below. The start will take place on the 26th from the Queen's Hotel, Clifton, at 5 p.m., and the competitors will ride to the Land's End and return, the first man being due at the starting point exactly twenty-four hours later. This is the first Christmas trial organised by the club, and the results will be watched with interest by a large number of motor cyclists.

18 M.P.H. SCHEDULE.

P. Grout (6 A.J.S. sc.)
M. S. R. King (Morgan c.c.)
E. A. Davies (3½ Premier sc.)
C. R. Selman (Morgan c.c.)
F. G. Cox (A.C.)
P. H. A. Stone (Enfield Autolette)
J. A. King (Morgan c.c.)
C. H. R. Norrington (6 Enfield sc.)
A. E. Moon (Morgan c.c.)
L. A. Bollock (3½ Singer sc.)
T. A. Biggs (3½ Rudge sc.)
Leo Weiks (3½ Premier sc.)
J. Averies (Averies c.c.)
F. G. Davies (3½ Rudge sc.)
Charles Moss (3½ B.S.A. sc.)
F. C. Wasley (8 Matchless sc.)
G. H. Fry (8 Zenith sc.)
D. L. Thomas (5 Sun-Jap sc.)
H. Reed (8 Dot sc.)
W. W. Douglas (Douglas c.c.)
H. Hutchinson (6 Trump-Jap sc.)

20 M.P.H. SCHEDULE.

A. Stevens (Douglas)
Rev. P. Bischoff (Clyno sc.)
E. H. Littledale (Ariel)
Chris Aslen (Grandex)
J. B. Kellar (Rudge)
G. Barnard (Singer)
Frank Smith (Clyno sc.)
J. C. E. Elliott (Douglas)
G. F. Druitt (6 Enfield sc.)
R. King Smith (5-6 Bat)
P. H. A. Matthews (Rudge)
P. Mills (Trump-Blumfield)
J. Woodhouse (Quadrant)
W. B. Gibb (Douglas)
W. H. Longton (Alldays Matchless)
L. Sealey (B.S.A.)
E. L. Barnes (Rudge)
E. Kickham (Douglas)
H. Clement (Triumph).
W. J. Melton (Douglas)
J. Melton (Douglas)
S. Pate (Rudge)
R. W. Gore (Douglas)
W. Thornhill (Douglas)
W. W. Moore (Humber)

TIME TO LIGHT LAMPS.

Dec. 25	... ...	4.55 p.m.
,, 27	... ...	4.54 ,,
,, 29	... ...	4.56 ,,
,, 31	... ...	4.58 ,,

To our Readers at Home and Abroad.

The Editor and staff wish all readers of *The Motor Cycle* a happy Christmas and a prosperous New Year.

Belgian Motor Cyclists' Winter Run.

The Liège Motor Club will hold a run on Christmas Day over a distance of 125 kilometres. The announcement mentions that the run will be held no matter what the weather.

The Cannes Week.

What is known as Cannes Week will be held from the 17th to the 22nd of March, 1914, inclusive. The week's events include a gymkhana, paperchase, dinner, distribution of prizes, and speed trials.

Inventor of the Bollée Tricar.

Monsieur Léon Bollée, the inventor in 1894 of the original Bollée tricar, died at his native town of Mans in his forty-third year on Tuesday of last week, and was buried on Thursday last. The Bollée tricars took part in the Emancipation All Day Run to Brighton in 1896, and were built by the M.M.C., Coventry, and also in a modified form by Humber, Ltd., Coventry. This tricar was a most practical vehicle, albeit somewhat erratic. The inventor was only twenty-four years of age when he brought out this machine.

A.A. and M.U. Notes.

CUT-OUTS.—The Executive Committee of the Automobile Association and Motor Union have recently given a great deal of serious consideration to the question of the use of cut-outs on public highways. Complaints are being received from many quarters that the order prohibiting cut-outs is not being observed, or that its provisions are being evaded. Questions have been asked in Parliament on the subject, and the Association is aware that the Local Government Board is considering whether further and more drastic action may not be necessary if the annoyance continues. The Association has on many occasions expressed its disapproval of the use of cut-outs, and it has now been decided that in future members of the A.A. and M.U. shall not be defended by the Association in any proceedings which may be instituted in respect of the use of cut-outs on public highways, unless the committee shall be of opinion that there is a possibility of substantial injustice being done.

The Two-stroke Engine.

We believe we are right in saying that three leading firms of motor cycle manufacturers have on the drawing board or in course of manufacture small two-stroke single-cylinder engines. It is a curious fact that the small-sized two-stroke motors are a great success, whereas the larger sizes of single-cylinder engines have hitherto been found wanting.

Ladies' Lightweights at Moderate Prices.

Mrs. M. C. Cooke, who recently wrote an article in our pages commenting on the "Ladies' Motor Cycles at Olympia," mentioned that there were one or two manufacturers willing to build lightweight open framed machines at moderate prices.

The names of these firms have been asked for by several readers, so that it is reasonable to suppose that there are many who would like to know the names but have not communicated with the Editor. We have ascertained from Mrs. Cooke that the firms who expressed their willingness to build these machines at an inclusive price of from 25 to 30 guineas are: Messrs. Butterfields, Ltd., Stechford, Birminghom; The Wilton Cycle and Motor Co., Wilton Road, Victoria, S.W.; and the Veloce Co., Fleet Street, Birmingham.

SPECIAL FEATURES:

SEASONABLE ARTICLES AND ILLUSTRATIONS.

A Christmassy Issue.

This number being issued on Christmas Eve, we have reverted to our usual custom and included a number of seasonable articles written in lighter vein.

Christmas Flying.

Monsieur Chanteloup, a famous French aviator, who is said to be the first man to "loop the loop" on a biplane, is to give demonstrations on Boxing Day and the following Saturday, the 27th, at Hendon at 11-30 a.m. and 3-30 p.m. each day (weather permitting).

Monsieur Chanteloup's evolutions are reported to be most extraordinary and impressive, particularly the "pancake" descents, which are made almost vertically, with the planes of the biplane horizontal, a method which makes it possible for a pilot to land on a very small space, not much larger than the area of his biplane.

A STRIKING DEMONSTRATION OF HILL-CLIMBING POWERS.

W. H. Carson on his 5-6 h.p. Excelsior climbing Netherhall Gardens, Hampstead, a gradient of 1 in 7.2 During Show week six passengers were carried, but seven have since been taken up the hill—a combined weight of 88 stones, or, including the vehicle, a load of three-quarters of a ton

Streamline Bodies Two Years Old.

The daily papers last week credited a Frenchman with the idea of a streamline (or torpedo as it was called) body for increasing the speed of cycles and motor cycles. The credit, however, is due to *The Motor Cycle*, as will be seen by the extracts in this issue from an article which appeared in January, 1912.

English Statistics from Paris.

A French contemporary publishes the following figures concerning the expansion of the city of Coventry. We cannot vouch for the accuracy of the figures, but they are nevertheless interesting: The population is given as about 120,000. The salaries paid to motor staffs, during the past twelve months £1,500,000, to workpeople £3,000,000, and the business done £4,750,000.

Trade Supported Contests in 1914.

An important decision was arrived at by the Motor Cycle Manufacturers' Union last week in connection with competitions in 1914. The idea of selecting twelve events for their collective support as in 1913, has been discarded; instead, manufacturers will choose any particular events they like to the number of twelve. We deal with the matter editorially.

A Steady Increase in Motor Cycles.

Since the motor cycle has come into its own the annual increase in number has been startling, and of recent years has become more and more marked. Statistics go to prove that there are now 179,926 motor cycles registered in the United Kingdom, and that the increase during the year ended Oct. 31st, 1913, amounts to 38,770, a truly wonderful figure.

Dividing up the total into the three countries we find that England and Wales have an enormous lead, with a total of 158,120 machines. Scotland comes next with 13,280 and Ireland last with 8,526. The reason for these wide gaps are, of course, obvious, for besides the difference in area and population the question of roads is an important factor.

There are more motor cycles (26,318 to be exact) registered in London alone than in Scotland and Ireland together, and Birmingham comes next with 7,011. Middlesex (5,395) is the only other county to exceed 5,000, but Kent and Essex have 4,595 and 4,383 respectively.

There are only 45 motor cycles registered in Waterford, and this is the smallest number on record.

The Accuracy of the Figures.

It is unfortunately almost impossible to obtain with absolute accuracy the number of machines on the road, as some machines are constantly being laid by. This has been proved in the past by the discrepancies existing between the official returns and the amounts published as Inland Revenue returns from this source.

However, failing a definite statement from the Revenue Offices, the figures published above, for which we are indebted to *The Car Illustrated*, may be considered as the most accurate obtainable. Our contemporary publishes a detailed list of the motor vehicles registered in each county and borough.

FUTURE EVENTS.

Dec. 26-27.—Motor Cycling Club Winter Run from London to Exeter and Back.
,, 26-27.—Bristol M.C.C. Open 24 hour Trial to Land's End and Back.

1914.

Jan. 3.—Liverpool A.C.C. Open One Day Trial.
,, 7.—Bournemouth M.C. Open One Day Trial.
,, 14.—A.C.U. Annual Dinner
,, 17.—Essex M.C. Open One Day Trial.
,, 31.—Birmingham M.C.C. Open Trial for Motor Cycles & Cycle Cars.

Scottish Trials in 1914.

We hear from Mr. Campbell McGregor that the Scottish Six Days Trials, promoted by the Edinburgh and District M.C., will be held next year during the week 15th to 20th June. Thus, it will be seen that the idea of holding the trials in two weeks with a Sunday intervening has come to nothing, which we consider a pity, as we feel sure that many competitors would have welcomed the plan, and would also have been glad of a free day among the splendid Highland scenery.

A.A. and M.U. Notes.

Patrols and Christmas Day.—In accordance with the custom which has always been observed by the Association, no A.A. patrols will be on duty on Christmas Day. On Boxing Day the men will be on their beats as usual.

Christmas and New Year Tours.—The A.A. and M.U. Touring Department is daily receiving applications for routes from a large number of members, who will be proceeding by road to various parts of the country for the celebration of Christmas. Members are reminded that the Touring Department is always actively and willingly at their disposal for the issue of international passes and customs triptyques, and the careful preparation of itineraries to meet individual requirements both in the United Kingdom and on the Continent.

A.C.U. Notes.

Affiliation.—The following clubs have notified the Union of their intention to affiliate under the new affiliation scheme:

The Cyclecar Club.
Newport (Mon.) M.C.C.
Surrey M.C.C.
Aspatria College M.C.C.
Liverpool A.C.C.

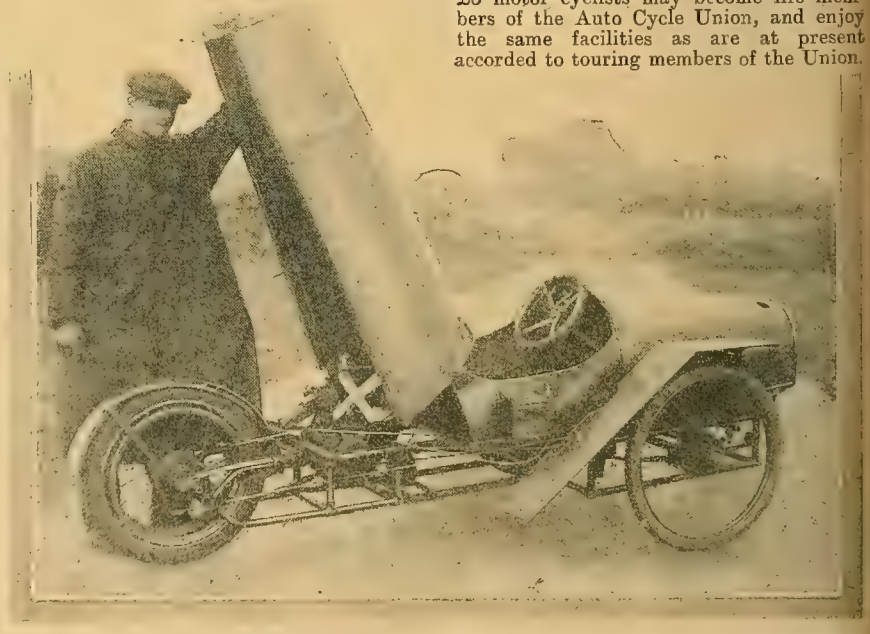
Tourist Trophy Races, 1914.—The regulations for the motor cycle T.T. Races, and the cycle car T.T. Race, are now under consideration by the A.C.U., and will probably be circulated early in the new year.

Red Rear Lights on Motor Cycles.—The A.C.U. has been in close touch with the Local Government Board on this matter. The Board recently submitted a draft of the suggested Amending Order for the consideration of the Union.

Annual Dinner.—The Annual Dinner of the Union will be held in the Great Gallery of the Royal Automobile Club, London, S.W., on January 14th next. The Hon. Arthur Stanley, M.P., M.V.O., will occupy the chair. The dinner will be followed by a first-class musical entertainment.

A.C.U. Competitors Register.—The Auto Cycle Union wishes to remind prospective competitors in forthcoming events to be held in 1914, that it will be necessary to renew their A.C.U. Competitors' Registration. This registration holds good from January 1st to December 31st in any one year.

Life Membership of the A.C.U.—It does not appear to be generally known that upon payment of a subscription of £3 motor cyclists may become life members of the Auto Cycle Union, and enjoy the same facilities as are at present accorded to touring members of the Union.



The above photograph depicts a novel racing cycle car made by E. G. Whelon of Acton. The Whelon—as it is called—is fitted with a twin-cylinder 6 h.p. fan cooled engine and two-speed gear in the back hub. Access to the engine, as may be seen, is gained by raising the hinged rear portion of the body. The complete vehicle ready for the road weighs 3¼ cwt.

A BIT OF A PUZZLE.

THE SOLUTION.

A FORTNIGHT ago there was described a puzzling case of a new motor bicycle which appeared to be quite in order, but which petered out in a few yards. The only thing necessary to make the machine run perfectly was to make a slight adjustment, and it was this. The timing ring, as stated, appeared to be fixed. There was an arm on the ring, but no hole had been drilled through the end of it, and it was not coupled up to any sort of control mechanism, and the contact broke, apparently, at the right point. All that was required to put the machine right was to tap the lever with a light hammer so as to advance the timing a few degrees. It was not necessary to alter the position of the sprocket on the armature-shaft, nor even advance the cam ring to the full amount allowed for by the slot in its wall.

Generally, such moderately retarded ignition merely results in slow progress, but in this case it would seem that the current generated was not much more than sufficient to jump the gap at the plug and cause a spark when the machine was being assisted, but, when it slowed at all, the current weakened as the speed fell off and the firing gradually ceased.

Anyway, the Precision unit—for such it is—now sails along like a bird. DOUGLAS LEECHMAN.

Editorial Note.

The competition has been a great success, many hundreds of riders sending in their ideas of the trouble from which the machine was suffering. An enormous number of readers thought that an air-lock in the petrol pipe or a wrong level of petrol in the carburetter was the cause, but Mr. Leechman made it abundantly clear that these were not the causes. It will be seen that the real reason was quite a simple one.

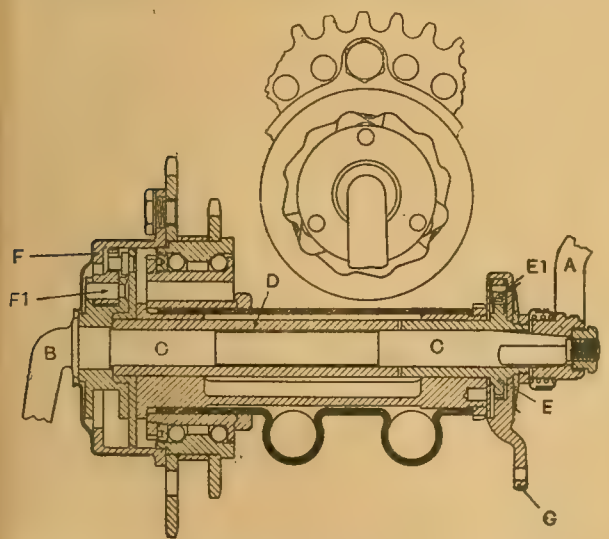
The task of going through the answers is no light one, but the names of the winners will be announced later.

So successful has this little competition proved, and so many have been the expressions of approval elicited from the competitors, that we hope to be able to hold another in the near future.

The confidence of many competitors in their ability to solve the puzzle has been one of the outstanding features of the competition. Almost invariably the most confident were the most in error. Many competitors have been kind enough to state which of our publications they will have as a reward for their skill. Very thoughtful of them, but unfortunately they were invariably wrong. One competitor informs us that as he owns a certain twin-cylinder machine he would like a copy of *Tracing Troubles!* Rather an unkind hit at the manufacturers of his particular machine, which, by the way, does not deserve its owner's subtle sarcasm But even if this particular example of the factory is a little wayward, it has evidently never misbehaved itself as did Mr. Leechman's engine, for its owner's diagnosis is wide of the mark in trying to solve the puzzle.

Novelty in Design.

A NOVEL kick-starter combined with the brake-operating mechanism has been designed and fitted to the Harley-Davidson 1914 models. Its action is quite simple and the working parts few in number—a very commendable point, especially when one considers the stresses to which such a part is subjected. Referring to the sectional sketch, it will be seen that there are two pedal cranks A and B attached to an axle C. Fixed at one end of the tube D, in which the rod C is housed, is a ratchet wheel E engaging with a pawl E^1, whilst at the other end is an internal ratchet ring F, also engaging with a pawl F^1. The ratchet wheels work in opposite directions, so that only one pawl is locked at a time. For engine starting the ratchet F transmits the driving force applied through the cranks to the chain sprockets, giving at the same time a turning movement to the engine. In the meantime the other ratchet E is out of action. On the casing to which the pawl E^1 is attached is cast a lug G for a brake rod connection. When the cranks are rotated in the opposite direction to that of the engine, the pawl F is released, while E^1 takes up the applied force, transmitting it to an internally-operated band brake mounted on the rear hub. Attached to the lug G is another link extending to an operating pedal placed conveniently on the footboard.



A feature of the Harley-Davidson. The letters are referred to in the description on this page.

The bearing of the pedal crank axle is mounted eccentrically, so that chain adjustment is easily performed by rotating the tube D. It should be understood that there are three pawls to each ratchet wheel and that these parts only require lubricating twice or three times a year

SOME BROOKS CYCLE CAR SPECIALITIES.

Messrs. J. B. Brooks have produced some interesting novelties to meet the demands of cycle car users, which include leather and leatheroid goods of all descriptions. One of the neatest of these

The Brooks cycle car spare wheel cover.

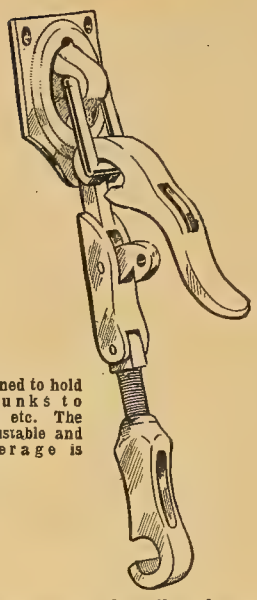
is the spare wheel cover, which is made of leatheroid and divided horizontally. The upper half overlaps the lower part so as to prevent the ingress of rain, and the hub cap and bottom of the case are made of stout leather to resist wear. The footboard is one of the most useful parts of a little vehicle for carrying luggage, and we inspected boxes of all sizes and shapes for fixing in this position. One

A neat leather horn bulb cover to prevent the rubber bulb perishing.

very useful type is constructed to carry golf clubs, and all are stoutly made and rendered dust proof by a special double lid. These boxes may be fitted with aluminium foot plates on the lid, for they are strong enough to be used as steps. Brooks bags are fitted with most ingenious clasps and attachments, which give such convenient leverage that the

The Brooks case for carrying golf clubs on the running board.

lids may easily be shut, even when slightly too full. A neat polished wood tool cabinet may be supplied as a step fitting, and this contains three trays, fitted with compartments, which hinge outwards, so as to give easy access to all parts. The various useful accessories are



Clip designed to hold Brooks trunks to footboard, etc. The clip is adjustable and large leverage is provided.

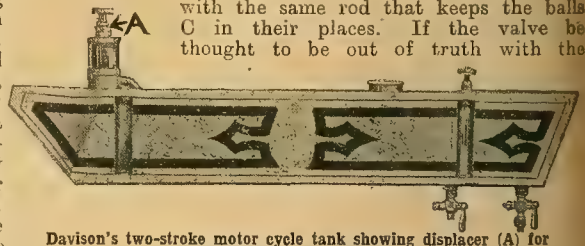
too numerous to describe, but we may mention a horn bulb cover and a spare petrol can case, the latter being a particularly useful contrivance.

DAVISON'S LUBRICATION SPECIALITIES.

Mr. A. C. Davison, 163, Arlington Road, Camden Town, N.W., has recently improved his semi-automatic drip feed for the lubrication of motor cycles. This device, which is illustrated herewith, consists of a pump, the plunger of which is first pulled up and then pressed downwards, filling the glass of the drip with two fluid ounces of oil. The drips can be regulated by the milled nut at the top, but if it is desired at any time to give the engine a full charge of oil, the quantity of oil in the glass may be increased, and the lever at the side pushed over. This raises the needle valve from its seating, and the extra oil is pumped direct to the engine. Mr. Davison also showed us two patterns of pumps with celluloid barrels, in which the celluloid is an eighth of an inch thick.

Another ingenious innovation for which Mr. Davison is responsible is a lubricator for two-stroke machines, consisting of a small displacer which sends one-thirty-second of a pint into the petrol tank for every half-gallon therein. This is, of course, for machines in which the oil is mixed with the petrol.

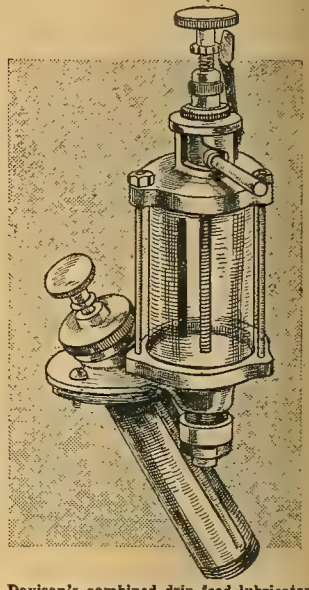
The Davison filler caps can now be had with transparent celluloid tops, both in the hinged pattern and in the ordinary screw-on type.



Davison's two-stroke motor cycle tank showing displacer (A) for forcing oil into the petrol tank.

A NEW VALVE TRUER.

Pearn's patent valve truer, which we illustrate, is called the Rapid. The sectional sketch is self-explanatory, but it may be as well to point out that the valve is inserted by slackening the nut F and pushing the stem through the hole in the centre of the cutter. As the stem goes in it will push out the wooden rod provided with the truer, which tends to keep the balls in place. When the valve is in position, some oil should be applied to the valve face before pressing it against the cutter. The nut may then be tightened, so that the stem is held firmly but not too

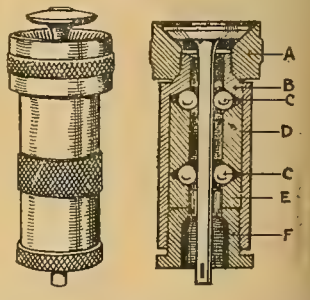


Davison's combined drip feed lubricator and pump.

tightly. Then, with a screwdriver or brace, the valve should be turned in a clockwise direction. The light pressure on the valve is all that is necessary to ensure a true face and a high finish. When the operation is completed, the valve can be pushed out of the truer with the same rod that keeps the balls C in their places. If the valve be thought to be out of truth with the stem, the cutter part A should be removed and the valve replaced and turned round or spun.

It is claimed that the ball races ensure the stem being perfectly concentric with the body of the tool.

The price of the device is £1, and it is obtainable from Brown Brothers, Ltd., Newman Street, Oxford Street, W.



The "Rapid" valve truer supplied by Brown Bros. Ltd.
A. Cutter. B. Barrel. C. Balls. D and E. Adjustable ball races. F. Adjusting screw.

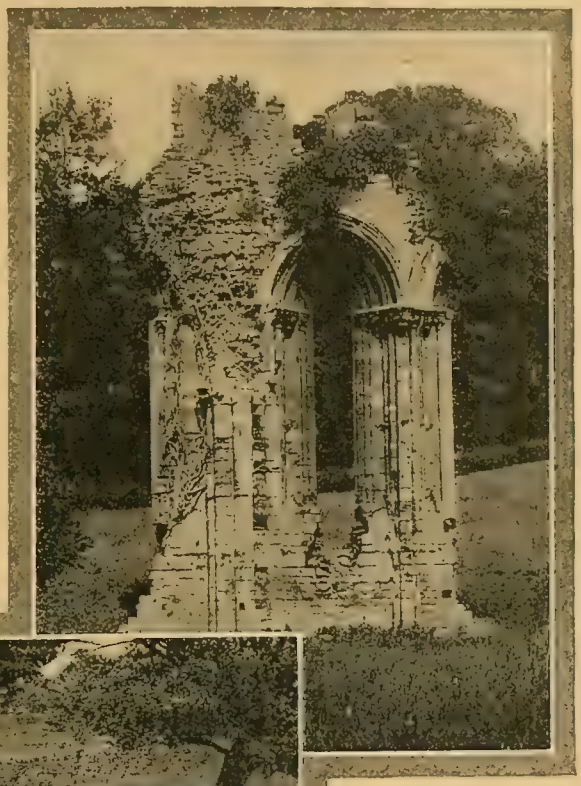
TOURING TOPICS.

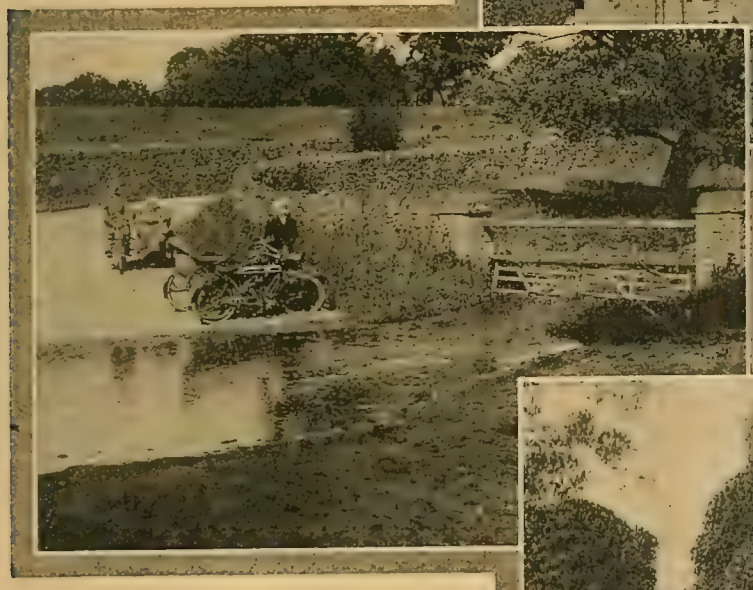
YORK, KIRKHAM ABBEY, AND CASTLE HOWARD.

A FINE centre for the tourist is the ancient city of York. It stands on the banks of the River Ouse and on the tableland known as the Plain of York, and for miles north, south, east, and west good roads are encountered.

This city might be called the hub of a circle of country rich in archæology and ancient lore, but in an article of this description it is only possible to touch slightly on its beauties. Should, however, any readers be in its vicinity, we recommend them to spend a day in the company of a local guidebook, covering the ground which years and years ago was trodden by the hoofs of prancing steeds carrying gallant knights of old clad in shining armour to the fray, or to their lady fair.

The chief features of York are the Minster, Castle, St. Mary's Abbey, and the fine old city walls with the well preserved bars of Micklegate, Bootham, Monk, Walmgate, and Victoria. There are also numerous peculiar streets, old churches, etc., but no doubt you are by this time pining for the open road, so I will take you for a run, and we will make through Monk Bar and on to the Scarborough Road for nearly six miles, when shortly after the Four Alls Inn we turn right at the signpost for Stamford Bridge.





TO YORK, KIRKHAM ABBEY AND CASTLE HOWARD.

(1) A beautiful architectural study. Probably the finest piece of the ruins of Kirkham Abbey.

(2) A dangerous watersplash which nestles round a sharp corner on the road between Westow and Malton.

(3) A glimpse of a portion of the ruins of Kirkham Abbey on the banks of the River Derwent.

The road now runs through lovely wooded country, beautiful trees overhanging the route on both sides, and we soon pass through the little village of Sand Hutton, and by taking the first turn right after the village we pass through the beautiful woods of Buttercrambe; this road is a little bit twisty and narrow, but all too soon we reach the T roads, and here we diverge a little, and, by turning to the right, run down into the village of Stamford Bridge, the scene of the famous battle of that name, during which fight it is said that one gallant Norseman single-handed held the old wooden bridge against the whole of the English army until

Touring Topics.—

one of the opposing side took it into his head to approach the Norseman by means of the river, and when under the bridge this worthy stabbed the warrior from below—a very unsportsmanlike action!

Returning once more to the T roads we take the road marked for Malton, crossing over the river Derwent at what, I believe, is called Buttercrambe Bridge. Now bearing slightly right and then left we encounter rough roads for a mile or two, including a couple of small watersplashes which must be negotiated. After the second splash we proceed up a hill called Gally Gap, and a mile or so on is the village of Westow. The road is now good once more, and just after leaving Westow we again diverge by turning left, and run down to that beautiful bit of country surrounding the few ruins of Kirkham Abbey. An hour or so should be spent here, visiting the ruins, or rambling in the woods by the riverside.

Returning again to our correct route we continue for Malton and soon reach another watersplash which nestles round a corner, and is a trap to the unwary. This watersplash must be surveyed before being taken. Shortly after this we notice the old-fashioned market town of Malton down in the valley on our left, and a longish descent soon brings us to its narrow streets.

We cross over the railway and take the first turn left and on to the cross-roads, where usually a rather strict policeman is on duty. It is a very dangerous and busy crossing, and one must slow down to nearly a walking pace, for our road here turns left, and at the top of the next incline right, at the signpost for Castle Howard. We continue for nearly five miles to the little rustic village of Coneysthorpe, where we must pass through a gate, and just before the next gate we turn left and are generally confronted by some youngsters holding open a large iron gate. This is the entrance to Castle Howard Park, and immediately on our left is a superb view of a fine lake with the castle in the background.

The Splendours of Castle Howard.

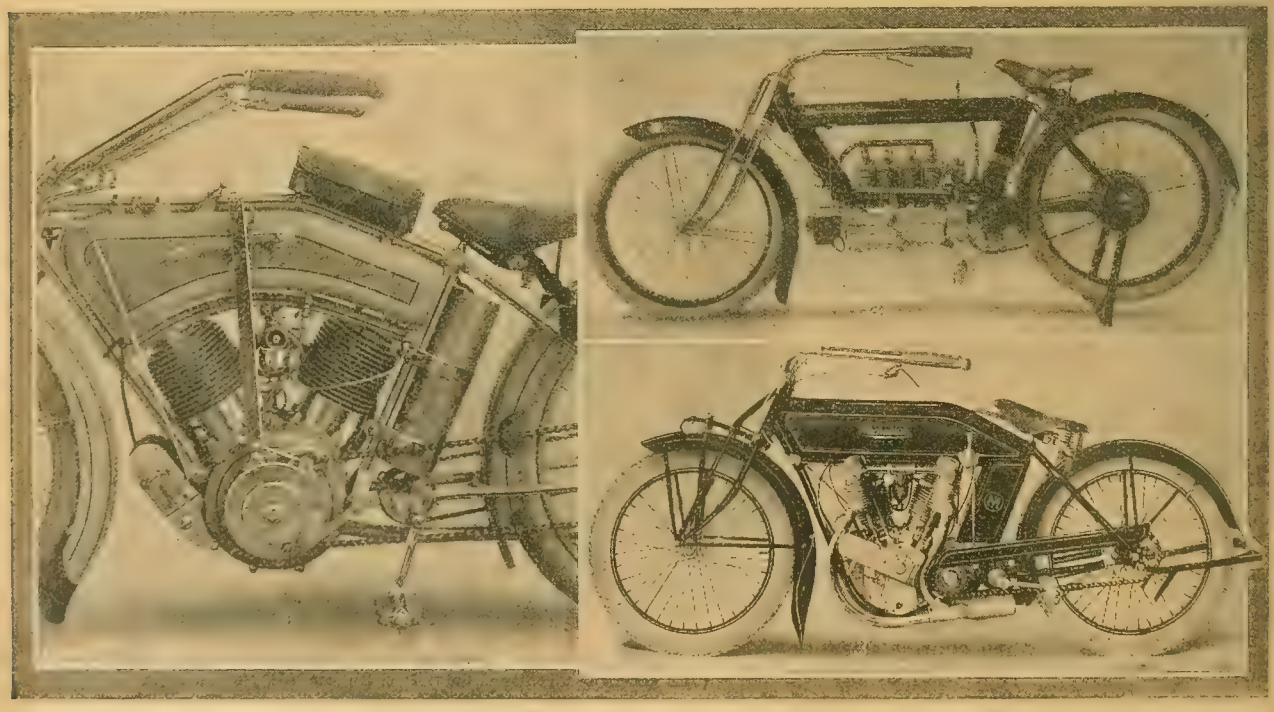
Castle Howard is, of course, world-renowned, and requires no mention from me of its architectural beauties, fine and rare collections of china, books, pictures, etc., and its splendid grounds and statuary. I am given to understand that the house itself is now closed to visitors owing to the turbulent suffragette times we live in, but nevertheless we can run through the park, passing under the shadows of the obelisk, and further on the huge monument erected in memory of the seventh Earl of Carlisle. This road is really splendid and on no account should be missed.

Shortly after leaving this grand place we join the main York and Scarborough road, and by turning right have a good run back to York. Except for a few miles the roads are in good order, and practically void of stiff hills. The distance is approximately fifty miles. H.W.F.

SPECIMENS OF LATEST AMERICAN MODELS.

On the evening of Saturday, January 3rd, the New York Motor Cycle Show opens its doors to the public. The 1914 American models are now making their appearance, and we illustrated a selection of them below. The big multi-cylinder motor bicycle holds sway in the States, where speed seems to be a natural craving. Those who wish to consider the conditions of motor cycling in America, through English spectacles, are referred to the article on pages 1740 and 1741.

1. Power unit of the 7½ h.p. twin-cylinder Iver-Johnson showing clutch operation and stays bolted to the cylinder head and brazed to the tank tube.
2. The four-cylinder Pierce. Note the large tubular members of the frame used for storing oil and petrol.
3. Side view of the "10-13 h.p." Michaelson, which is fitted with overhead valves, two-speed gear, and chain transmission.



STREAMLINE BODIES.

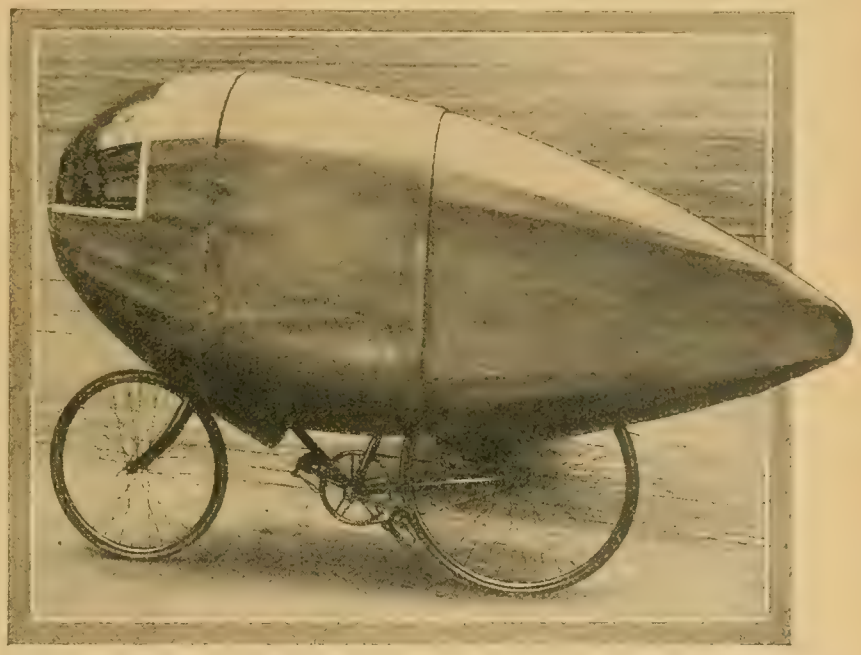
A Suggestion of "The Motor Cycle" adopted Two Years Later.

IN *The Motor Cycle* of January 18th, 1912, we published an article over the initial "G.S." suggesting the possibilities of the streamline body for racing motor cycles, and several imaginary types were shown in sketches. It was pointed out that, temporarily, engine design seemed to have come to a standstill, and that if more attention were paid to wind resistances and eddies, also loss of energy due to discontinuity of surface, the pace of machines would be greatly increased without other alterations. The following extracts from the article are particularly interesting at this stage in view of the fact that the opinions expressed were written two years ago. "So much experimenting has been done with special compression, ratios, valve timing, cam design, carburetter fakements, etc., that it would appear strange that track racers have not turned their minds to wind cutting devices to envelop their body . . . . . as the veriest novice knows how he must huddle himself up along the top tube to get the maximum speed out of his machine."

Bound to Improve Speed.

"It is, therefore, easy to realise that a streamline covering to envelop the rider's body is bound to effect a considerable improvement in the matter of speed, and when records have been made by the aid of such bodies, it is unlikely that a rider on a machine of orthodox design could recapture them. The shape which has been found to require the minimum power to drive is a long fish-like surface with the blunt end pointing in the direction of motion. It was found that when the same body was placed with the thin end opposed to the wind, that the driving force had to be greatly increased."

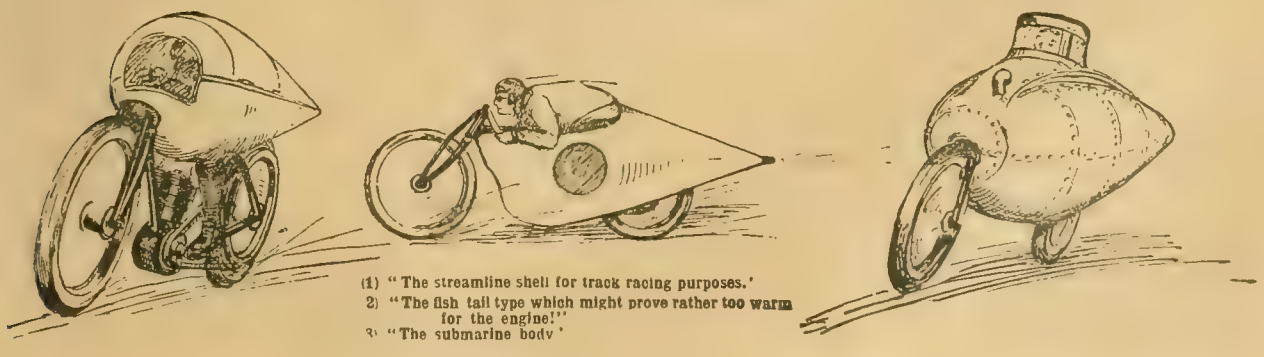
It is almost impossible to gauge the wind resistance accurately, but a table was given showing the resistance at various speeds, calculated on the Eiffel Tower formula, which shows that the h.p. absorbed is terrific—as much as 7.944 h.p. at 60 m.p.h. The article wound up as follows: 'It has been estimated by one of our leading riders that almost as soon as the streamline body is tried on a motor cycle, the speed will increase at least 10 m.p.h. Who will be the first to adopt this plan?'"



VELO TORPILLE.—With the aid of the above "Streamline" body, Berthet, a French racing cyclist, last week broke records in Paris by exceeding 36 m.p.h. Berthet is the first we have heard of who has tried our suggestion made two years ago

As far as track work is concerned, we get the first answer from the *Daily Mail* of December 19th, 1913, where under the heading of "The Torpedo Cycle" we find that Berthet, a well-known racing cyclist, broke records on a pedal cycle fitted with a streamline body "made in the shape of a cigar." It apparently has a wicker framework and a covering of canvas. The covering, it is pointed out, practically obviates wind resistance. And certainly Berthet, who rode a lap at at Velodrome d'Hiver in Paris, unpaced at over 36 m.p.h., is reported to have broken several other records on the same occasion on his "invention."

SKETCHES REPRODUCED FROM "THE MOTOR CYCLE" JANUARY 18th, 1912 WHEN OUR SUGGESTION OF A STREAMLINE BODY FOR RACING FIRST APPEARED.



(1) "The streamline shell for track racing purposes."
2) "The fish tail type which might prove rather too warm for the engine!"
3) "The submarine body."

CLUB NEWS.

The Cycle Car Club.

An illustrated circular relating to this club can be obtained from the Hon. Sec., Mr. A. C. Armstrong, Meadows, Hook, Surrey.

St. Margaret's-on-Thames M.C.C.

It has been decided to form a club as above. Those who wish to join should send in their names to Mr. A. Thoroton, 2, Avenue Gardens, St. Margaret's, Twickenham, the honorary secretary *pro tem.*

Sheffield and Hallamshire M.C.C.

A reliability run will be held on Friday, December 26th. Route: Sheffield, Doncaster, Selby, Market Weighton, Middleton, and Driffield, returning the same way. The first competitor starts at 7 a.m. from Queen's Memorial. Competitors will be timed by their own watches, which will be carried sealed in case provided by the club.

Birmingham M.C.C.

The winter run to York and back will take place on the 27th inst. The start will be from the Birchfield Garage, near Perry Barr, at 6 a.m., and the route as follows: Sutton Coldfield, Tamworth, Ashby-de-la-Zouch, Beeston, Nottingham, Mansfield, Worksop, Doncaster, Ferrybridge, Tadcaster, York, where lunch will be served at the Royal Station Hotel.

Liverpool A.C.C.

The two reliability trials for the P.B. Challenge Trophy were run off during the present month.

The first trial was in North Wales, and was the more severe, principally on account of the very bad weather conditions, no rider coming through with a clean sheet—in fact, only five finished the course.

The second trial was in the Peak District, but the weather conditions being very favourable practically no marks were lost.

The winners were:

1. G. A. Gregson (6 h.p. Bat), trophy and gold medal.
2. Mrs. Baxter (6 h.p. Rex), silver medal.
3. E. F. Baxter (6 h.p. Rex), bronze medal.

H. Gibson (6 h.p. Bradbury sc.) receives special bronze medal presented by Mr. A. J. Jenkins.

The third annual dinner took place on the 17th inst. at the Hotel St. George, Liverpool, Mr. F. Sellars being in the chair. Mr. T. W. Loughborough, the secretary of the A.C.U., was the principal guest, and in the course of his speech he announced that the A.C.U. had decided to start the new scheme of local centres in the Liverpool district with a local man as paid secretary, provided that every club in the centre became affiliated to the A.C.U. and agreed loyally to support the central organisation. This announcement was received with great applause. Mr. Vance, of Chicago, proposed the toast of "The Club," and said that the greatest danger to the motor industry lay in the inflated price of petrol; he remembered buying better spirit for fivepence a gallon. The President (Mr. F. Sellars) responded. Messrs. Baxter and Phillpott also spoke. The evening terminated with a musical programme, during which Mr. Hugh Gibson showed his proficiency with a violin, our correspondent adding, "the 'extra air' he gave being in (or at) the right time."

South Birmingham M.C.C.

The Christmas reliability trial will take place on the 27th inst. The route has been arranged as follows: Gun Barrels Hotel (start at 9 a.m.), Bristol Road, Rose Hill, Worcester, Gloucester, Birdlip, Cheltenham, Evesham, Alcester, Birmingham, approximately 100 miles. Route cards will be provided. Competitors will be timed by their own watches in sealed cases. No adjustments will be allowed at controls. Petrol, oil, and water may be taken under observation at the lunch stop. Competitors will be awarded 200 marks at the start, and will be penalised as follows: Failure on any hill 50; any other stop 10; each complete minute early or late at a control 1. Pedalling or assistance will count as a stop. First prize: Silver cup, value £3 3s., presented by Mr. P. J. Evans. Entries close first post Monday, December 22nd, 1913.

THE POPULARITY OF THE MOTOR CYCLE IN THE COLONIES. Above are seen twenty-two Premier riders and their machines photographed recently at Durban.

THE M.C.C. CHRISTMAS RUN.

Complete List of Motor Cycle Competitors in the London-Exeter Run with Starting Times.

IN the list of entries for the winter run, which is given below, motor bicycles, sidecars, and those light cars, which conform to the capacity limit laid down for cycle cars by the A.C.U., are included. In addition there are seven cars and light cars which exceed this limit. This run was inaugurated in 1910, when seventy-eight entries were received, mainly motor bicycles. In 1911 the entries had increased to 119, and the number of sidecar outfits had largely increased. Last year, to make the test most difficult, and to add interest to the journey, the return was made *viâ* Lyme Regis and Dorchester, and the whole journey was scheduled at 20 m.p.h. The entries in this year numbered 163. The cycle car entry in the three years was respectively one, four, and twenty-seven. For the benefit of those readers who wish to see something of this event we give the times of the first pair at the principal points *en route* and the distances from the start.

Route and Timetable.

OUTWARD.

	Distance from start.	Time due.
Staines ...	0	8 p.m.
Bagshot ...	9½	8.30 ,,
Basingstoke ...	29	9.34 ,,
Andover ...	47½	10.37 ,,
Salisbury ...	65	11.30 ,,
Shaftesbury ...	86½	1.42 a.m.
Yeovil ...	108½	2.55 ,,
Crewkerne ...	117¾	3.23 ,,
Chard ...	125½	3.47 ,,
Chard Hill (top) ...	128½	3.57 ,,
Honiton ...	138¾	4.33 ,,
Exeter ...	154½	5.24 ,,

HOMEWARD.

Exeter ...	154½	6.50 a.m.
Trow Hill (top) ...	169¾	7.36 ,,
Lyme Regis ...	182½	8.17 ,,
Bridport ...	192¼	8.44 ,,
Dorchester ...	207	9.28 ,,
Blandford ...	222¾	10.15 ,,
Salisbury ...	245½	11.21 ,,
Andover ...	263	1.16 p.m.
Basingstoke ...	281½	2.12 ,,
Bagshot ...	301	3.10 ,,
Staines ...	310½	3.40 ,,

There will be a stop of one hour at Salisbury both on the outward and return journeys.

Competitors must prepare themselves, especially if solo riders, for the three miles from Egham to Sunningdale level crossing. We hear from a correspondent that the surface of this road is like a ploughed field—thick, heavy mud; ruts and furrows—far harder to steer over than was Applecross in Scotland. After the level crossing, when the road is in Surrey, the surface is good hard tarmac.

The two test hills, Chard and Trow, have to be ascended non-stop. The silencer regulations, printed in our last issue, will be very strictly enforced.

		Start. p.m.
1.	H. Karslake (3½ Rover sc., *1-cyl.*)	8.0
2.	G. Brough (3½ Brough, 2)	
3.	T. Rigley (6 Brough, 2)	8.1
4.	P. W. Moffat (3½ Douglas, 2)	
5.	P. B Phillips (2¾ Douglas, 2)	8.2
6.	F. G. Ball (2¾ Douglas, 2)	
7.	W. F. Guiver (3½ Ariel, *1*)	8.3
8.	G. E. Cuffe (3½ Premier, *1*)	
9.	E. Frasetti (7 Indian sc., 2)	8.4
10.	W. H. Wells (7 Indian sc., 2)	
11.	G. B. Fry (3½ B.S.A., *1*)	8.5
12.	M. C. Breese (3½ B.S.A., *1*)	
13.	K. A. MacDonald (3½ Singer, *1*)	8.6
14.	E. J. Tyson (2¾ N.U.T., 2)	
15.	L. A. Baddeley (7 Indian sc., 2)	8.7
16.	S. Tharp (3½ Triumph, *1*)	
17.	C. Lester (3½ P. and M., *1*)	8.8
18.	H. G. Bell (5 F.N., 4)	
19.	N. H. Pearson (7 Indian sc., 2)	8.9
20.	A. J. Dixon (3½ Singer, *1*)	
21.	L. de Almasy (5 Puch, *1*)	8.10
22.	C. C. Higgens (3 Puch, *1*)	
23.	W. G. Co'eman (3½ B.S.A., *1*)	8.11
24.	H. G. Digby (4 Triumph, *1*)	
25.	W. B. Willoughby (3½ Rudge-Multi, *1*)	8.12
26.	H. Johnson (3½ Triumph, *1*)	
27.	R. T. Blattman (6 Grandex, 2)	8.13
28.	O. P. C. Collier (3½ Grandex, *1*)	
29.	F. C. Batty-Smith (3½ Rudge, *1*)	8.14
30.	Lt. D. J. McMullen, R.E. (3½ Blackburne, *1*)	
31.	K. K. Scheve (3½ Rudge-Multi, *1*)	8.15
32.	G. P. Howe (3½ T.T. Rudge, *1*)	
33.	J. Lake (3½ Bradbury, *1*)	8.16
34.	F. Pike (2¾ Levis, *1*)	
35.	G. Price (3½ P.V., 2)	8.17
36.	D. C. Truman (3½ Wolf, *1*)	
37.	S. B. White (2¾ N.U.T., 2)	8.18
38.	A. V. Deacock (2¾ Douglas, 2)	
39.	F. W. Applebee (3½ B.S.A., *1*)	8.19
40.	J. H. Kerr (3½ N.S.U., 2)	
41.	A. E. Bellsham (8 Zenith, 2)	8.20
42.	C. P. S. Abrams (4 Swallow, 2)	
43.	H. J. Beal (4 L.M.C., *1*)	8.21
44.	T. E. Viney (2¾ Douglas, 2)	
45.	W. P. Tippett (3½ Humber, *1*)	8.22
46.	A. W. Brittain (3½ Bradbury, *1*)	
47.	R. Hirons (2½ Moto-Réve), *1*)	8.23
48.	C. Taylor (2½ Connaught, *1*)	
49.	K. E. Don (3½ Rover, *1*)	8.24
50.	E. V. Walters (3½ P. and M., *1*)	
51.	F. E. Thomas (3½ Triumph, *1*)	8.25
52.	A. M. C. Scott (3½ Premier, *1*)	
53.	A. J. Sproston (3½ Lea-Francis, 2)	8.26
54.	V. Baker (2¾ Douglas, 2)	
55.	D. S. Ainger (3½ Sunbeam, *1*)	8.27
56.	H. Robertson-Playfair (3½ Premier, *1*)	
57.	F. W. Chapman (4 Triumph, *1*)	8.28
58.	E. T. Hart (2¾ A.J.S., 2)	
59.	H. F. Edwards (3½ B.S.A., *1*)	8.29
60.	R. B. Clark (3½ Torpedo sc., *1*)	
61.	A. O. Gilby (3½ Sunbeam, *1*)	8.30
62.	F. W. Southern (3½ Sunbeam sc., *1*)	
63.	J. A. Hilger (2¾ Douglas, 2)	8.31
64.	M. G. Abraham (3½ Green-Zenith, *1*)	
65.	D. H. Noble (3½ Rover sc., *1*)	8.32
66.	G. Featherstonhaugh (3½ Rover sc., *1*)	
67.	C. T. Newsome (3½ Rover sc., *1*)	8.33
68.	G. Nott (6 Clyno sc., 2)	
69.	C. Q. Roberts (3½ Blackburne sc., *1*)	8.34
70.	H. C. Mills (3½ Blackburne sc., *1*)	
71.	C. Dickinson (3½ Ariel sc., *1*)	8.35
72.	V. Garland (8 Williamson sc., 2)	
73.	E. Atkins (3½ Nestor, *1*)	8.36
74.	F. J. Watson (3½ Ariel sc., *1*)	
75.	L. Mogridge (3½ Rudge-Multi, *1*)	8.37
76.	E. F. Baxter (6 Rex sc., 2)	
77.	V. Olson (7 Zenith sc., 2)	8.38
78.	A. V. Sumner (8 Zenith sc., 2)	
79.	R. T. Leach (3½ Zenith-Gren sc., *1*)	8.39
80.	R. Chesterfield (7 Indian sc., *1*)	
81.	J. D. Drysdale (6 Hazlewood sc., 2)	8.40
82.	G. M. Watkins (6 Zenith sc., 2)	
83.	T. Coates (6 Enfield sc., 2)	8.41
84.	F. H. Douglas (6 Enfield sc., 2)	
85.	L. W Fox (8 Montgomery Duette, 2)	8.42
86.	L. Smith (6 Enfield sc., 2)	
87.	D. J. S. Chapman (3½ N.S.U., 2)	8.43
88.	G. Betts (6 Lincoln Elk sc., 2)	
89.	F. L. Cook (3½ A.S.L., 2)	8.44
90.	W. E. Cook (6 A.S.L. sc., 2)	
91.	P. H. Lovegrove (3½ Rudge, *1*)	8.45
92.	H. E. Fairchild (6 A.J.S. sc., 2)	
93.	H. le Vack (3½ Motosacoche, 2)	8.46
94.	J. S. Holroyd (3½ Motosacoche sc., 2)	
95.	C. Starace (2¾ N.S.U., 2)	8.47
96.	M. Heinzel (2¾ N.S.U., 2)	
97.	T. J. Ross (4 Triumph, *1*)	8.48
98	J. A. Hoult (7 Matchless sc., 2)	
99.	T. H. Haddock (2¾ A.J.S., *1*)	8.49
100.	A. J. Stevens (6 A.J.S. sc., 2)	
101.	H. Stevens (6 A.J.S. sc., 2)	8.50
102.	J. Stevens (6 A.J.S. sc., 2)	
103.	T. Jenks (6 A.J.S. sc., 2)	8.51
104.	L. Inscoe (6 A.J.S. sc., 2)	
105.	Hugh Gibson (6 Bradbury sc., 2)	8.52
106.	C. W. Meredith (3½ Bradbury sc., *1*)	
107.	R. Croucher (3½ Kerry-Abingdon, *1*)	8.53
108.	R. G. J. Charlesworth (6 Zenith sc., 2)	
109.	B. Alan Hill (7 Indian sc., 2)	8.54
110.	G. T. Gray (5 Rudge sc., *1*)	
111.	H. Haynes (3½ Premier sc., *1*)	8.55
112.	J. Oliphant (7 Premier sc., 2)	
113.	S. D. Marr (8 H.S.M., 2)	8.56
114.	P. C. Oxborrow (8 H.S.M., 2)	
115.	C. Pearson (8 Williamson sc., 2)	8.57
116.	G. L. Fletcher (3½ Douglas sc., 2)	
117.	H. E. Parker (6 Bradbury sc., 2)	8.58
118.	A. R. Abbott (3½ Bradbury, *1*)	
119.	A. H. Wright (6 A.J.S. sc., 2)	8.59
120.	F. L. Bassett (3½ Triumph sc., *1*)	
121.	D. Bradbury (4 Norton sc., *1*)	9.0
122.	W. A. Sale (3½ Humber w.c. sc., *1*)	
123.	H. Greaves (6 Enfield sc., 2)	9.1
124.	D. Iron (3 Enfield, 2)	
125.	W. H. Eggington (6 Enfield sc., 2)	9.2
126.	J. Robertson-Brown (8 Henderson sc., 4)	
127.	C. B. Moss-Blundell (6 Precision sc., 2)	9.3
128.	W. P. Brandon (7 Indian sc., 2)	
129.	G. Pettyt (8 Rex sc., 2)	9.4
130.	E. Berg (8 Rex sc., 2)	
131.	M. Geiger (8 V.S. sc., 2)	9.5
132.	A. Sudfeldt (6 V.S. sc., 2)	
133.	E. J. Webster (8 Matchless sc., 2)	9.6
134.	C. M. Webster (8 Zenith sc., 2)	
135.	R. K. Butler (8 Sparkbrook sc., 2)	9.7
136.	F. Begley (6 Rudge-Multi sc., *1*)	
137.	Guy Drew (3½ Premier sc., *1*)	9.8
138.	T. H. Willey (3½ Premier sc., *1*)	
139.	T. S Fordham (7 Premier sc., 2)	9.9
140.	D. S. Parson (6 Sparkbrook sc., 2)	
141.	W. E. Boyce (3½ Premier sc., *1*)	9.10
142.	C. Smith (3½ Rudge sc., *1*)	
143.	P. Bounds (8 Bounds-Jap sc., 2)	9.11
144.	S. T. Tessier (8 Bat sc., 2)	
145.	R. R. Garlick (6 Enfield sc., 2)	9.12
146.	F. W. Carryer (6 Royal Ruby sc., 2)	
147.	H. P. Beasley (6 A.J.S. sc., 2)	9.13
148.	Lt. Phillips, R.N. (6 A.J.S. sc., 2)	
149.	C. R. Woolley (6 Clyno sc., 2)	9.14
150.	E. Vallis (6 Clyno sc., 2)	
151.	A. F. Millar (5 Zenith sc., 2)	9.15
152.	G. Bax (3¾ Scott sc., 2)	
153.	J. Appleyard (8 Williamson sc., 2)	9.16
154.	P. W. White (8 Matchless sc., 2)	
155.	H. J. Scales (4¼ James sc., *1*)	9.17
156.	R. F. Townshend (3½ N.U.T. sc., 2)	
157.	F. J. Ellis (6 Matchless sc., 2)	9.18
158.	R. E. Guest (7 Matchless sc., 2)	
159.	A. G. Cocks (2½ Connaught, *1*)	9.19
160.	A. H. Mee (2¾ Diamond sc., *1*)	
161.	C. Percival (7 Matchless sc., 2)	9.20
162.	A. G. Peppercorn (3½ Bradbury sc., *1*)	
163.	R. C. Davis (8 Chater-Lea sc., 2)	9.21
164.	H. G. R. Slingo (6 Clyno sc., 2)	
165.	J. P. le Grand (6 Rex sc., 2)	9.22
166.	J. T. Bashall (6 A.J.S sc., 2)	

CYCLE CARS.

167.	A. B. T. Bashall (7 Morgan, 2)	9.23
168.	W. H. Bashall (10 Morris-Oxford, 4)	
169.	W. A. Jacobs (10 Violet-Bogey, 2)	9.24
170.	J Chater-Lea (8 Chater-Lea, 2)	
171.	H. F. S. Morgan (8 Morgan Runabout, 2)	9.25
172.	W. H. Elce (8 Morgan, 2)	
173.	A. T. Tamplin (8 G.W.K., 2)	9.26
174.	J. G. Pauling (7 Swift, 2)	
175.	J. T. Wood (8 G.W.K., 2)	9.27
176.	C. M. Keiller (8 G.W.K., 2)	
177.	S. G. Gliksten (7 Swift, 2)	9.28
178.	W. M. Greenwood (8 L.M., 2)	
179.	A. C. Maitland (10 Beacon, 2)	9.29
180.	P. D. Walker (10 Harding and Summers, 2)	
181.	H. Petty (10 Singer, 4)	9.30
182.	R. R. Rothwell (10 Singer, 4)	
183.	F. E. Mocatta (10 G.N., 2)	9.31
184.	W. Bretherton (8 G.W.K., 2)	
185.	F. May (8 Morgan, 2)	9.32
186.	A. Mariani (8 Morgan, 2)	
187.	S. R. Axford (8 D.E.W., 2)	9.33
188.	R. F. Mann (8 Duo, 2)	
189.	S. G. Marshall (10 Mathis Babylette, 4)	9.34
191.	F. H. Richards (10 A.C., 4)	9.35
192.	J. Munday (6 A.C. Sociable, *1*)	
193.	A. Noble (10 A.C., 4)	9.36
194.	R. G. Munday (10 A.C., 4)	
195.	J. H. Jeffery (9 Matchless, 2)	9.37
196.	J. S. Hine (6 A.C. Sociable, *1*)	
199.	R. Bamford (10 Singer, 4)	9.39
200.	F. G. Barton (10 Morris-Oxford, 4)	
201.	J. Baker (8 G.W.K., 2)	9.40
202.	G. Griffith (8 G.W.K., 2)	
203.	R. F. Messervy (8 de P. Duo, 2)	9.41
204.	G. Pitcher (8 de P. Duo, 2)	
205.	H. C. Smith (8 Ranger, 2)	9.42
206.	L. A. B. Lawler (8 Beacon, 2)	
207.	S. Wright (8 Humberette, 2)	9.43
208.	W. Cooper (8 Humberette, 2)	
209.	C. C. Hann (8 G.W.K., 2)	9.44
210.	C. F. Halsall (10 Wilton, 4)	
211.	J. Frankenstein (10 Singer, 4)	9.45
212.	C. A. Armstrong (10 G.N., 2)	
213.	F. Thomas (9 Buckingham, 2)	9.46
214.	H. A. Thompson (9 Buckingham, 2)	
218.	Rev. E. P. Greenhill (8 G.W.K., 2)	9.48
219.	W. H. Ogilvie (10 Singer, 4)	9.49
220.	W. J. Brownsort (6 A.C. Sociable, *1*)	
221.	A. W Lambert (9 Warren Lambert, 2)	9.50
222.	W. Whittall (9 Morgan-Adler, 4)	
223.	F. C. Townshend (8 Humberette, 2)	9.51
224.	G. Rowden (6 A.C. Sociable, *1*)	
225.	A. S. Phillips (8 Chater-Lea, 2)	9.52
226.	C. Pressland (8 Crouch Carette, 2)	
227.	J. C. Humphries (8 Arden, 2)	9.53
228.	J. F. Buckingham (Buckingham, 2)	
230.	W. A. Mathews (10 Morris-Oxford, 4)	9.54
231.	N. O Sorensby (3½ Rover)	9.55

The M.C.C. Christmas Run.—

The arrangements were completed last week for the above run, and with the particulars published last Thursday and the list of entries in the previous issue readers should be fully acquainted with the best points from which to view the competitors, etc., but doubtless all classes of readers, both competitors and otherwise, will be interested to know the names of different hotels at important places on the route. We give below the names of the principal stopping places and a list of hotels. The official hotel is in all cases given first.

STAINES.—Bridge House Hotel; Angel, High Street. Garage: T. E. Taylor, Bridge House.

BASINGSTOKE.—Red Lion; Station, Station Hill. Garage: Scard's.

SALISBURY.—Angel Hotel; County, Bridge Street; Old George, High Street; White Hart, St. John Street; Crown, High Street; Red Lion, Milford Street. Garages: The Salisbury, Friary Road; S. and E. Collette, Catharine Street.

YEOVIL.—Mermaid, High Street; The Three Choughs; Pen Mill, Sherborne Road. Garage: Moffat's.

EXETER.—Bude Hotel, Sidwell Street; Rougemont, Queen Street; New London, Eastgate; Royal Clarence, Cathedral Close. Garage: Exeter Motor Co.

The exact distance of the outward and homeward journeys is 310½ miles. The old course of the year before last from Hounslow was 322 miles, when the average speed was slightly slower.

Mr. Frank Hansford will have charge of the timing arrangements on Chard Hill, while those at Trow Hill will be in the hands of Mr. E. L. Herring, of the Bournemouth M.C.C.

THE REAR LIGHT QUESTION SETTLED.

Definite Orders now issued by the Local Government Board. Motor Cycles Exempted; Sidecars and other Two-track Machines to exhibit Rear Red Light to take immediate effect.

ALL motor cyclists know that the decision of the King's Bench Division of the High Court last October made the law as to the necessity of carrying lights on motor cycles an exceedingly vague one. The Local Government Board, therefore, have been urged to issue an official statement on the subject, and at the end of last week made this statement public. *The Motor Cycle* has taken the liveliest interest in these proceedings, and in our issue of November 20th we made the following statement:

"We are in a position to state that the old order of things will most probably be reverted to. Although this exclusive announcement is in no sense official it is authoritatively believed in Government circles that the foregoing will be the outcome of the deliberations of the committee of Local Government Board.

"It will thus be seen that while there is a strong possibility that motor bicycles will be exempted from carrying red rear lights, it would appear that two-track motor cycles will in the near future be required by law to show some form of rear warning light."

Others, less well informed, affected to laugh at us, and motor cyclists were informed that remarks such as these might be accepted with the proverbial grain of salt. However, "he who laughs last laughs loudest," and the laugh is on our side, for the orders issued by the Local Government Board are actually and literally exactly as foretold in *The Motor Cycle*, viz., that motor cycles need not carry a rear light, but that it was incumbent upon sidecars to do so.

The L.G.B. New Regulation.

After referring to the old condition under which by the Act of 1896 cars were required to show a red light to the rear, and the term cars was held to include motor cycles, the L.G.B. new circular states that the 1896 Act is now amended, and the following proviso substituted for the former condition:

Provided also that—

"*(a)* so much of this condition as requires any lamp attached to the motor car to exhibit a red light visible in the direction contrary to that towards which the motor car is proceeding shall not apply to a motor bicycle, unless there is attached to the motor bicycle a sidecar or other vehicle;

"*(b)* so much of this condition as requires the lamp exhibiting a white light visible in the direction in which the motor car is proceeding to be placed on the extreme right or off side of the motor car shall not apply to a motor bicycle or to a motor bicycle having attached to it a sidecar or other vehicle unless such sidecar or other vehicle is attached to or projects beyond the off side of the motor bicycle; and

"*(c)* for the purposes of the application of this condition to a motor bicycle having attached to it a side car or other vehicle, the lamp exhibiting a red light visible in the direction contrary to that towards which the motor car is proceeding may be attached to the sidecar or other vehicle, and, in the case of a motor bicycle having a sidecar or other vehicle attached to or projecting beyond the off side of the motor bicycle, the lamp required to be placed on the extreme right or off side shall be attached to the extreme right or off side of the sidecar or other vehicle."

ARTICLE II.—This Order may be cited as the Motor Cars (Use and Construction) Amendment Order (No. II.), 1913, and the Motor Cars (Use and Construction) Orders, 1904 to 1913, and this Order may be cited together as the Motor Cars (Use and Construction) Orders, 1904 to 1913.

Given under the Seal of Office of the Local Government Board, this Eighteenth day of December, in the year One thousand nine hundred and thirteen.

JOHN BURNS, President.

PRIVATE SHOW IN GLASGOW.

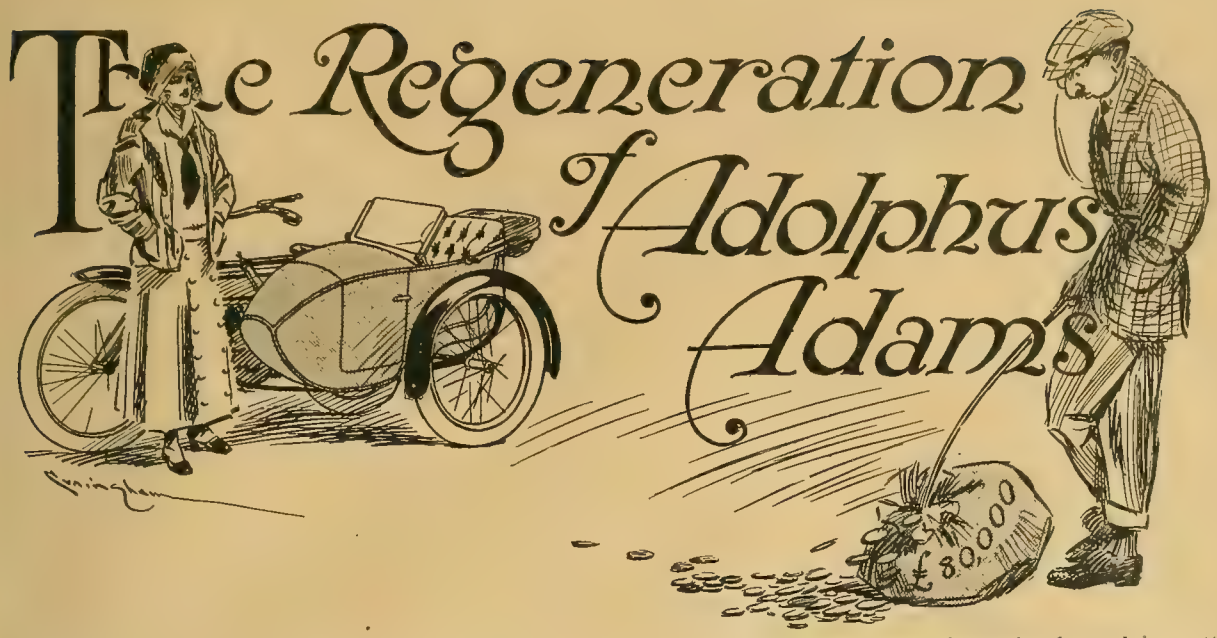
The Glasgow Club held their annual private show of new models, and a smoking concert last week. The show of 1914 models comprised nearly forty machines, representing twenty-four different makes of motor cycle and some half-dozen of sidecars. Prominent exhibits were Tim Wood's Scott and Hugh Mason's Nut-Jap, while the chairman's table was graced by the Tourist Trophy itself. Mr. Norman Macmillan, chairman of the Scottish A.C.U., presided, and a very excellent musical programme was given while a cinematograph display of 1913 events was a feature of the evening.

BIRMINGHAM-YORK RUN.

The following are the entries received for the Birmingham M.C.C. run to York up to the time of going to press. Particulars of this trip will be found on our "Club News" page.

J. Drew (6 Royal Enfield)
J. E. Greenwood (3½ Sunbeam)
L. Newey (5-6 Ariel)
E. Kibble (3½ Triumph)
J. Allday (4¼ James)
G. Davison (5-6 Rudge sc.)
T. Silver (7 Quadrant)
H. Silver (3½ Quadrant)
C. Williams (2¾ A.J.S.)
H. R. Davies (2¾ Diamond)
S. Hill (3½ Rudge)
E. J. Slattery (3½ Triumph)
T. Stevens (4¼ James)
G. H. Ratcliffe (3½ Rover)
H. S. Kershaw (3½ Rover)
H. Hopkins (3½ King Dick)
A. Young (5-6 King Dick sc.)
B. B. Barrow (8 Precision)
H. Newey (2½ Levis)
H. Ball (3½ Triumph)
D. A. Pearson (2¾ Peco sc.)
P. H. Jones (8 Morgan)
B. W. Shilson (8-10 Mathis Babylette)

The Regeneration of Adolphus Adams



ADOLPHUS ADAMS had an aunt. In this he was not unique. Most of us have aunts. His aunt was a rich aunt. Here again many of us share his distinction. But the aunt of Adolphus was unique in other ways. Bred and born in the early Victorian days, when Mrs. Grundy was rampant, she was a real sport. Had she entered this vale of tears fifty years later, she would have been a golf and hockey international, and driven a *type sportive* 38-90 h.p. Métallurgique. She never ceased to regret that she had been brought up on crinolines, poke bonnets, lavender, pot pourri, and other sentimental commodities of a gentle and romantic period; nor did she cease to mock at them. At the age of seventy she bought a small car, and had just learnt to drive it—sitting erect, with her grey hair streaming awesomely from under the tilt of a poke bonnet, a formidable, wiry figure—when she died. Her will did not disguise the contempt she had always felt for Adolphus, a timid little weed of a man, who carefully insured himself against all the ills flesh is heir to, wore white spats, and never left the house without an umbrella. Her final will and testament had been a sore worry to her solicitor, much as he approved its general tenor. She had too much commonsense to leave her handsome fortune to her other nephew, Percy Tallboys. He once remarked in her presence that he never paid small bills because they were too much of a fag, and never paid large bills because he couldn't. This offended her sense of justice. On the other hand, she felt certain Adolphus would only leave her money to rot in Consols. So she bequeathed £100 to Adolphus, and if he proved himself a sportsman within twelve months of her death, the residuary estate was to pass into his hands. But if he remained an incurable weed, smug, slacker, and froust, her fortune was to be divided between eight London hospitals. Her solicitor, an ex-Rugger international, was to be sole judge of Adolphus's sportsmanship; and while he disliked so unconventional a duty, he rubbed his hands at the prospect of much litigation.

Adolphus walked home from the funeral bespatted and unmbrella'ed as usual, and listened to the will in the darkened parlour. Percy Tallboys attended the function without any personal expectations, and cordially approved his aunt's testamentary dispositions. Adolphus, he opined, was "up to the fetlocks in the *consommé*," and he vowed he would watch that covetous youth's efforts to qualify as a sport with huge amusement. Adolphus returned home in great perturbation, even forgetting to notice a crinkle in his carefully furled umbrella, and oblivious of a large splodge of mud on his right spat.

Adolphus in Training.

The next three months were very trying for Adolphus. The solicitor advanced the stipulated £100, and he essayed various branches of sport. The local football team received him with open arms, scenting a glorious rag. They played him at centre forward in their next friendly, and shortly after the kick-off he was escorted to the touchline, after the 14st. full-back of the visiting team had effected a powerful clearance which stubbed the wet ball against the tip of Adolphus's very Roman nose. Returning to the field at the interval, he failed to touch the ball until a rueful moment when he found himself between the two visiting backs, and was violently sandwiched. As he explained to his mother afterwards, the sensation was that of having one's ribs suddenly crushed under a steam hammer. He resigned from the football club, and went in for golf and bowls. During the next month he was informed by the solicitor that bowls could hardly be considered a genuine sport, and that marbles were probably more in his line than golf. Meantime the damsels of his vicinity evinced keen interest in Adolphus. He was not exactly personable, but the local papers had reported the will, the girls all knew of the potential £80,000 awaiting his development, and felt "a man's a man for a' that." Miss Margaret Gordon, impelled by the inherited traditions of a long Scotch ancestry, tuned herself up.

The Regeneration of Adolphus Adams.—

revved fiercely at a few balls and croquet parties, boosted Adolphus up to the proposal point, and roped him safely in before another month was over. Margaret was a shrewd girl of much discernment; there was £80 left of the original hundred, and she meant to qualify Adolphus for the remaining £80,000. She surveyed his lank, muscleless figure, and saw that ordinary sports were not for him. His upbringing had disqualified him for wine, women and song. She was doubtful whether the solicitor, a sensible and strict individual, would rank wild plunging on the turf as "sport," and she finally identified motor cycling as the sole hope of obtaining salvation for Adolphus. Flattered and gratified by the novelty of finding a pretty girl really interested in him, Adolphus was as wax in her hands. She rushed him up to town, and ere they took the evening train back to Little Pedlington, Adolphus's cash balance had dwindled to a bare fiver, but the next week was to bring the happy pair delivery of an 8 h.p. sidecar outfit.

What Maragaret suffered in the long weeks of tuition, during which Adolphus signally failed to master the handling of a powerful twin, must rank among the secret history of forgotten British heroism. He took her into eight hedges, three trams, a traction engine, and one light lorry full of empty aerated water bottles. Nightly she anxiously examined her rich mop of auburn tresses for strands of grey and eke of white. Her cunningest wiles failed to induce the trepidant youth to open his throttle or drive as if the road belonged to him. No 1¼ h.p. Motosacoche could have been driven with more consideration for the traffic which, in the words of the inspired Act of 1903, "might be expected to be" upon an apparently vacant highway.

One day the solicitor of Adolphus's aunt met Margaret, as she cycled down to her golf club, a prey to the keenest forebodings, eying her engagement ring with serious thoughts of returning it on the morrow by registered post. He rallied her genially.

"Madge, my girl," quoth the cynical lawyer brutally, "you've bitten off more than you can chew for once: he's a decent little fellow, but you'll never make a sport of him. Those hospital cheques await my signature at the office!"

Margaret summoned all her reserve energy, and sprang a confident smile which gave the lie to her inmost dreads.

"Have I?" she replied sweetly. "Look here! You know the blind corner on the Stimpson road?"

The lawyer nodded.

"Adolphus always takes that on one wheel at fifty miles an hour! *Don't* you call *that* sporting?"

The lawyer grinned incredulously.

Madge proceeded. "You take a walk that way to-morrow afternoon. Sit on the gate just round the hairpin about three o'clock, and smoke one of your infamous cigars. I'll bring Adolphus along, and if you don't admit I've made a man of him you can send aunt's money to those loathsome hospitals to-morrow night!"

The lawyer agreed, and strolled round to his office smiling.

"The next day . . . . . Margaret paid a nefarious visit to the shed."

Tuning up for the Test.

The next day, before breakfast, Margaret paid a nefarious visit to the shed where Adolphus kept the 8 h.p. twin which had undermined the joy of his young life. Her dainty fingers opened the toolbag, and in two twos, or rather less, she had extracted the throttle piston from the carburetter. A snip of her sharp scissors severed the control wire. Slipping the piston in her skirt pocket, she replaced the cover-plate, and stole silently home. At 2.45 p.m. she and Adolphus wheeled the outfit into the roadway, and settled themselves in their places for a ride.

"We'll take the Stimpson road," she said, coaxingly: "It's a nice broad road, and I want you to practise going a little faster, darling!"

Adolphus depressed the kick-starter rather mournfully. "I don't like that bad corner, sweetheart!" he remarked; "and I've lost heart about auntie's money; I don't think I shall ever be a sportsman—I am too intellectual."

The engine burst into song.

"The engine seems rather lively to-day," murmured Adolphus, nervously, as the outfit swung out into the road on bottom gear; I'll change up at once to-day—the high gear may steady her a little."

It didn't; the powerful engine, deprived of its throttle, devoured the broad open road as a big twin should, and the sidecar bounced and rocked and swayed as they tore down the splendid road with Adolphus trembling on the brink of tears and prayers, and Margaret secretly more than a little frightened. She offered no resistance when he lifted the valve every few yards, and tinkered at his levers, only to find that the acceleration up towards Brooklands speeds was instantaneous when he let the engine in again. Thus they rapidly approached the hairpin corner, beyond which Lawyer Adkins was perched on the gate, sceptically sucking his cheroot; and with every yard Adolphus became more determined to stop the engine and push the outfit home. Margaret clenched her pretty teeth and waited.

At last the dread warning triangle hove in sight, about half a mile away. Adolphus lifted the valve, and began to reason with his imperious sweetheart. Margaret argued and coaxed until the outfit was slowing right down with the corner only a hundred yards ahead. Then she carried out her plan. Clenching her tiny fist so that the spikes of the diamonds in her engagement ring faced outwards, she dealt a tremendous thump on the left hand of Adolphus—the hand nearest her, the hand which was holding up

". . . . . the powerful engine . . . . . devoured the broad, open road."

the exhaust valve with grim determination. Adolphus dropped the valve with a yell, and the 8 h.p. engine took control with a roar. Adolphus lost his head, and the machine screamed on at a cool fifty, and was on the hairpin before he could even think. In this terrible emergency his manhood temporarily asserted itself. He gripped the handle-bars like a drowning man, and threw his feeble muscles into the task of wrenching the sidecar round the fearful bend. Margaret's heart sang with joy and palpitated with terror simultaneously, but the tail of her eye revealed the face of Adolphus convulsed with mortal agony.

"Grin, oh *grin*, Adolphus!" she moaned, mindful of the watchful lawyer waiting on the gate just beyond.

Adolphus continued to look as any sane man would look under such circumstances.

Margaret received the inspiration she deserved.

With a lightning, I might say a Paderewski-ish, movement of her deft fingers, she plucked a long hatpin from her hair and plunged it deeply into the thigh of Adolphus.

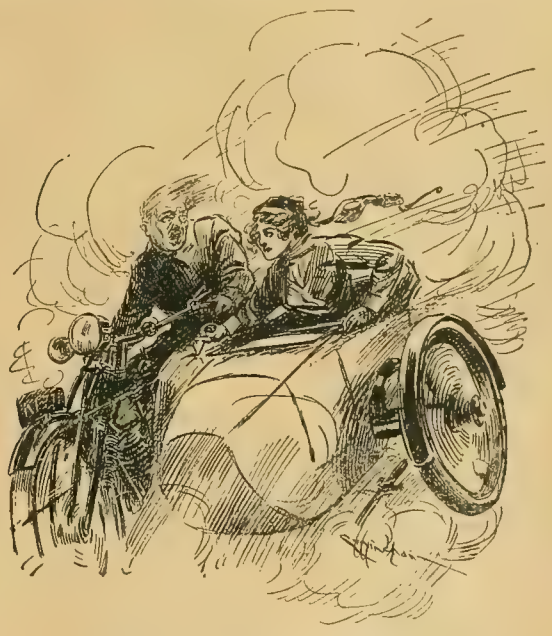
. . . . . .

Adolphus's mother is fond of boasting to other matrons in the seclusion of her drawing room that no bad word has ever passed her son's lips; but the word which escaped them in this moment of cruel agony was—truth compels the admission—a very bad word indeed.

So Lawyer Adkins, seated on the gate, sucking his long cheroot, opened his eyes in horror at what he saw. With a madly bellowing engine lending thrill and horror to the spectacle, he saw Adolphus negotiate a blind corner at fifty miles an hour, Margaret sitting pale and determined in a sidecar which was actually busy tickling her lover's ear; and as the sidecar wheel dropped to earth again when a capsize ceased to be imminent, the lawyer's incredulous ears heard Adolphus distinctly ejaculate "———!"

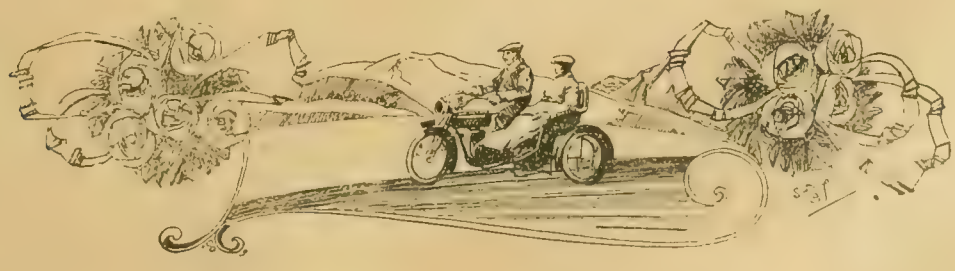
. . . . . .

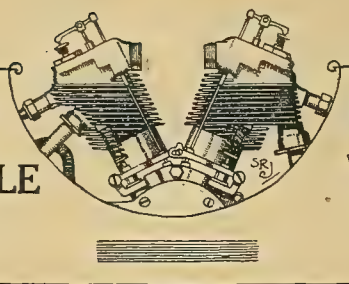
The residuary estate was transferred to Adolphus last week, and the Pedlington gossips whisper with bated breath that next month's wedding will prove unrivalled in the annals of their historic village.



". . . . . plucked a long hatpin from her hair and plunged it deeply into the thigh of Adolphus."

There is only one fly in the ointment of Adolphus's bliss. Margaret is adamant in insisting they shall take the sidecar on their honeymoon; but it is only fair to add that the throttle piston has been replaced.





THE MOTOR CYCLE IN AMERICA.

Where Powerful Machines, Rough Riding, and High Speed Prevail.

IT is difficult to convey to English riders how different is the pastime of motor cycling in America from motor cycling as they know it here. The roads are different, the machines are different, and the men are different.

The roads vary remarkably in even a short distance. At their best they are unsurpassed by any I have seen in a long experience in England, at their worst they are unapproached by anything we can produce or soberly imagine. Even in New England, where the roads are reputed the best in the Continent, one may have covered five or six miles in little more than as many minutes only to come suddenly upon an unrideable mud pond, which may apparently extend to the horizon or until the road disappears from view round a bend. It is impossible to rush such things as these—my only attempt to do so ended in sudden and instant disaster—and it is impossible to crawl through them on first speed, as the back wheel soon commences to slip.

I imagine that these places would be rideable during or immediately after heavy rain, when the mud would be soft; but when I struck them they were merely damp and sticky, and then one's only course is to ride between the tramlines. These run at the side of almost every road in Eastern America, and are laid on sleepers ("ties" in the local parlance). Usually they are ballasted about half-way up the "ties," and in some lines the "ties" are nearly covered. In any case one can ride over them on first speed and make better progress than on the alleged roads, even allowing for repeated dismantlings and removing oneself and machine from the track while a car passes.

I cannot say what was my longest distance covered in this way without any road riding; it seemed like five miles, but probably it was much less; at all events it was a trip that I would not willingly repeat.

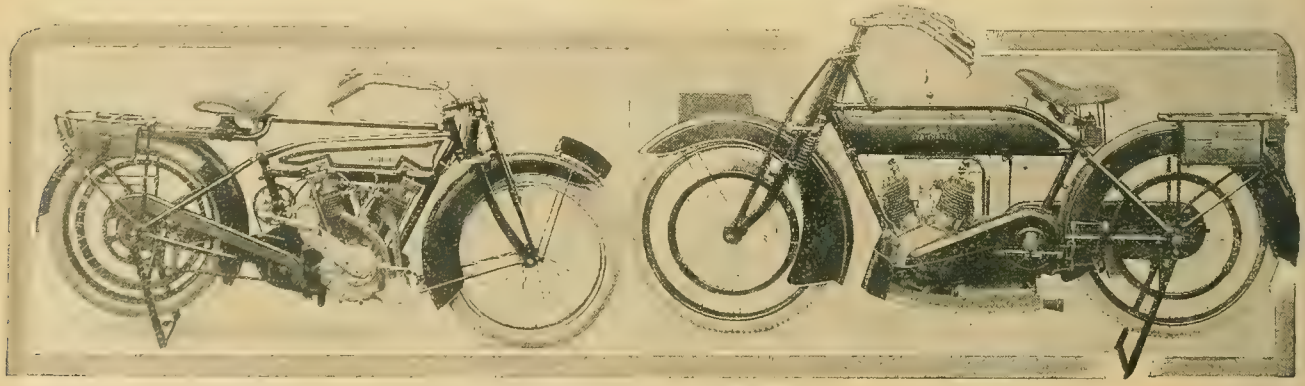
One Way of Road Making.

A prominent manufacturer with whom I discussed the question of the roads informed me that it is not uncommon to see farmers and householders in parts of the country remote from main thoroughfares working out their Poll Tax, *i.e.*, doing two days' work on the road instead of paying hard cash. I enquired what they would do. "Just dig it up," he said!

A species of obstacle I heard of but did not see is a sand road. It is described as a bed of soft sand ten to twelve inches deep and possibly a hundred yards long. I was told that experts overcame these things by going at them all out, and I was assured that if, when I should meet one, I would do that and cling fast to the machine, I would probably come out at the other end in safety.

When one has seen the American expert out touring it is not difficult to conjecture how this treatment of sand roads came to be known. Doubtless the expert came touring along at seventy miles an hour and was into and out of the sand bed before he fully realised its imminence. Afterwards he would smile in a superior way at the novices pushing through it and would show them how it should be done, without breathing a word of the awful fright he had when, *malgré lui*, he learnt the method.

To turn now to the good American roads, I have already said that they may be compared with the best roads we have here, and so they may. Furthermore, in two respects they are superior to ours. They are not closed in by hedges, and they are, for the greater part of their length, straight. What bends there are are gradual, and acute corners are rare, and when they occur are not obscured by trees or hedges. Such roads as these have to be not only seen but ridden over before one can realise their value for speed. No matter what unconscious resolutions as to



TWO MEDIUM POWERED TWINS.

The spring frame Edmund-M.A.G. with two-speed gear and chain drive.

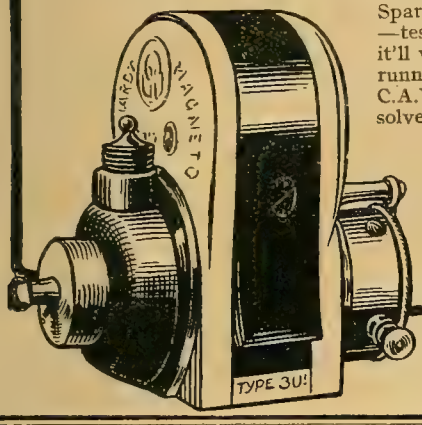
The 3½ h.p. Lea-Francis which has chain drive and counter-shaft gear.

C·A·V

RUTHARDT MAGNETO

Sparks for sure at walking pace.

You can turn out with a light heart if your Magneto is a C.A.V.—the fool-proof, dust-proof, oil-proof, and water-proof sparker for Motor Cycles and Cycle Cars—the favourite with motorists—the pioneer of the all-enclosed Magneto, and the best.



Sparks for sure at walking pace—test it. Douse it in water and it'll work just as well. For slow running and easy starting get a C.A.V. Ruthardt Magneto and solve your ignition troubles.

Write for the C.A.V. Magneto Booklet now.

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North of England Depot—12, Victoria Buildings, St. Mary's Gate, Manchester.

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Having booked orders which will exhaust our output for some time, we beg to refer intending purchasers to Agents who have placed contracts with us, among whom are the following:

LONDON.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.
A. P. Rey, 173, Great Portland Street, W.
Warren Lambert, 142, Uxbridge Road, Shepherds Bush, W.
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DONCASTER.—Doncaster Autocars, Ltd., 58, Hallgate..
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LEEDS.—A Potter, 21, Leicester Grove, Blackman Lane
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MANCHESTER.—Manchester Motor Supply, 18, Oxford Street.
NOTTINGHAM.—Bennett's, Ltd., 28, Shakespeare Street.
PLYMOUTH.—H. Holmes, 65, Treville Street.
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SHEFFIELD.—James & Co., 263, Eccleshall Street.
SAFFRON WALDEN.—Walbro Motor Co., 49, High Street.
SHEPTON MALLET.—J. H. Millard & Son.
STAFFORD.—H. C. Hussey, 45, Vine Street.
SHREWSBURY.—Strefford Bros., Carline Motor Works, Colchai Head.
STRATFORD-ON-AVON.—Hayward & Ball.
UXBRIDGE.—L. W. Spencer, 12a, Belmont Road.
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MORGAN MOTOR CO., LTD. **MALVERN LINK.**

Bournville Cocoa

"Its exquisitely delicate flavour, its purity and wholesomeness, have won appreciation from all classes and all ages."

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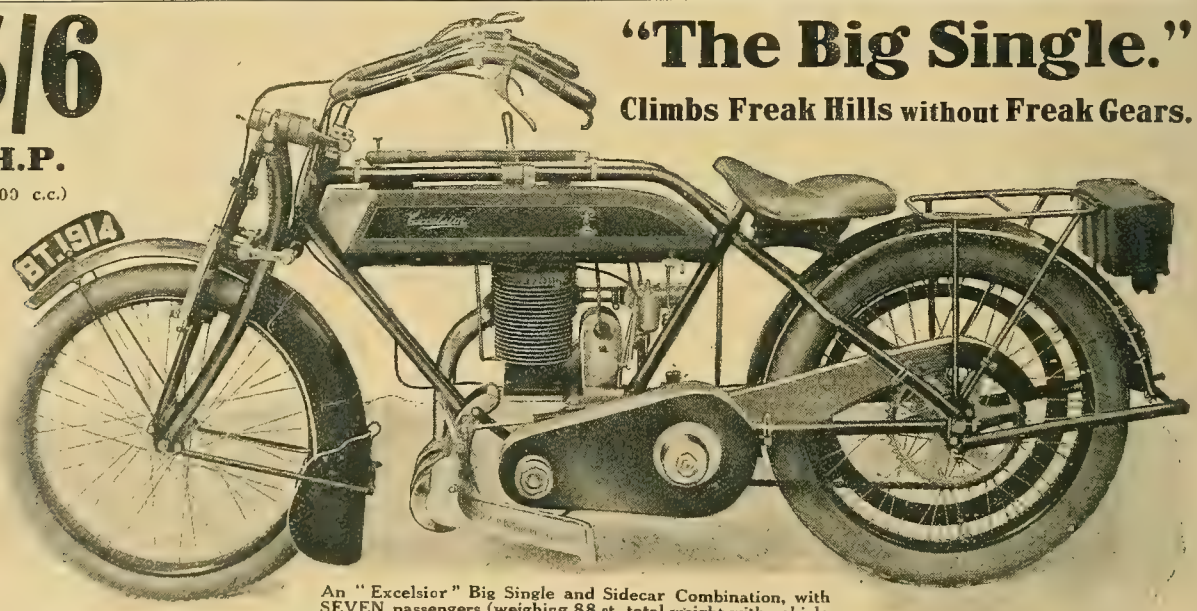
"The Big Single."

Climbs Freak Hills without Freak Gears.



An "Excelsior" Big Single and Sidecar Combination, with SEVEN passengers (weighing 88 st., total weight with vehicle 15 cwt. 12 lbs.), easily climbed Netherhall Gdns., Hampstead.

THE COVENTRY EXCELSIOR

BRITISH MADE THROUGHOUT

Prices: With Three-Speed Countershaft Gear, Free Engine, and Kick Starter .. .. .. £69 15s.
Code Word "STAR."
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A copy of our new Booklet "Hill Climbing Extraordinary" and New Catalogue will be sent post free on request.

BAYLISS, THOMAS & CO.,
Excelsior Works (Founded 1874), Coventry.

The Motor Cycle in America.—

speed one may have set out with, it soon seems absurd to ride at anything less than the best pace one's machine can do. One may commence a journey over a road known to be good and may allow oneself two minutes per mile, but very soon one is doing forty miles an hour and is still edging the throttle open, until presently the machine is doing all it can, and one is thinking how quickly it has lost the splendid form it had in England.

American Craze for Speed.

In these excellences and defects of the Yankee roads, and in the fundamental instinct of the motor cyclist for speed, lie most of the reasons for the present design of American machines. Not all of them, however, lie there; one other remains to be mentioned when we come to refer to the American rider.

The machine that is selling in the States to-day is the big twin, and I was informed that the sale of anything else must normally be attributed to an insufficient supply of big twins. At first glance this seems strange to us in England, who have seen the big twin phase give place to the small lightweight and the 500 c.c. machine, and are now seeing the development of the small twin in all possible forms. But it is in reality the natural result of the causes mentioned above.

In the execrable patches which are to be found on even the best roads the heavy 7-9 h.p. machine has more chance than the lightweight. It seems to reach the solid earth through the many inches of mud, it does not so easily skid out of control, and it can be got through some of these places where the English 350 or 500 c.c. machine would be hopeless. True, when it has to be put inside the tram rails it is heavier to lift, but once there it does very well, by reason of its long wheelbase. And when the morass is passed and one is again on a good road, one is ready for some speed work, and let no one imagine that the American 7-9 h.p. twin won't do it.

Readers will perhaps have heard of the proposed "Lincoln Highway," a through road from New York to San Francisco, for which many million dollars have been subscribed by various towns through which the road is to pass. This, when finished, should offer plenty of attraction to the speed merchant.

No Middle-aged Riders.

I must here apologise to the American motor cyclist himself for so long delaying mention of him, and must hasten to assure him that no slight is intended. The natural arrangement of these notes seemed to demand that the roads should first be referred to and the machine next.

I suppose it would be correct to say that half the motor cyclists in England are middle-aged men—amongst whom I am compelled to include myself. So excellent are our roads, and so reliable our machines, that the pastime no longer demands a juvenile athlete for a rider. If the above notes have conveyed anything to the reader they will have conveyed the impression that in America motor cycling is a pastime essentially for the young. One sees only young men riding. It is necessary to remember that the number of cars per capitum in America is far greater than in England, that the prices of cars are not only relatively but absolutely less there than here, and that the average income of a business man there is far greater than it is here—hence the middle-aged man who would here ride a motor cycle has in America his car. Even were cars less cheap I question whether any but young men would motor cycle. The portages call for too much exertion for any but a young man.

These things being so it will cause no surprise when I say that the American motor cycling public comes from a younger generation than ours, and consists of men relatively less prosperous, although actually, it is probable, more so. They seem to be for the most part men who ride only on Saturday afternoon or Sunday, and who desire speed and nothing else. To "trim" another man, or all other men, is the one object in motor cycling there. Reliability, durability, and comfort are not asked for—none of them is a point a selling agent pays much heed to; speed is all he wants, is the only quality that will sell machines.

I do not wish to imply that American machines are unreliable, indurable, and uncomfortable, but they could be, and no particular comment would be raised, so long as they were fast.

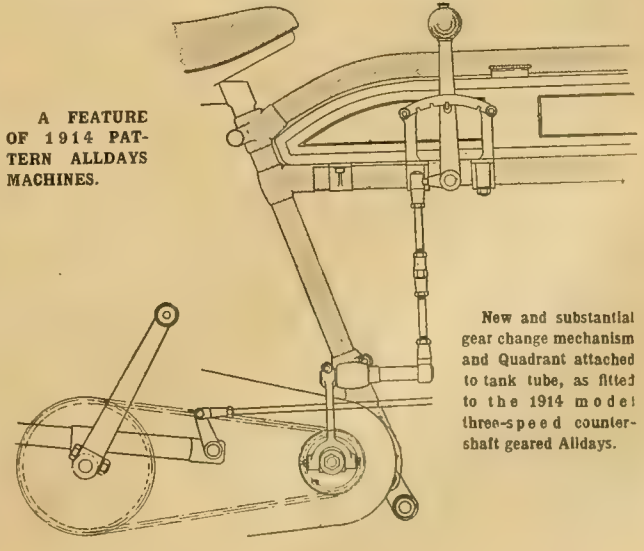
Pay as you Enter America.

A word in conclusion to intending motor cycling tourists in the States. There is to be had a thing called a Tourist Bond, under which anyone not connected with the motor trade, and not intending to use his machine for business purposes, may take it into the country duty free for six months. If it be not re-exported within that time he must pay the duty.

This seems attractive, but I would say to an intending tourist, unless you can spare a week at your port of entry don't apply for a Tourist Bond. It will take you a week to get it, perhaps more; there are almost endless formalities for you to go through, and you must deposit the value of the tariff—25%—with a surety company and pay them five or ten dollars, and must spend another week when you leave the country. If time is of any object take your machine as personal luggage and pay the duty on landing.

To obtain an idea of motoring in Canada delete from the above all mention of good roads, and the residue will apply fairly accurately. I saw only the vicinities of Quebec, Montreal, and Toronto, and the roads there could scarcely be said to exist, by reason of the mud and water.

A. W. PIMM.

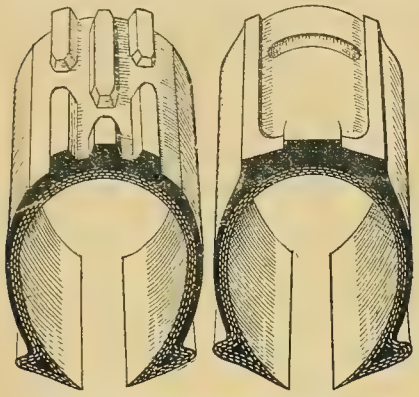


A FEATURE OF 1914 PATTERN ALLDAYS MACHINES.

New and substantial gear change mechanism and Quadrant attached to tank tube, as fitted to the 1914 model three-speed countershaft geared Alldays.

THE LATEST "JOHN BULL" TYRES.

The Leicester Rubber Co., Leicester, have achieved an enviable reputation for the excellent results given under hard use in the hands of both the public and competition riders. They have now produced a new pattern of tyre known as the Rib-Stud, which takes its name from the shape of the elongated rubber studs moulded on the tread. The tyre is a beautifully made article, and long life

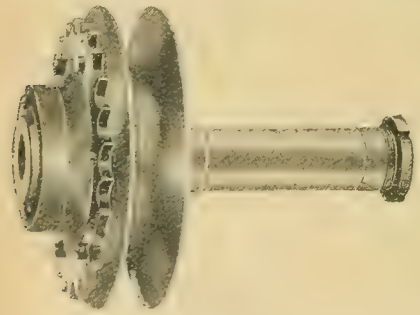


Two types of John Bull motor cycle tyre. On the left is the Rib-Stud pattern, while that on the right is the Cross-Groove type.

and anti-skidding propensities should be a feature of this cover. The firm is preparing to manufacture this tyre in various sizes for solo, sidecar, or cycle car use. 26×2¼, 2⅜, or 2½, and 70 mm. for 650×65 mm. voiturette rims will be leading sizes for 1914. These tyres are made by precisely the same process as the tyres which recently did so well in the "John Bull Mileage Competition."

A NEAT TWO-STEP DRIVE.

The Endrick Engineering Co., Olton, Birmingham, have already achieved considerable success with their two-speed and free engine counter-shaft gear. Now, however, they have brought out a fresh counter-shaft appliance in the shape of a device applicable to all standard machines

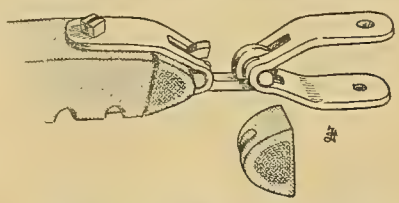


A plain counter-shaft introduced by the Endrick Co.

fitted with direct belt drive and pedalling gear. This serves the purpose of converting from direct belt to chain-cum-belt drive, and is particularly suitable for machines with hub gears. The whole fitment is very neat and the price is moderate. The sprockets may be obtained in different sizes and the belt pulley may be obtained as large as 8in. diameter.

A BELT TIP.

Messrs. Rudge-Whitworth have drawn our attention to a method of making a fastener end which is said greatly to increase the life of belts. It consists of fitting a small "end" or cap, which covers the exposed end of the belt and lies in the V of the fastener, thus more nearly approaching the ideal endless belt. The caps are made of moulded rubber with a canvas core in exactly the same



A simple tip recommended by the Rudge-Whitworth Co. for making a belt practically endless.

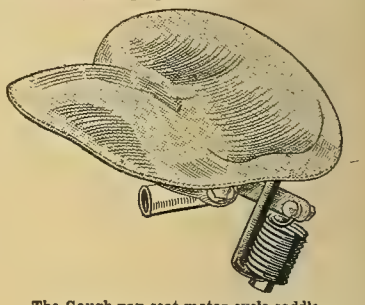
manner as the belt itself, and are grooved at the end, so that the hook prevents their working out sideways. These little packing pieces are slightly wider than the belt, and serve to take the shock from the belt ends, and also prevent the scoring of the Rudge Multi pulley when fully expanded for low gear work. It is claimed that with this device belt mileage is considerably increased. At first sight it would seem reasonable to expect that similar results could be obtained by bevelling the belt ends and pushing them further into the fastener, but this method does not protect the end of the belt, the rubber of which is soon worn off, and permits the fastener to score the pulley.

A MOTOR CYCLE WIND SCREEN.

In view of our present agitation for better protection of machine and rider, the photographs which we publish herewith are particularly interesting. The illustrations are self-explanatory, and the device is the idea of Mr. Mawson, of Olton, who had the work carried out for him locally. The wind screen is made of transparent celluloid and is mounted in a pivoted frame so that it can be set at any convenient angle; the height is also adjustable by means of the telescopic vertical support. The leg shields are also noticeable, and are arranged in such a manner as to keep the rider's legs clean and dry, while they also protect the machine from much of the mud thrown up by the front wheel. Mr. Mawson is a P. and M. rider of long experience, and tells us that these fittings are the greatest comfort to him in rough weather.

OAKLEIGH TWO-SEATED SIDECAR.

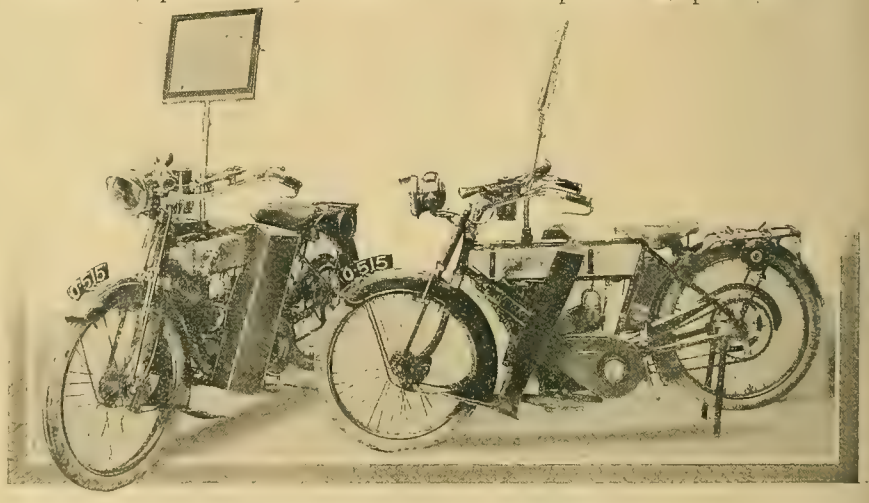
This sidecar is a two-seated pattern intended to carry two adults. When the seat is closed the compartment under it forms a tool box which is not at all unsightly. The additional weight of the back portion is only 10 lbs., the body being made throughout of three-ply wood. The price of this outfit complete is 15 guineas, but the body can be had separately, if desired, from the Oakleigh Sidecar Co., 65A, Rosendale Road, West Dulwich. (See page 1724.)



The Gough pan seat motor cycle saddle.

A NEW PONCHO.

We hear that several riders in the M.C.C. winter run will wear the "Moffat Poncho." This is a lightweight oilskin, specially strengthened in the seams. It does not button up at the front, but is pulled on over the head, the only opening being at the neck, where it is secured by a leather strap. The maker, Mr. Jas. Moffat, Yeovil, claims to have produced a garment which will not split with hard use. The price is 15s. post free.



PROTECTION FROM THE WEATHER.
A novel face screen attached to the top tube of a P. and M. machine, and wind cutting leg guards fitted to the footrests.

PREMIER
MOTOR CYCLES

Write for Particulars of the

New 3-speed Countershaft Model

embodying many new and practicable features. New Pattern Countershaft Gear with enclosed kick starter and outside plate clutch. Chain-cum-belt Transmission. Aluminium Foot Plates, etc. (chain drive £2 extra) **£61 10 0**

NEW "TOURIST TROPHY" MODEL with improved design Frame and Handle-bar. New Type double Heel Brake. Large tank —Special T.T. Engine with Roller big end **£48 15 0**

New 7·9 h.p. Sidecar Machine.

Improved 2-speed or New 3-speed Gear. Chain-cum-belt or Chain Transmission. Sidecar connections integral with frame, etc. .. .. **£75 and £80**

NEW 2-SPEED COUNTERSHAFT MODEL. Improved Gear Box with kick starter, enlarged clutch and dogs; all wearing surfaces increased 100% **£57 10 0**

Many other Models: 2¾ h.p. in 6 types; 3½ h.p., Single Gear; 3½ h.p., Clutch; and 3-speed Hub Models with kick starters.

THE PREMIER CYCLE CO., LTD., COVENTRY.

Depot: 20, HOLBORN VIADUCT, —— LONDON, E.C.

Christmas, 1913.

To our friends (old and new)
we wish a

Merry Christmas

on

Quadrant Motor Cycles.

Quadrant Works, Birmingham.

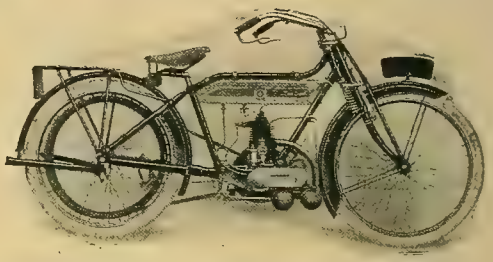
SUNS created more interest at the Show than any other make.

SEND for our list. You will be both surprised and delighted. Eight distinct models, several of them Startling Novelties.

Here is our List :—

5-6 H.P. TWIN; 4¼ H.P. SINGLE 3-SPEED; 3¾ H.P. 3-SPEED; 4 H.P. TWIN; 2¾ H.P. SINGLE GEAR; 2¾ H.P. SUN-VILLIERS 2-SPEED; 2½ H.P. VILLIERS TWO-STROKE. The last priced at 25 Guineas, and is the best value in the Trade.

We make three "SUN" Sidecars for 1914—COACH, CANE, and WICKER—of unsurpassed value.



SUN-VILLIERS 2½ H.P. 2-STROKE MODEL, 25 GUINEAS.

SUN CYCLE & FITTINGS CO., LTD., BIRMINGHAM. ESTABLISHED 1886.

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1914

6 H.P. 2 SPEEDS. Enclosed Valves, Kick Starter.

£ 77-10

Complete with artistic Coachbuilt Sidecar.

Telephone : 415.

Notwithstanding the fact that new makes of motor cycles are placed in the market hourly—the demand for the well-known Rex machine is increasing. Its reliability and hill-climbing powers appeal to every motor cyclist wanting the best sidecar machine money, brains, and experience can produce. Our de Luxe 2-speed model is the cheapest combination of its power and class.

Write for advance supplement of 1914 Catalogue to-day.

Rex Motor Mfg. Co., Ltd.,
COVENTRY.

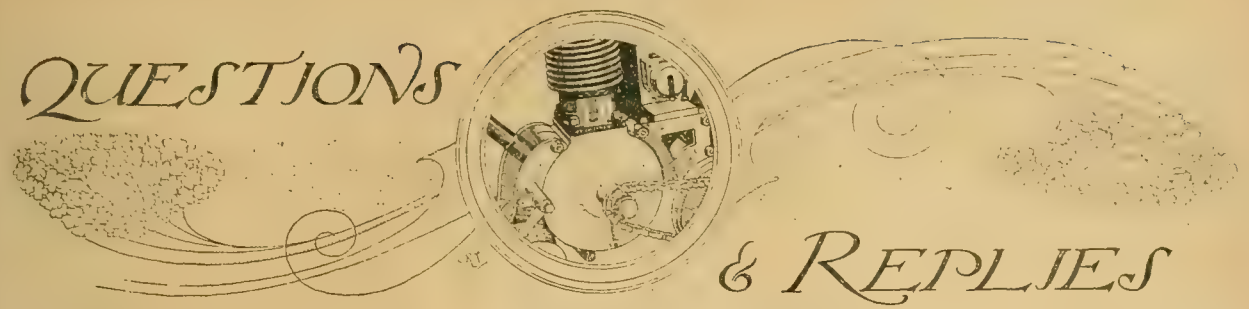
1914

6 H.P. 2 SPEEDS. Enclosed Valves, Kick Starter.

£ 77-10

Complete with artistic Coachbuilt Sidecar.

Telegrams : "Rex, Coventry."



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Hiring a Motor Cycle.

Can you let me know if it is possible to hire a motor cycle, and if so, what is a fair rate to be charged? I feel sure that there are many like myself who would greatly appreciate an occasional run, but who cannot afford to buy a machine, or if able, have no facilities for keeping it.—S.G.C.

Very few firms let out motor cycles on hire. Those that do usually require to know the hirer, and also require a reasonable deposit. You must appreciate that the firm hiring out the machine would run great risks. It is not like letting out a car on hire, for then the firm have their own driver in charge. It would be almost impossible, also, for any firm to allow really good machines out on hire, as there is a constant market for a sale of such machines.

Horse-power Formulæ.

As an old reader of *The Motor Cycle* I am taking the liberty to ask for a little information. All formulæ I have seen for getting at the approximate horse-power of motor engines puzzle me, as I have not seen one fully worked out and explained. Can you give me a simple example? It must be an easy problem in simple arithmetic, as I am not versed in algebra and higher arithmetic. I have asked several motor cycle travellers of good firms and none can enlighten me; some admit they do not know, others make a start to solve my question, but finish up with a bad excuse. Please give me the full working examples of the following: (1.) An engine is 349 c.c. How do you get the 2¾ h.p. (maker's list)? (2.) An engine is 75 × 79 = 2¾ h.p., and again, 70 × 90 mm. = 2¾ h.p. (3.) An engine is 2½in. stroke, 3in. bore (my own figures). Please explain what is the h.p.—W.E.C.

The catalogue horse-power is only approximate. It is customary to call a machine of about 290 c.c. 2½ h.p.; 350 2¾; 490 to 560 3½. A motor cycle in good order should be capable of giving 1 h.p. for every 100 c.c. of its capacity; thus a 500 c.c. engine will give 5 h.p., a 350 3½ h.p., and so on. An engine of 75 × 79 mm. bore and stroke has a capacity of 349; 70 × 90 346, and a 2½ × 3in. = 244 c.c. The first two would therefore be called 2¾ and last 2 or 2¼. You can obtain a cubic capacity table from this office, price 3d. You could then easily apply the rule of 1 h.p. for each 100 c.c.

Belt Trouble on Lightweight.

I ride a 1 h.p. auxiliary motor attachment to an ordinary pedal cycle. The belt is made of leather with a rivet in each end. It is joined up by a hook. The great trouble that I find is that, after a few miles riding, the rivet tears through the leather. Could you let me know of any other means of transmission? Could I lower the engine in the frame and thus do away with the jockey pulley in order to use an ordinary §in. motor cycle belt?—P.H.D.

The trouble with the belt is that as it is so small there is not sufficient room for the belt hook. You cannot very well lower the engine in the frame and do away with the jockey pulley, and if you do we do not think the results will be any better. You can certainly use a belt of the ordinary V type, but as the engine pulley is extremely small and the back wheel belt rim rather large, there would possibly be trouble with belt slip if used without the jockey pulley.

Taking a Machine to India.

I am shortly going out to Bombay, and am undecided whether to take my machine out with me. Can you help me? (1.) Do you know anything of the state of the roads? (2.) Are motor cycles at all frequent there? (3.) What are the import duties? (4.) Would the hot climate have a deleterious effect on tyres and belts?—H.H.B.

We certainly advise you to take your motor cycle to India, where the roads are frequently excellent, especially the main trunk roads. Considering the number of the European population, motor cycles are very largely used, and there is a strong sporting side to the movement in India, some exciting races having already been held. The import duty is 5% *ad valorem*. The heat is bound to have some effect on tyres and belts, but most of the big tyre companies make special tyres for tropical climates. Take one or two spares with you, such as a spare valve and carburetter float, plug, etc., for instance. It may save waiting for some time if you were in want of them in an out of the way part.

AN INCIDENT OF A SIDECAR TRIP IN THE TRANSVAAL.

Crossing a drift near Kimberley with three Rex-Jap sidecars. As may be imagined, chain drive is practically essential in these parts, as drifts are by no means uncommon.

Driving on the Exhaust Lifter.

I was always under the impression that with the valve lifter completely raised, and consequently no compression or explosion of any kind occurring, no possible damage could happen to the valve, the only disadvantage to the above practice being waste of petrol. Yet I see you said in a recent issue that such a practice is harmful, and your answer conveys to me the impression that the stream of unignited gas passing the valve weakens it: is this so?—E.P.H., M.D.

With the valve raised (thus releasing compression) and the throttle open, there is, you admit, a flow of gas past the valve. Therefore, unless the spark is "cut out," this flow of gas is ignited in the usual way, and therefore a stream of flame has to pass the valve; in course of time, this weakens and "pits" the seatings. If unignited gas were to pass the valve, it would be beneficial rather than harmful, for the flow of gas would materially help in cooling the valve, but as comparatively few riders use a cut-out switch, the practice in a general way is harmful.

A Collision in the Dark.

I shall be obliged if you will kindly answer the following legal point: I was travelling along a suburban road on my light car on a recent evening. The road is very badly lighted. A van was standing on the near side of the road; a cyclist was in front of me, and turned out to pass this van. I wanted to pass the cyclist at the same time as he passed the van, and as it was a slippery night and a bad road I thought it best to give the cyclist plenty of room, so went right to the off side, as the road was not very wide. Just as I was passing the cyclist I saw a yard away from my front wheel a baker's barrow without any light, and unattended (this, of course, I ascertained after the accident), and; of course, I could not swerve enough to miss the barrow, thus damaging the barrow and also my front mudguard. Am I liable for all this damage, as the barrow was unlighted and unattended, and I could not see it until I was about a yard away?—E.A.C.

We have submitted your query to our legal adviser, who has replied as follows: "Your correspondent does not say at what rate he was going on this dark slippery night, but apparently he was going faster than the cyclist. The question he raises is rather difficult to answer. Your correspondent would not be liable for any damage unless it could be shown that if he had been going at a reasonable speed having regard to the darkness of the night he could have avoided colliding with the barrow. There is, of course, no obligation for the barrow to be lighted. It seems to me, however, that the owner was negligent in leaving the barrow unattended on a dark night, but this contributory negligence would not prevent him from recovering damages if your correspondent, by being ordinarily careful, might have averted the consequence of such negligence."

Sidecar out of Line.

I have an old 6 h.p. Rex with sidecar. The front wheel leans very much towards the sidecar when loaded, but when unloaded it is quite straight. The machine has a tendency to lean inwards towards the sidecar. The front forks are the Rex old pattern, with the double springs on each side. The front wheel goes very much on one side when loaded. The sidecar is rather lower in front than at back.—E.G.P.

Provided that your machine and sidecar have been carefully lined up, the trouble is obviously in the front forks. The type of forks mentioned are not now built, and were somewhat liable to develop sideplay after prolonged use. This would probably account for the trouble you mention. The height of the sidecar at the front would not cause the trouble unless there is also undue weight at the front.

Taxation of Three-wheelers.

I have seen it stated that in certain counties, provided a cycle car has not more than three wheels, it is possible to register it for the Inland Revenue tax as a motor cycle, sidecar combination, or tricar, and thereby avoid considerable expense. Can you inform me in (1) what counties this obtains, and (2) whether an A.C. Sociable or Morgan runabout could be registered thus while keeping within the law?—J.W.B.M.

(1.) If the registration authorities in your district or in any other district will accept the machine as a motor cycle, it can carry motor cycle number plates. If registered as a car it must carry car number plates, but the authorities cannot demand more than £1 licence, as it is a three-wheeled vehicle, *i.e.*, a tricycle. (2.) With three wheels the machine can be registered in many instances as a motor cycle, but if it be refused as a motor cycle the taxation licence is still £1.

Correct Alignment Essential.

I have a 3½ h.p. 1913 sidecar combination, and in order to protect my passenger from the weather have fitted a hood and screen. This sidecar is fixed very closely to the machine and when the hood is up I find great difficulty in steering the machine past other vehicles, the tendency being for the sidecar to push me into the channel of the road. The hood overhangs the body of the car by half an inch, but is so close that it brushes my shoulder and I cannot lean over; this is especially bad when rounding corners. Both back attachments are adjustable, but the front one is fixed. If I lengthened the back one, say two inches, it would throw the sidecar wheel out of the parallel with the machine. Would this matter very much? I may add the steering is perfect with the hood down.—J.H.R.

Yes, it would matter most decidedly if you spoilt the alignment of the machine and sidecar. It would cause rapid wear of the sidecar tyre and rear tyre, as well as laying additional strain upon the axle and chassis in general. Also it would materially affect the steering, and cause side drag. The only remedy is to have the sidecar body moved if that is possible.

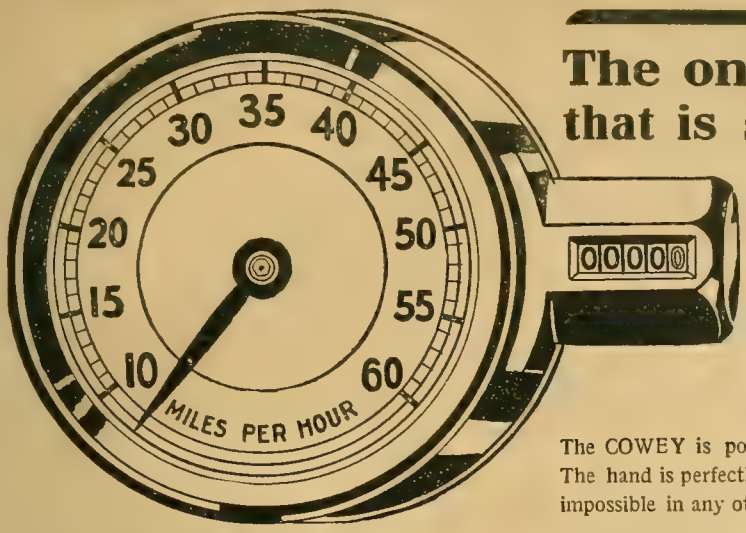
EXPERIENCES WANTED.

"J.J.M." (Manchester).—3½ h.p. Rudge Multi and sidecar. Reliability of gear, life of belts and tyres, and consumption.

Readers asking for routes should give the nearest town to their residence, as it is difficult to trace the exact locality of small villages, and the local roads to the nearest town are best known to those who reside in the district.

LADIES AND THE MOTOR CYCLE.

A keen lady motor cyclist is Miss Mary Blaynay shown above with her 2 h.p. Hobart, which make of machine she has ridden for several years.



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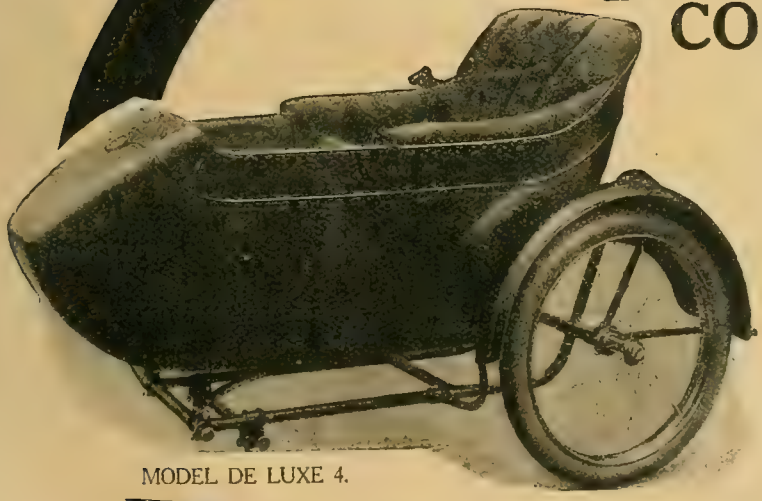

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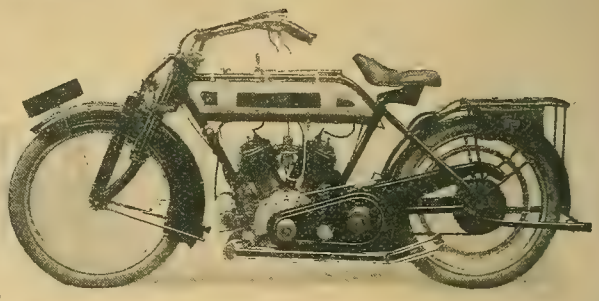

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Armstrong 3-speed Hubs, new and complete . £5 5
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UP TO 3/- ALLOWED FOR OLD BELTS.

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CHROME LEATHER BELTING, ⅞-in....foot -/11
" " 1-in. ..foot 1/-
Sidecar Lamp-brackets 1/6
Suits, Waterproof, double-breasted, high storm collars, dust and windproof, fawn, double texture 16/6
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B.S.A., 1913 T.T., condition as new; accept £38 to clear; genuine bargain.—Colmore Depot, 49, John Bright St., Birmingham. [X817

B.S.A., 1912, 2-speed, Cowey speedometer, P. and H. lamp, all accessories, perfect condition; £40; view any time.—C., 10, Lenard Rd., Croydon. [X676

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3½h.p. Calthorpe, late model, fitted 2-speed gear and clutch, lamp and tools, complete, and in very fine order; genuine bargain, £18/10.—172, Upper Richmond Rd., East Sheen, S.W. [5062

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Chater-Lea.

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New 1913 Armstrong Mark VII. 3-speed Gears. Delivery from stock. Trade supplied.
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of second-hands, taken in part payment for new 1914 models at and before the shows. All prices specially reduced.

ALL MACHINES GUARANTEED.

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REX 1913 Sidette model, 6 h.p., like new, 2 speeds; cost £75. Sidecar **£58**

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BRADBURY 1911 3½ h.p., Mabon variable gear, wicker Sidecar, excellent order..... **£35**

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DOUGLAS.—All 1914 models; cash or easy payments.—Maudes, 136, Great Portland St., London, W. [4838

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DOUGLAS, 1913 (June), model O, not done 2,000; £37 cash.—Johns, 52, West Hill, Sydenham, S.E. [5059

DOUGLAS, 1914, one model U, 2-speed, in stock; exchanges; easy payments; £48.—Laytons, Bicester, Oxon. [X775

1911 Douglas, 2-speed gear, complete, lamp, etc., £24; single-speed Douglas, £22.—Cross, agent, Rotherham. [X750

DOUGLAS, 1914, immediate delivery of all models, including the new 3½h.p.; write now.—Moss, Wem. [5124

DOUGLAS, 1914 models, immediate deliveries from stock.—Wm. Osborne and Co., 60, Piccadilly, W. Regent 3836. [5067

DOUGLAS, all models, for immediate delivery; trade supplied.—Rex, 378-384, Euston Rd., and 173, Gt. Portland St., W. [3534

DOUGLAS model O, 1913½, 2-speed, lamp, horn, tools, new Kempshall; £40.—Snatt, Talavera Barracks, Aldershot. [X718

DOUGLAS 1914 Models.—We are large contractors; exchanges accepted.—Motor Exchange, Westgate, Halifax. [0387

1913 Douglas, T.T., lamp, horn, all spares, good tyres and belt; £36, or good offer.—J. R. Caldicott, Kingswood, Coventry. [5052

DOUGLAS, T.T., 2-speed, 1913½, done 900 miles, perfect condition, lamp, horn, spares, complete; £37.—Davies, Star Shop, Wrexham. [X332

DOUGLASES.—Earliest deliveries 1914 models; E.P. entertained.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [4776

DOUGLAS, 1913, September, model O, 2 speeds, practically new, only ridden 6 times; £42, a bargain.—Clarkson, 5, Savile Terrace, Halifax. [5108

DOUGLAS, 1913, kick start, 2 speede, clutch, excellent condition, mileage under 500; owner going abroad; £40.—W. Edgewood, Rotherfield, Sussex. [X610

DOUGLAS, 1914, model W, just arrived from the works; immediate delivery; £52.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London. [5086

DOUGLAS, 1912, model K, in perfect condition, impossible to obtain better machine; lowest cash price £32.—Colmore Depot, 31, Colmore Row, Birmingham. [X728

DOUGLAS, 1911, 2-speed, and clutch, engine overhauled by makers, everything in perfect condition; accept £26 to clear.—Colmore Depot, 49, John Bright St., Birmingham. [X816

DOUGLAS, 1913, T.T. model, perfect order, 2 speeds, free engine, accessories, and spares; £36.—Flee and Co., 16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [3654

T.T. 1913 Douglas, recently overhauled by makers, lamp, generator, spare tube, horn, long exhaust, fast, excellent condition; £35, no offers.—Write, 48, Dartmouth Park Rd., N.W. [5061

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ENFIELD 1910 Lightweight, mag., splendid condition, new tyres and belt; £15/10.—Highfield, Eastbrook, near Cardiff. [5105

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ROYAL Enfield Sidecar Combination, 80 gns.; 1914 models actually in stock.—Sole agents, Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter. [0415

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ENFIELDS, 1914, 2¾h.p. and 6h.p. models; best exchanges and instalment terms; immediate deliveries; trade supplied.—Maudes, 136, Great Portland St., London, W. [4839

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F.N. Motorcyclette, 1¾h.p., mag., B. and B., good tyres; £7/10.—Comyne, Carshalton. [5060

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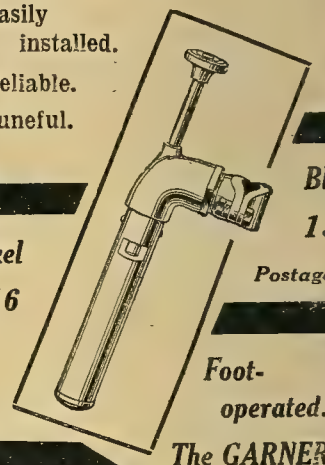

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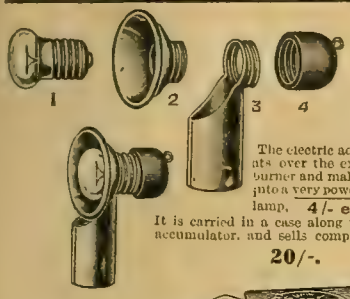

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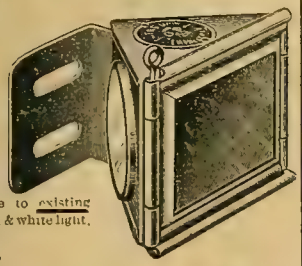

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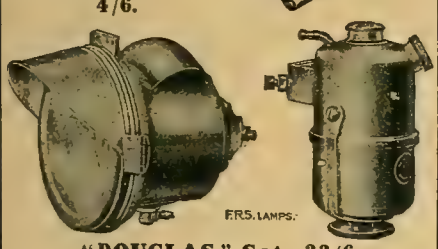

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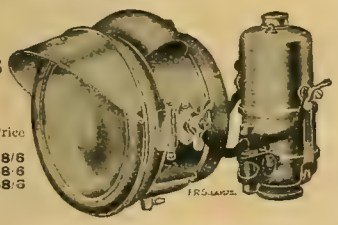

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1912 3½h.p. 3-speed Rover, sidecar, lamp, horn, whistle, good tyres, Whittle belt, complete; £42.—35, Bigwood Av., Hove. [X751

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T.T. Rudge, 1912, all accessories, fast and reliable; £26.—21, Hythe Quay, Colchester. [5097

RUDGE, 3½h.p., 1912, free engine, £27.—C. H. James, 2, Oakfield Place, Clifton, Bristol. [X750

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RUDGE Multi, 3½h.p., 1913½, as new; expert examination or trial; £44.—Glass, Woodside, Grantown. [X8446

RUDGE Multi, 1912, 3½h.p., just overhauled, splendid order, new tyres, and belt, complete; £36.—Below.

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RUDGE, 1911, standard model, another Xmas box, perfectly sound machine, good engine; £15.—Laytons, Bicester, Oxon. [X778

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RUDGE, 1912, free engine model, very good machine, engine just overhauled by makers; worth £30, price £27.—Laytons, Bicester, Oxon. [X779

1913 T.T. Rudge, in very good condition, £30; 1913 T.T. Rudge Multi, new July, as new, many extras, £45.—Tippins, Mistley, Essex. [4884

RUDGE Multi and Millford sidecar, Cowey speedometer, lamp, horn, accessories, waterproof overalls, little used, perfect; £50.—Taylor, Colebrooke Lodge, Heene Rd., Worthing. [5057

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SCOTT, 1912 model, perfect, lamp, horn, tools; £37/10.—Cordingley, Haslingden. Tel.: 2Y. [X824

SCOTT, 1913 model, new, just from works; accept £60.—Cordingley, Haslingden. Tel.: 2Y. [X843

SCOTT, and £22 Myers sidecar, Lucas lamp and horn, all as new; £55.—The Walsall Garage, Walsall. [X9964

SCOTTS.—All 1914 models; best easy payment terms, immediate delivery.—Maudes, 136, Great Portland St., London, W. [4843

SCOTTS, 1914 models, in stock; cash or exchange, or easy terms.—Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. [0406

1914 Scott, not ridden 400 miles, absolutely as new, makers' guarantee; £60.—French, Baythorne End, near Halstead, Essex. [5054

SCOTT, 2-stroke, 1913, only done 2,000 miles, condition as new; accept £45.—Wm. Betts, Ltd., 126-8, High St., Wandsworth, Putney 1698. [5103

NORMAN LONGFIELD is willing to dispose of his 1913 Tourist Trophy Scott and specially constructed sidecar; full particulars on application.—Laurel Bank, Ilkley, Yorks. [X683

SCOTT, latest model, twin-cyl., 2-speed, 2-stroke, exactly as listed at £68/5, and brand new; best offer over £55.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0372

SCOTT, 1913, complete with every accessory, cost over £80; Lukin carburetter, done 1,800 miles, perfect condition, arrangement for carrying golf clubs fitted; price £50.—On view at 8, Blandford Mews, Dorset St., W. [4864

SCOTT, 1913, 2-speed gear, fitted with smart coachbuilt Sydenham (Scott) sidecar, exceptionally fine touring outfit; £57 cash; write for our extended payment terms.—Colmore Depot, 31, Colmore Row, Birmingham. [X725

3¾h.p. Scott, late 1912, with brand new Canoelet side car with all fittings, F.R.S. Major lamp and generator, Lucas horn, Cowey, mirror, and special sidecar lamp, very fine combination.—On view, or trial by appointment at McDermott's, 166, Plumstead Common Rd., S.E. Price £55 [X744

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HUMBERETTE, W.C., complete	135	"
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G.W.K. Light Car "	£150	0
MORGAN Runabout (Sporting)	£91	0
BRADBURY, 6 h.p., 3 speeds	£75	0
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REX Sidette, belt drive	£77	0
REX Sidette, chain drive, 3 speeds	£85	0
REX-J.A.P., 8 h.p., 3 speeds, chain drive	£77	10
REX-J.A.P., 6 h.p., ditto, ditto	£75	12
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WILLIAMSON, 8 h.p., and Sidecar	£97	10
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Exchanges liberally entertained.

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BABY LEVIS, in fine order	£24	10
BRADBURY, 1913, 3½ h.p.	£32	10
REX, 1912, 6 h.p., 2-speed, twin, OFFERS		
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REX, 1913, 6 h.p., 2-speed, done 100 miles	£46	10
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REX, 1913, 4 h.p., 2-speed, nearly new	£39	10
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N.S.U., 5½ h.p., 2-speed, and Sidecar	£31	0
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N.S.U., 1911, 3 h.p., 2-speed, as new	£29	10
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REX, 3½ h.p., 2-speed, magneto	£22	10
F.N., Lightweight, battery ignition	£9	10
REX, 3½ h.p., magneto, 1910	£24	10
REX, 3½ h.p., magneto, 1909	£22	10
REX, 3½ h.p., 2-speed, and Sidecar	£22	10
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MOTOSACOCHE, 1911, M.O.V.	£16	10
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MOTO-REVE, twin, lightweight, runs well	£13	10
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REX, 3½ h.p., magneto, spring forks, 1908	£19	10
3½ h.p. 1912 **BRADBURY**, chain drive	£39	10
4 h.p. 1912 **CHATER-J.A.P.**, almost as new	£29	10
New 1912 2-speed Twin **REX** and Mills-Fulford coach-built Sidecar. Special bargain	£57	10
6 h.p. **BAT-J.A.P.**, spring forks	£29	10
REX, 1913 twin, 2-speed, NEW	£56	10

Cash offers considered. Exchanges quoted.

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£5 5s. to £10 10s. List on application. **Best value obtainable.** Trade supplied.

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MOTOSACOCHE £12 10 . 3 HUMBER . £8 10
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New 1913 Machines to clear.

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1912	6	**BAT,** Lucas lamp set	£35
1912	3½	**BAT,** 2-speed gear	£35
1912	3½	**RUDGE,** clutch model	£34
1907	3½	**TRIUMPH,** 2-speed gear and **Millford Sidecar**	£20
1908	3½	**TRIUMPH,** roadster	£21
1910	3½	**TRIUMPH,** roadster	£25
1911	3½	**TRIUMPH,** roadster	£29
1911	3½	**TRIUMPH,** clutch model, and **Gloria Sidecar**	£37
1912	3½	**TRIUMPH,** clutch model	£42
1910	3½	**SCOTT,** 2-speed	£20
1912	4	**INDIAN,** clutch model	£32
1912	3½	**MATCHLESS,** T.T. model	£31
1912	3½	**CORAH-J.A.P.,** clutch model	£28
1911	3½	**BRADBURY,** standard	£27
1912	3½	**BRADBURY,** 2-speed gear, and canoe wicker Sidecar	£42
1912	2¾	**HOBART,** lady's model, 3-speed gear, and free engine	£26
1911	3½	**KERRY-ABINGDON**	£25
1912	3½	**KERRY-ABINGDON,** 2-speed, and torpedo Sidecar	£37
1910	3½	**HUMBER,** standard	£22
1911	3½	**HUMBER,** 2-speed	£30
1912	3½	**HUMBER,** 2-speed, and canoe wicker Sidecar	£40
1911	2¾	**DOUGLAS,** 2-speed	£30
1912	3½	**ZENITH,** Gradua gear	£33
1912	2¾	**ROYAL ENFIELD,** 2-speed	£33
1913	6	**ROYAL ENFIELD,** 2-speed, speedometer, Lucas lamp set, and **Royal Enfield Coach-built Sidecar**	£65
1912	3½	**P. & M.,** 2-speed	£42
1912	8	**CHATER-J.A.P.,** 3-speed, and **Millford Spring Wheel Sidecar**	£60
1909	3½	**QUADRANT,** Bosch magneto, B. & B. carburetter, h.b.c.	£18
1910	3½	**REX,** tourist	£20
1910	5	**REX** de Luxe, 2-speed, and **Chater-Lea Sidecar**	£30
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MOTOR CYCLES FOR SALE.

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LATE 1913 Scott and Canoelet sidecar de luxe, very little used; owner buying car; Palmer cord tyres; cost 85 gns., sell £70, including lamps, insurance policy, and many new accessories and tools.—Knocker, Arden, Aldershot, near Salisbury. [X682

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1913 Singer, 3½h.p., T.T. model, a real flyer; £37/10 —Cordingley, Haslingden. Tel.: 2Y. [X841

1913 Singer, 3½h.p., 3 speeds, F.E., brand new; list £58/15, £48/10.—Cordingley, Haslingden. Tel.: 2Y. [X842

1913 4½h.p. Singer, 2 speeds, and sidecar, brand new; list £80, clear £64.—Cordingley, Haslingden. Tel.: 2Y. [X834

3½h.p. Singer, free engine, lamp, horn, spares, etc., splendid condition; £35.—E. H. Sale, The Orchard, Atherstone. [X717

1913 Singer, 3½h.p., 3-speed Armstrong, done only 500 miles, as new; £40; getting car.—Ford, 27, Abbotsbury Rd., Newton Abbot. [5104

SINGER, 1913, 3½h.p., Armstrong 3-speed gear, new September, with accessories; cost £70, but will sell for £45.—W. S. Turner, Penpol Terrace, Hayle, Cornwall. [5102

1912 4h.p. Singer and Sidecar, 6-speed gear, Armstrong hub, and Singer counter-shaft, in good condition, just been overhauled by Singer Co.; £50; can be seen any evening after 6 o'clock.—D. Osmond, 233, Essex Rd., Canonbury, N. [0403

Stevens.

4h.p. Stevens and Sidecar, mag., B.B.; bargain, 18 gns.; seen after 4 Saturday.—Apsley Villa, Feltham Rd., Ashford, Middlesex. [5056

Sun.

1913 Sun-Precision, 3¾h.p., Millennium 2-speed gear, Millers lamps, Jones speedometer and horn, also 16 gn. underslung torpedo sidecar, in perfect order, Hutchinson passenger tyres all round; any trial; £46. —French, Baythorne End, near Halstead, Essex. [5053

T.A.C.

T.A.C., Zenith carburetter, C.A.V. mag., syren, lamp, tools, spares; offers.—Porter, Tottenham. [4712

Torpedo.

1912 Torpedo Lightweight, excellent condition; £21. —Plastow, Grimsby. [X810

2¾h.p. Torpedo, complete with lamp and horn, 1912 model; a bargain, £22/10.—Cordingley, Haslingden. Tel.: 2Y. [X840

Triumph.

1910 Triumph, in fine order; £23.—Cross, jeweller, Rotherham. [X749

1908 Triumph, in good running order; bargain, £18. —Plastow, Grimsby. [X811

1912 Standard Triumph, in good condition; £27.—Tippins, Mistley, Essex. [4883

TRIUMPH, 1914, 4h.p., 3-speed; £60; delivery from stock.—Ginger, Motors, Banbury. [X760

TRIUMPH, 1914 models; order now for early delivery. —Christie Bros., agents, St. Andrews. [5094

TRIUMPH, 1909-10, fine condition, complete; £22.—Hall, Ryle Rd., Sharrow, Sheffield. [X612

TRIUMPH, 1911, clutch; £32; sidecar chassis included.—Wilson, 15, Park Court, Clapham. [5110

TRIUMPH, 1912¾, unsoiled Kempshalls; snip at £42; week days only.—290, Milkwood Rd., Herne Hill. [3840

TRIUMPH, 4h.p., 1914 model, 3-speed; £60; in stock; exchanges entertained.—Cordingley, Haslingden. Tel.: 2Y. [X827

TRIUMPH, 1912, clutch model, very sound machine, engine overhauled and tuned; £32.—Laytons, Bicester, Oxon. [X769

TRIUMPH, 1908, very sound machine, good engine, recently overhauled; £16; no exchanges.—Laytons, Bicester, Oxon. [X771

1910 Triumph, with Brampton gears, good order, fine hill-climber; £23.—Write, Johnston, Ceylon Cafe, Morecambe. [0394

TRIUMPH, 1910, standard model, exceptionally fine machine, nice appearance, well tyred; £23.—Laytons, Bicester, Oxon. [X770

TRIUMPHS, 1914 models, in stock; cash, exchange, or easy terms.—Elce and Co., 16, Bishopsgate Av., Camomile St., E.C. [0409

1914 Triumphs, 4h.p., 3 speeds, in stock for immediate delivery; liberal exchanges.—Newnham, 223, Hammersmith Rd., W. [5071

TRIUMPH, 1913, 3-speed, Cowey speedometer, and horn, perfect order; £45.—Geoffrey Watt, Shipquay St., Londonderry. [X9998

TRIUMPHS.—Book your order early for 4h.p. 1914 models; exchanges or instalments.—Maudes, 136, Great Portland St., London, W. [4844

TRIUMPHS, 1909, lamp, horn, £21; 1913 3-speed, lamp, horn, sidecar, cost £76 July, £58.—Wade, 97, Trent Valley Rd., Lichfield. [X614

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! FIVE THOUSAND !

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SIXPENCE

will cover your expenditure for BELT FASTENERS.

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Supplied by a branch tube from headlight generator. In polished aluminium, very light and neat, with ruby light and white light to illuminate number plate. Easily fitted to mudguard or carrier. Fully complies with the law.
PRICE **8/6** EACH.
Brass Y piece to make connection to gas supply, **10d.** Best quality rubber gas tube or flexible metallic (galvanised) tube, **4d.** foot. Rubber ends, **4d.** each. Aluminium frame clips, **1d.** each.
From all Agents and Stores, or
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The "SUCCESS" Carbon Removing Tools

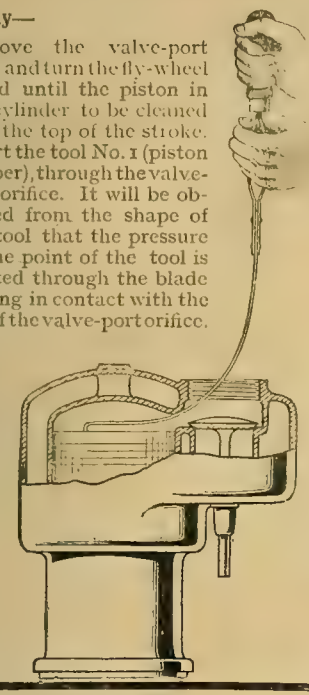
Patent No. 4851 12.

The simplest and most economical method of rapidly and effectually removing the carbon deposit from an engine yet devised.

The possibility of cheaply and easily cleaning the cylinders and pistons by a simple set of tools which ensures the removal of every particle of carbon from a four-cylinder engine in the short space of one hour, will, we are sure, be welcomed by thousands of motorists, *and such facilities are afforded by the use of the "Success" Carbon Removing Tools.*

Firstly—

Remove the valve-port caps, and turn the fly-wheel round until the piston in the cylinder to be cleaned is at the top of the stroke. Insert the tool No. 1 (piston scraper), through the valve-port orifice. It will be observed from the shape of the tool that the pressure on the point of the tool is exerted through the blade coming in contact with the top of the valve-port orifice.



What the "Success" Carbon Removing Tools are :—

These tools consist of two hardened and tempered flexible steel scrapers; one for the piston and the other for the head of the cylinder, with a short scraper for clearing out the ports and orifices, and a stiff bristle brush for taking out the particles of carbon from the ports. The whole of the operations are effected by merely removing the valve port caps. It will be observed that these scrapers are tapered both ways towards the point, that is to say, in thickness as well as in width, but with the point sufficiently hard to resist wearing.

These tools are the invention of a motor engineer who has experimented with many devices to facilitate the cleaning of the engine, and they have been in use under all sorts of conditions for over three years before being placed upon the market.

Price

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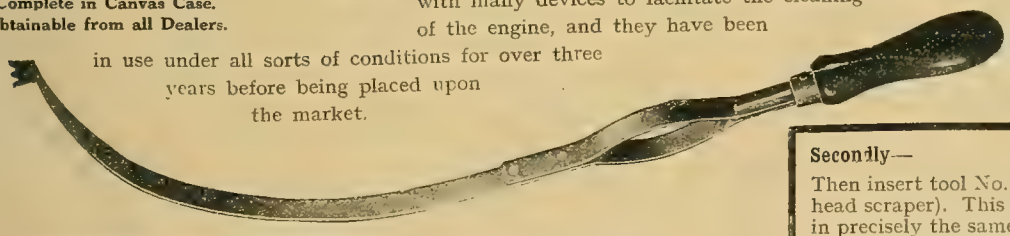
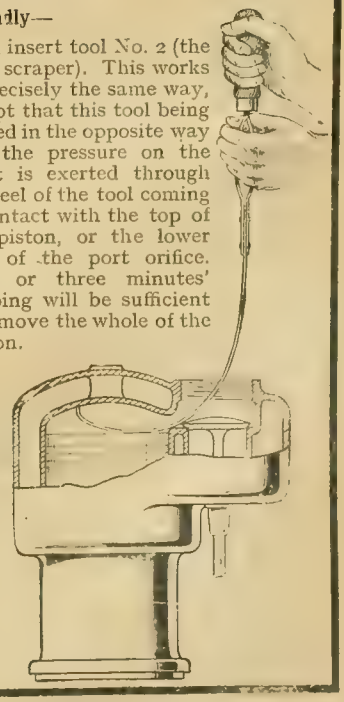
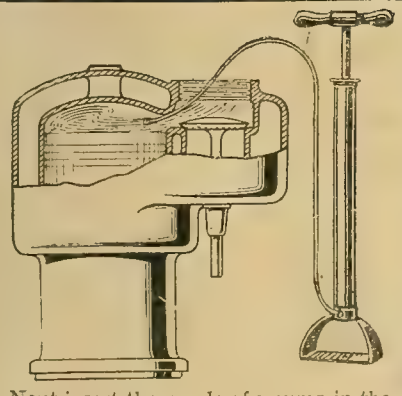
Complete in Canvas Case.
Obtainable from all Dealers.



Secondly—

Then insert tool No. 2 (the head scraper). This works in precisely the same way, except that this tool being curved in the opposite way and the pressure on the point is exerted through the heel of the tool coming in contact with the top of the piston, or the lower part of the port orifice. Two or three minutes' scraping will be sufficient to remove the whole of the carbon.





Next insert the nozzle of a pump in the port orifice facing to one side of the interior of the cylinder and giving one or two vigorous strokes, the swirl of the air induced brings all the carbon out of the cylinder and deposits it at the back of the pump nozzle, just over the valves, where it can be spooned out readily with the port scraper.

OUR NEW Supplementary —Motor List—

of New Motor Goods, Motor Clothing, etc., is now ready. Write for a copy.

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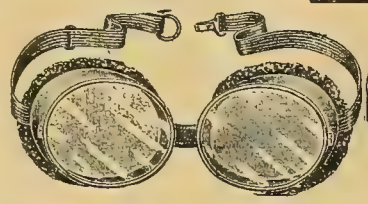
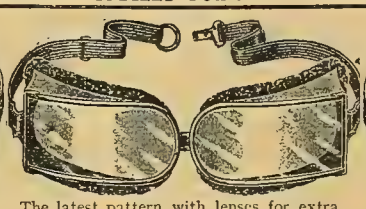
GAMAGES

Useful Accessories in our Motor Cycling Department.

COLLAPSIBLE GOGGLES FOR MOTOR CYCLISTS.



Dustproof, comfortable, light, ideal for Motor Cyclists. Price, per pair .. **1/-** as sold elsewhere at 4/9



The latest pattern with lenses for extra wide vision. Dustproof and can be worn over ordinary spectacles, Price .. per pair, post free **3/6**

New oval lenses, wind and dustproof, superior quality silk elastic, and lenses. Price, pair, carriage paid **2/9**

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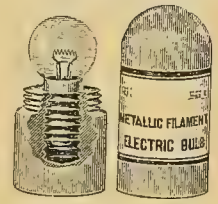
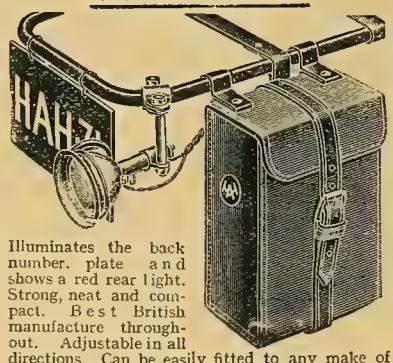


Metallic Filament Bulbs 4 volt for use with the lamps illustrated on this page. **1/-** each.

Polished Boxwood Case for spare bulb **2d.** each. The Bulb is screwed into the base of the box, and the cover is then screwed on, and enables the bulb to be safely carried in tool bag or pocket.

ELECTRIC REAR LAMP.



Illuminates the back number. plate and shows a red rear light. Strong, neat and compact. Best British manufacture throughout. Adjustable in all directions Can be easily fitted to any make of motor cycle and successfully withstands all vibration. Price **9/6.**

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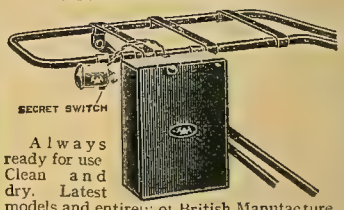
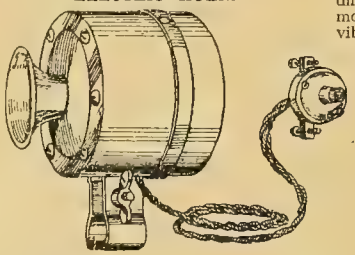


Always ready for use Clean and dry. Latest models and entirely of British Manufacture. The plating is heavy and of good quality. Operated by means of a secret switch. Price complete with wire and bulb. **7/6** Use "H.H" "HELLESEN" Post free. "Flash" type Dry Batteries, 4½ volt, 6/6.

NEW MOTOR CYCLE ELECTRIC HORN.



Self-contained with dry battery which is easily renewable. No accumulators, no trouble. Price **25/-** Spare batteries **2/6** per set.

NOTICE—We are having a special Demonstration of Drummond's Special Lathes all through the month of December in our Motor Department. A skilled demonstrator will answer any questions.

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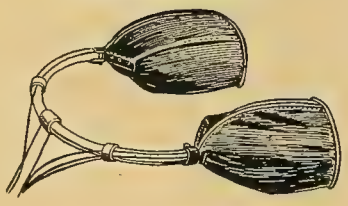

A great comfort to winter riders. These muffs are so arranged as to give perfect freedom for manipulating the control levers on handle-bar. Best quality brown leather, **22/6** per pair. Best quality black waterproof **15/6** per pair. Cheaper quality, **9/6** per pair. Carriage paid.

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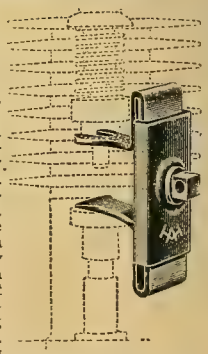

This year's invention. Lifts any weight, and is exceedingly strong. Measures only 2¼in. over all, and can be conveniently carried in the waistcoat pocket. The mode of operation can be easily seen by a glance at the accompanying illustration. The lifting movement is obtained by turning the square head with a wrench or piece of wire, the latter being placed through the hole provided. Price **2/6** Suitable for all engines. Post Free.

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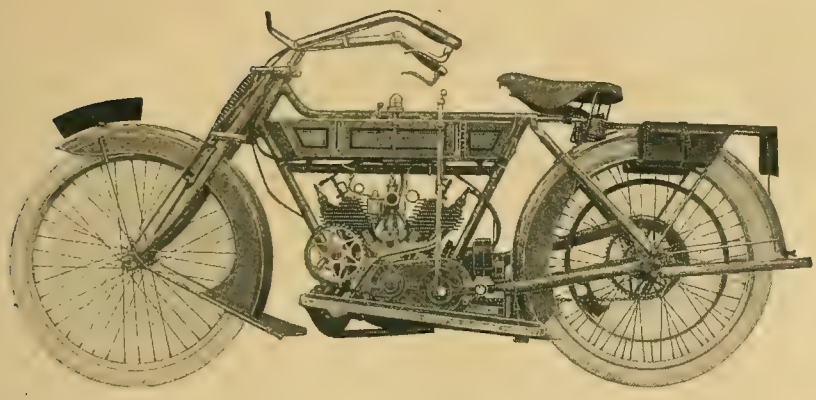

THE FIRST INDIAN TOURIST TROPHY RACE WAS WON ON A 2¾ h.p. ROYAL ENFIELD—exactly like this one.

The 2¾ h.p. Royal Enfield is a magnificent motor cycle at a reasonable price. Originally it was £52 10s.; now it is £45. This price is possible because the enormous demand for this machine has called for a larger supply—and the larger supply means a lessened cost of production.

NOTE THE SPECIFICATION. Enfield Patent Two-speed and Free-engine Gear, Chain Drive, Enfield Patent Cush Drive Rear Hub; Automatic Drip-feed Lubrication, comfortable Foot-boards, improved Spring Forks, Royal Enfield Handle-bar, Dunlop Tyres. All the luxury of chain drive and reliable Royal Enfield Gear at a popular price.

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Write for the new Royal Enfield motor catalogue. Also booklet "Something Done." Please mention "The Motor Cycle."

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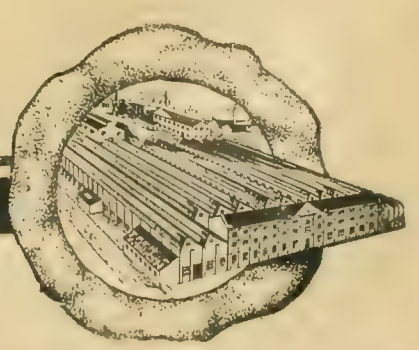
And 48, Holborn Viaduct, London, E.C. **Agents everywhere.**
Manufacturers of the 2¾ h.p., 3 h.p., and 6 h.p. (sidecar combination) Royal Enfield models.



Wonderful wear!

The altogether exceptional nature of the JOHN BULL MILEAGE COMPETITION and the altogether exceptional result justifies our frequent reference—

In this connection it cannot be too clearly stated that our first and only object in organizing this competition was to prove the unique value of the COMPRESSED RUBBER TREAD—an entirely exclusive feature of the

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And the result was that out of the hundreds of Cross Grooves used continuously during the period of the competition—January to September, 1913—and used on back wheels only and in all sorts of weather, 95% were still in use on the closing date, and the average mileage of all competitors on that date stood at

SOLO 2,774 —— **SIDECAR 2,024!**

"Wonderful wear"! and note that each competitor estimated the distance his tyre was still capable of covering, and the average of those estimates came out at SOLO 2,222, and SIDECAR 1,645!

And it means wonderful economy—you try it! First ask for latest booklet.

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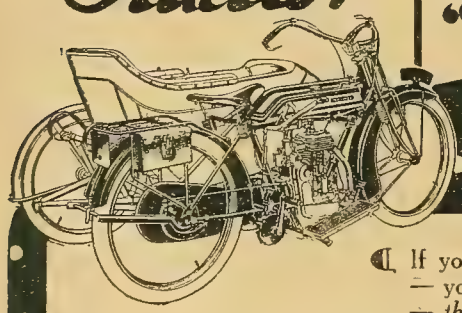

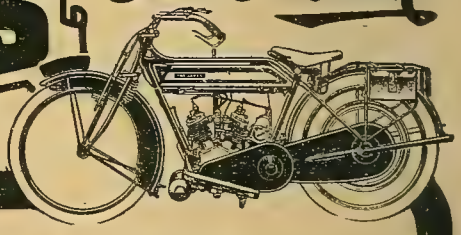

If you want a mount that will afford "perfect service" under all conditions — you want a "JAMES ALL-ENCASED CHAIN-DRIVE Model" — *the perfect Motor Cycle.*

The JAMES "BIG SINGLE" *The* original and only *perfect* "Big Single" Sidecar combination, embodying every up-to-date practice. It embodies a Big Single-cylinder engine, 600 c.c., "JAMES" Patent Countershaft Three-Speed Gear Box, Multiple Disc Free Engine Clutch, Kick-Starter, All-encased Weatherproof Chain Drive, and Spring Drive on rear Chain Wheel. Built expressly for SIDECAR work — but not being overpowered or unwieldy is quite suitable for solo use if desired. **73 Gns.**

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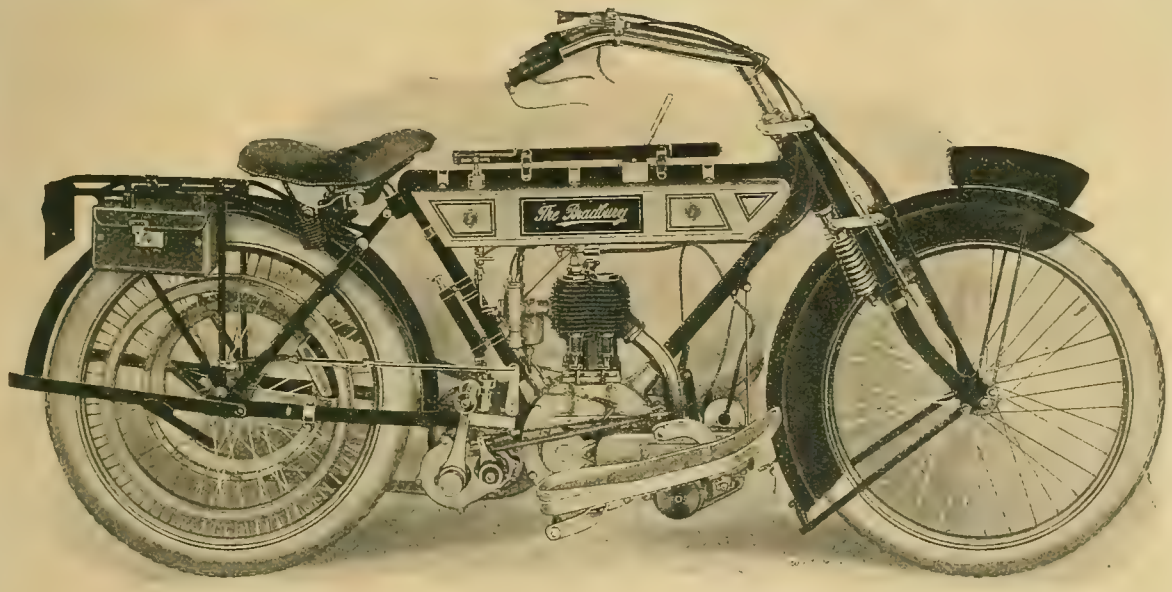
The JAMES Cycle Co., Ltd., BIRMINGHAM; and LONDON.

Birmingham Depot: 9, Broad Street Corner. **London Depot: 22, Holborn Viaduct, E.C.**

R.H.S.

The Bradbury

The Pioneer of the "Big Single."



BRADBURY 3½ h.p. (554 c.c.) Chain or Chain and Belt Drive Motor Cycle.
Fitted with Cork Clutch and Kick-starter. Handle-bar Control.

THE BEST SINGLE-CYLINDER SIDECAR MACHINE ON THE MARKET

Designed specially for Sidecar work, and built upon sound mechanical principles, the engine being of the square type, ensuring smooth running, light wear on Tyres, Belt, and other fittings. Large and Heavy Fly-wheels specially designed to suit engine capacity.

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3½ h.p. (554 c.c.) Standard Motor Cycle £48

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Please write for catalogue and we will put you in communication with our nearest agent.

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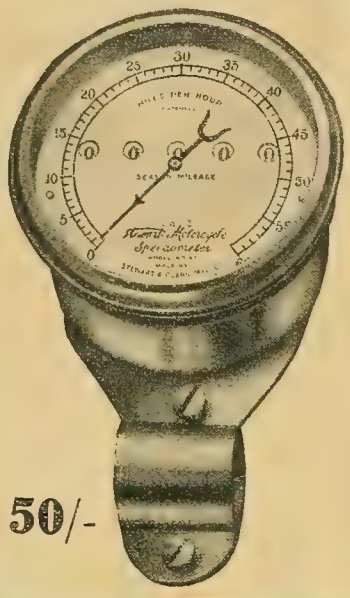
SPECIAL NOTICE.—We can now supply from stock our Two-speed Gear and Free Engine Pulley for belt-driven motor cycles to fit our 1909, 1910, 1911 and 1912 machines. They can be easily fitted by detaching the ordinary pulley and fitting the variable gear with adjustable pulley in its place, the rod for working the gear being attached to the top tube by means of a clip.

PRICE £7.

The "Stewart" is so good, our confidence in it so great, that we undertake to refund price of any "Stewart" not giving complete satisfaction, which is returned to us within 30 days of purchase.



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Motor Cycle Speedometer

Registers from ZERO. ACCURATE at all speeds. Can be read at a glance.

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GREAT SPEED ON THE LEVEL.

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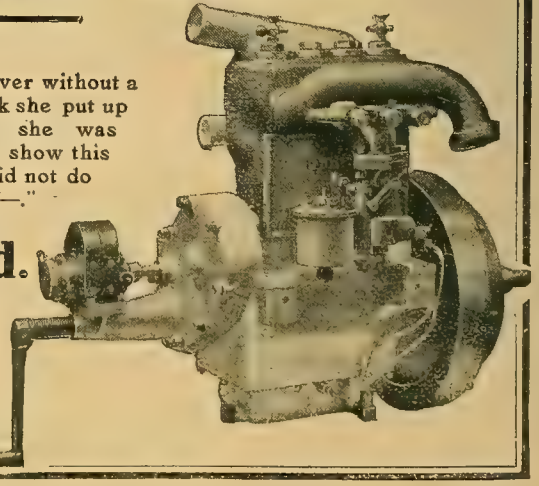
"The Engine ran in a magnificent way. She turned over without a tremor, and accelerated very nicely indeed. I think she put up a very marvellous performance, considering she was practically straight from the shop. You need not show this to the authorities, but between ourselves she did not do anything less than m.p.h. between — and —."



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Contractors to the WAR OFFICE and ADMIRALTY.

On the Manœuvres
and no punctures.

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We leave the following testimonial to tell its own story:

E. LONGLEY, Sergt.-Major R.E.
Instructor to Cambridge University Officers' Training Corps,
Market Street, Cambridge, *8th Nov.*, 1913, writes:

Sirs,—I am running a 1912 Triumph with a pair of your tyres, and write to say what entire satisfaction they are giving; at this moment they are away on my bike at the Triumph factory, where my machine is being overhauled, and it needed it after this year's manœuvres, but one thing I can say, the tyres came back after three weeks' hard riding in all sorts of weather, and if you have any idea of the country in which the manœuvres were carried out this year, you would be surprised at the condition in which the tyres came off; I never had a tyre go down, much less a puncture, in fact they are almost the same as when they left the shop of "Haywoods, King's Parade, Cambridge."

We were continually off the main road, up lanes, and frequently to and fro on bad roads cut up by cavalry and artillery over the Bledlow Ridge of the Chiltern Hills.

I have been five years in succession to manœuvres and not till this year have I realised the joy of feeling "puncture proof," which is what it amounts to.

I would like you to see the tyres, you would be surprised.

Bates SUPER RUBBER Tyres

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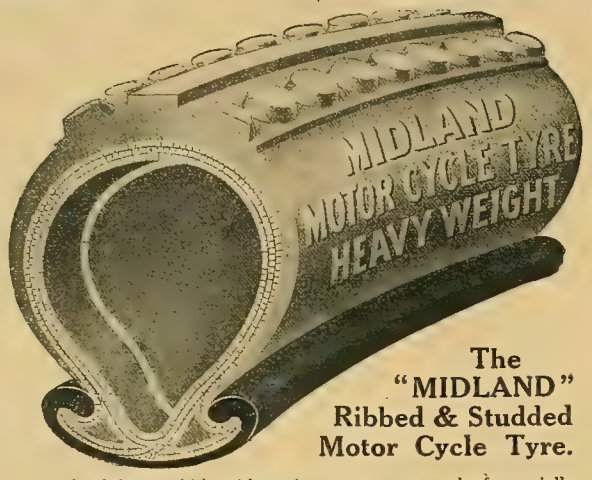
MIDLAND

MOTOR CYCLE TYRES AND BELTS



The "MIDLAND" Ribbed & Studded Motor Cycle Tyre.

A splendid anti-skid with a heavy centre tread of specially toughened rubber which is practically puncture-proof. A very resilient and long-wearing tyre. Guaranteed 3,000 miles.

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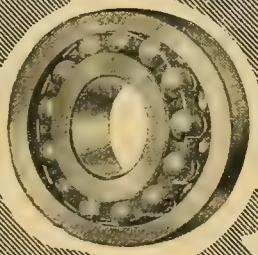

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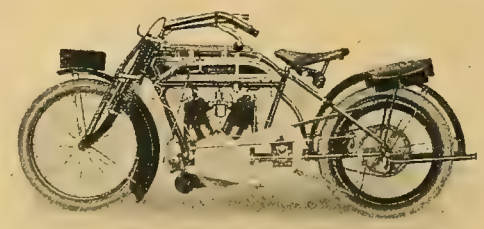

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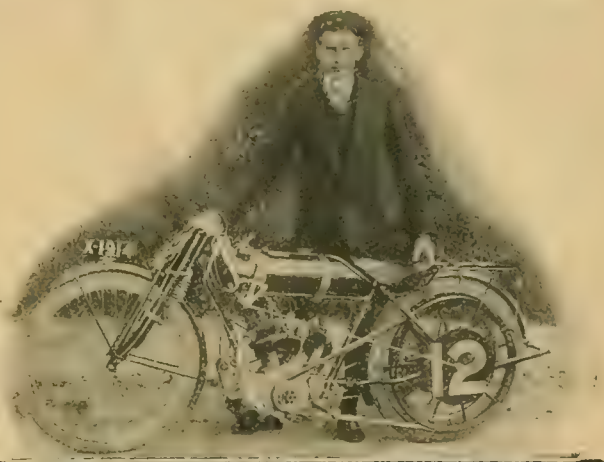

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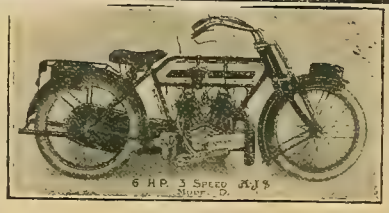

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BRADBURY, 1913, 2-speed, chain and belt drive, brand new, £49/10; Bradbury, 1913, free engine model, shop-soiled, £44; Excelsior, 4½h.p., 3-speed, Sturmey-Archer gear, new, to clear £51/10; Rex, 6h.p. De Luxe, 1913, brand new, to clear £52.—Motor Co., Hereford. [4865

VINDEC Special, 3½h.p., 1909, 1912 improvements, new tyres and belt, £18; Moto-Reve, 1913, 3-speed, 2½h.p., like new, £33; Brown 1913 F.E. lightweight, shop-soiled, £36; Singer, 1910½, 3½h.p., single gear, very reliable, £29/10; Enfield 6h.p. 1912 combination, cheap valuable spares, £59; Humber, 1912½, 2-speed, and sidecar, many accessories, £35; Humber, 2¾h.p., 1913, 3-speed, shop-soiled only, offers wanted; no reasonable offer refused either for cash or E.P.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [4780

MESSRS. PALMER and Kitson, South Eastern Garage, Herne Hill, London, S.E., guarantee all the following machines to be in running order: 3½h.p. 1912 Zenith-Gradua, £33; 5h.p. 1911 F.N., £22; 2¼h.p. Clement, £9; 1912 New Hudson, 3-speed, sidecar, £46; 1910 6h.p. 2-speed N.S.U. and sidecar £32; 2½h.p. Kerry, £9; 2½h.p. 1911 Motosacoche, £21; 3h.p. 1908 N.S.U., mag., £12; 4h.p. 1909½ Roc 2-speed, sidecar, £22; 3½h.p. Kerry-Abingdon, 1911 2-speed sidecar, £30; 1909 Triumph, £20; 1912 Triumph, F.E., £40; 3½h.p. 1910 Bradbury, £18; 1910 Kerry-Abingdon and sidecar, £28; 3h.p. Quadrant, £7. Accessories.—New Exhaust whistles, 5/-; Mabon clutch, suit lightweight, £2; Triumph pattern bars, all 5 controls, 25/-; Pillion seat, 7/6; earburetters, horns, inner tubes, covers, belts, etc. Write for lists.—South-Eastern Garage, as above. [8457

CYCLE CARS.

HUMBERETTES, water-cooled, in stock; write for special exchange terms.—Townley's Garage, Lancaster. [X9220

MORGAN Runabouts.—Exchanges quoted against any model.—Halifax Motor Exchange, Westgate, Halifax. [0386

ALLDAYS Midget; cost £150; used for demonstration purposes only, with all accessories, etc.; £119.—The Walsall Garage, Walsall. [X9966

10h.p. Singer, 1914, grey, complete with dynamo lighting set, ready to drive away; £204/10.—Cordingley, Haslingden. Tel.: 2Y. [X836

HUMBERETTE, 8h.p., hood, screen, lamps, only run 800 miles; first £60 secures; bought car.—Box 4,701, *The Motor Cycle* Offices, Coventry [X732

HUMBERETTE, 1913 model, only run 500 miles, complete hood, screen, lamps, horn, etc., like new; £90; exchanges.—Cordingley, Haslingden. Tel.: 2Y. [X830

HALIFAX.—G.W.K., Perry, Dew, Calthorpe Minor, and Morgan runabouts; prompt deliveries; exchanges accepted.—Halifax Motor Exchange, Westgate, Halifax. [0391

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WALL Tricarriage, 5h.p. Precision engine, 2 speeds, luxurious 2-seat. body, hood, screen, lamps, etc., new tyres; cost £110, £55.—The Premier Motor Co., Ltd., Aston Rd., Birmingham [0356

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SIDECAR (Turner.); cost £12, sacrifice, £8; new, cannot take delivery.—Box L3,436, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4623

CANOELET. Swan, and Middleton record breaking sidecar.—Sole wholesale agent London, Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [3533

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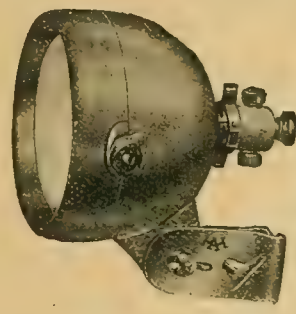

Fig. 883, as shown, **23/6** Complete Lamp.

Fig. 880. Large size, similar to above, but with screwed front, **21/-.**

Fig. 870. Small size, suitable for sidecar, **13/6.**

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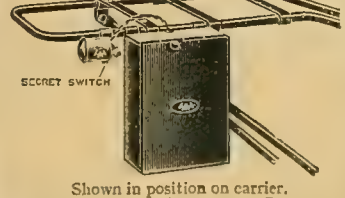

Shown in position on carrier.

Fig. 365K. Complete Lamp. **7/6** each.

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LONDON Middleton Agents, Rey, 173, Gt. Portland St., and 378-384, Euston Rd.

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VIOLET-BOGY, 2-cyl., water-cooled, friction drive, detachable wheels; £142/10.—Sole concessionaire, Rey, 378, Euston Rd. [4012

14h.p. B.S.A., smart little modern touring car, first-class condition, all accessories; £110 cash; would arrange part exchange.—4, Crescent Grove, Clapham Common, S.W. [5117

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PALMER'S Garage, Tooting.—Four Mercedes cars in stock; prices, £50 to £100. Write for details.

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ELITE. — 15% allowance on old belts off Avon, Midland, Dermatine, etc.—Elite Rubber Co., 260, Coldharbour Lane, Loughborough Junction, S.W. 'Phone: 2042 Brixton. List on application. [9069

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1912	2-speed **ENFIELD**	21 „
1912	„ „	25 „
1912	„ „	28 „
1912	Free engine **TRIUMPH,** as new	30 „
1913	„ **TRIUMPH,** „	36 „
1912	6 h.p. **REX** Sidecar and spares	37 „
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1913	2¾ h.p. **DOUGLAS,** 2-speed	36 „
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7/6 Allowance Guaranteed for old tyres for best quality 2¼ or 2½in. Avon, Continental, Kempshall, Hutchinson; liberal allowance for others. All makes supplied.—Taylor's Tyre Stockists, 21a, Store St., W.C. [0132

TYRES, Tyres.—Our telegraphic address is "Tyres," our speciality is tyres. New lists of all makes ready; trade only.—Graham and Co., Vine St., Birmingham. [6679

MOTOR Cycle and Car Tyres, new prices for 1914: Dunlops, Michelins, Continental, Avon, etc.; send for lists, save money.—Graham, Vine St., Birmingham. Liberal allowance for old covers. [0401

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MOTOR Cyclists.—Send us your covers before they go too far.

MOTOR Cyclists.—Do you require new covers? We offer you exceptional value as follows:

BRAND New Covers, size 26in.×2in. and 2½in., Suction Cup non-skid rubber tread, at 12/6 and 15/- each respectively.

BRAND New Rubber-studded Non-skid covers, size 26in.×2in. and 2½in., at 14/6 and 16/- each respectively.

WE Can Offer You one of the finest covers out for 18/6 each (everyone else sells them at 22/6 each). We make a charge of 6d. each cover extra for postage, owing to our competitive prices.

WE Have on Hand several excellent Dunlop and Michelin wired edge covers, size 26in.×2½in., which have been used for testing purposes, from 5/- to 10/- each; beaded edge ditto.

PLEASE Write Us. Send us your requirements, and we will willingly forward any goods on 7 days' approval and return cash in full if not fully satisfied. This is our method of doing business.

KINDLY Note.—We do not send samples.—Redfield Rubber Company, Bristol. T.A.: Rubber, Bristol. Tel.: 3577. [X26

LEGGATE, Edinburgh.—For great reductions and special value in brand new clearance 1913 Clinchers, the tyre that is famous the world over for quality, resiliency, durability, and non-skidding properties. Make the Clincher your safeguard.—See below for approval terms.

LEGGATE, Edinburgh.—Clearance.—1913 Clincher Dreadnought, very heavy, rubber studded, beaded covers, 26×2 30/-, list £2/4/6; 26×2¼ 32/6, list £2/7/3; 26×2½ 35/6, list £2/10. The Dreadnought is specially designed for use on fast touring machines and has a tread half an inch thick.

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LEGGATE, Edinburgh.—Above goods are all brand new, and sent anywhere on 7 days' approval against cash, which will be refunded in full if goods not approved of.

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ELITE.—Avon 650×65 heavy square tread covers, 22/6; steel-studded 35/-; combination, 35/-; Midland cycle car covers, 650×65, 25/- each.

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ELITE.—Genuine Clincher extra heavy tubes, 26×2 4/9, 26×2¼ 5/3, 26×2½ 5/6.

ELITE.—Clincher de Luxe, 26×2⅜ 37/6, list price 45/6; Clincher, B grade, 26×2¼ 23/6, list 27/6.

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THE Proprietor of British Patent No. 21,228, of 1902, for "Motor cycle frames," is desirous of entering into arrangements with British manufacturers with a view to the sale or commercial exploitation of the invention protected by the said Letters Patent. Interested parties are invited to communicate with the undersigned for further particulars.—Henry Skerrett, Chartered Patent Agent, 24, Temple Row, Birmingham. [5128

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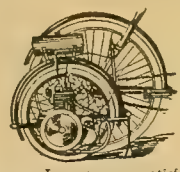

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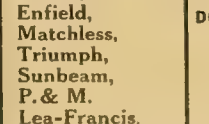

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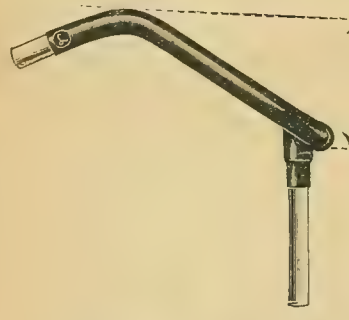

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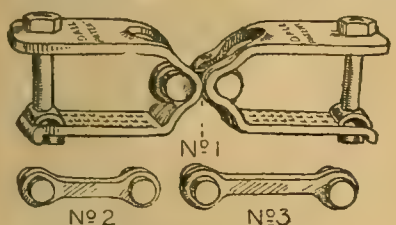

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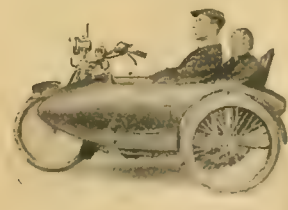

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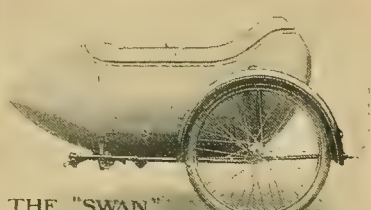

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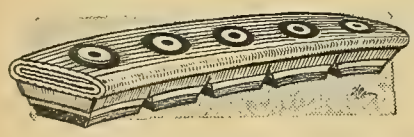

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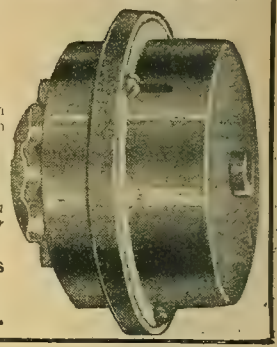

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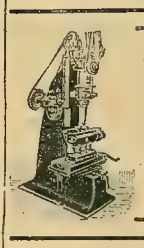

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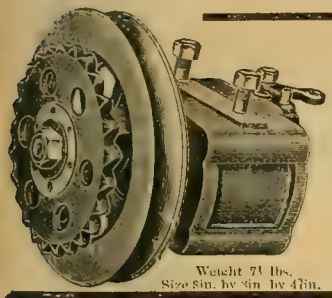

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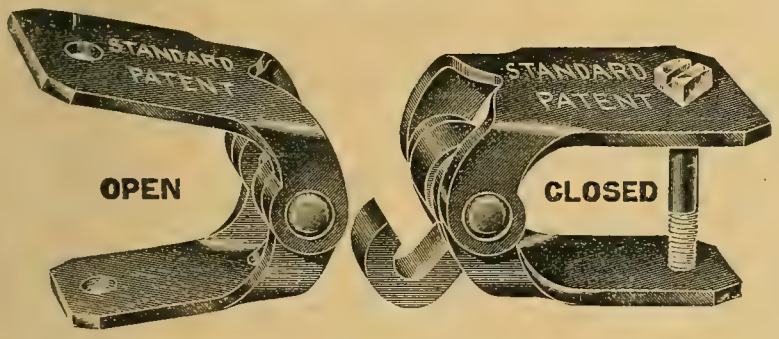

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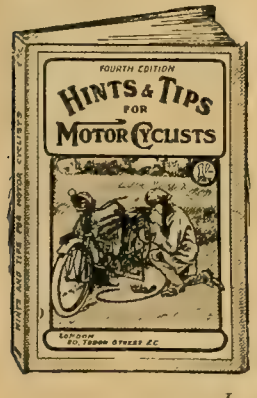

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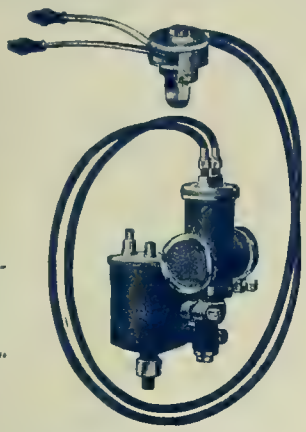

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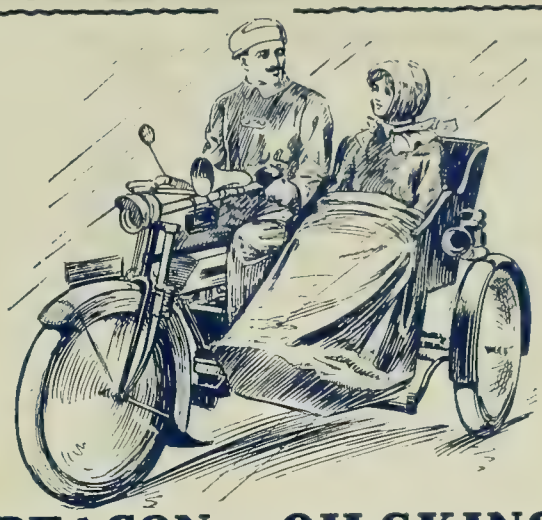

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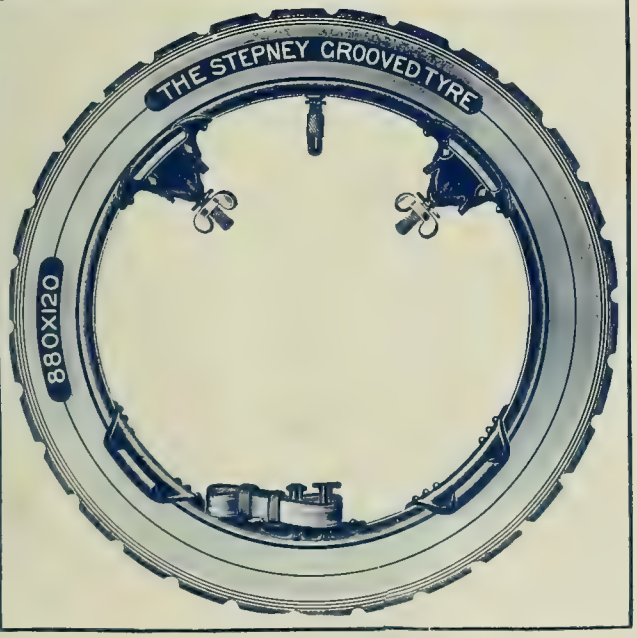

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